Paperless Recorder PG10 / PG20 / PG30

Modbus Communication Manual

Sixth Sense™ by Instrumart **1st Edition, 08/2015**

1. Input Register Parameter Table for Modbus RTU Slave / TCP Server

1.1 AI / DI / DO / AO Area (Integer Type)

Modbus Address	Notation	Register Name	Access
1	Reserve	Reserve	R
2	AI1	AI 1 process value	R
3	AI2	AI 2 process value	R
4	AI3	AI 3 process value	R
5	AI4	AI 4 process value	R
6	AI5	AI 5 process value	R
7	AI6	AI 6 process value	R
8	AI7	AI 7 process value	R
9	AI8	AI 8 process value	R
10	AI9	AI 9 process value	R
11	AI10	AI 10 process value	R
12	AI11	AI 11 process value	R
13	AI12	AI 12 process value	R
14	AI13	AI 13 process value	R
15	AI14	AI 14 process value	R
16	AI15	AI 15 process value	R
17	AI16	AI 16 process value	R
18	AI17	AI 17 process value	R
19	AI18	AI 18 process value	R
20	AI19	AI 19 process value	R
21	AI20	AI 20 process value	R
22	AI21	AI 21 process value	R
23	AI22	AI 22 process value	R
24	AI23	AI 23 process value	R
25	AI24	AI 24 process value	R
26	AI25	AI 25 process value	R
27	AI26	AI 26 process value	R
28	AI27	AI 27 process value	R
29	AI28	AI 28 process value	R
30	AI29	AI 29 process value	R
31	AI30	AI 30 process value	R

32	AI31	AI 31 process value	R
33	AI32	AI 32 process value	R
34	AI33	AI 33 process value	R
35	AI34	AI 34 process value	R
36	AI35	AI 35 process value	R
37	AI36	AI 36 process value	R
38	AI37	AI 37 process value	R
39	AI38	AI 38 process value	R
40	AI39	AI 39 process value	R
41	AI40	AI 40 process value	R
42	AI41	AI 41 process value	R
43	AI42	AI 42 process value	R
44	AI43	AI 43 process value	R
45	AI44	AI 44 process value	R
46	AI45	AI 45 process value	R
47	AI46	AI 46 process value	R
48	AI47	AI 47 process value	R
49	AI48	AI 48 process value	R
50	DI1	DI 1 process value	R
51	DI2	DI 2 process value	R
52	DI3	DI 3 process value	R
53	DI4	DI 4 process value	R
54	DI5	DI 5 process value	R
55	DI6	DI 6 process value	R
56	DI7	DI 7 process value	R
57	DI8	DI 8 process value	R
58	DI9	DI 9 process value	R
59	DI10	DI 10 process value	R
60	DI11	DI 11 process value	R
61	DI12	DI 12 process value	R
62	DI13	DI 13 process value	R
63	DI14	DI 14 process value	R
64	DI15	DI 15 process value	R
65	DI16	DI 16 process value	R
66	DI17	DI 17 process value	R
67	DI18	DI 18 process value	R

68	DI19	DI 19 process value	R
69	DI20	DI 20 process value	R
70	DI21	DI 21 process value	R
71	DI22	DI 22 process value	R
72	DI23	DI 23 process value	R
73	DI24	DI 24 process value	R
74	DO1	DO 1 process value	R
75	DO2	DO 2 process value	R
76	DO3	DO 3 process value	R
77	DO4	DO 4 process value	R
78	DO5	DO 5 process value	R
79	DO6	DO 6 process value	R
80	DO7	DO 7 process value	R
81	DO8	DO 8 process value	R
82	DO9	DO 9 process value	R
83	DO10	DO 10 process value	R
84	DO11	DO 11 process value	R
85	DO12	DO 12 process value	R
86	DO13	DO 13 process value	R
87	DO14	DO 14 process value	R
88	DO15	DO 15 process value	R
89	DO16	DO 16 process value	R
90	DO17	DO 17 process value	R
91	DO18	DO 18 process value	R
92	DO19	DO 19 process value	R
93	DO20	DO 20 process value	R
94	DO21	DO 21 process value	R
95	DO22	DO 22 process value	R
96	DO23	DO 23 process value	R
97	DO24	DO 24 process value	R
98	AO1	AO 1 process value	R
99	AO2	AO 2 process value	R
100	AO3	AO 3 process value	R
101	AO4	AO 4 process value	R
102	AO5	AO 5 process value	R
103	AO6	AO 6 process value	R

104	AO7	AO 7 process value	R
105	AO8	AO 8 process value	R
106	AO9	AO 9 process value	R
107	AO10	AO 10 process value	R
108	AO11	AO 11 process value	R
109	AO12	AO 12 process value	R

* *Note: If the register value is 65534, which value represents communication error.*

1.2 AI / DI / DO / AO Area (Float Type)

Modbus Address	Notation	Register Name	Access
1001	Reserve	Reserve	R
1003	AI1	AI 1 process value	R
1005	AI2	AI 2 process value	R
1007	AI3	AI 3 process value	R
1009	AI4	AI 4 process value	R
1011	AI5	AI 5 process value	R
1013	AI6	AI 6 process value	R
1015	AI7	AI 7 process value	R
1017	AI8	AI 8 process value	R
1019	AI9	AI 9 process value	R
1021	AI10	AI 10 process value	R
1023	AI11	AI 11 process value	R
1025	AI12	AI 12 process value	R
1027	AI13	AI 13 process value	R
1029	AI14	AI 14 process value	R
1031	AI15	AI 15 process value	R
1033	AI16	AI 16 process value	R
1035	AI17	AI 17 process value	R
1037	AI18	AI 18 process value	R
1039	AI19	AI 19 process value	R
1041	AI20	AI 20 process value	R
1043	AI21	AI 21 process value	R
1045	AI22	AI 22 process value	R
1047	AI23	AI 23 process value	R
1049	AI24	AI 24 process value	R
1051	AI25	AI 25 process value	R
1053	AI26	AI 26 process value	R
1055	AI27	AI 27 process value	R
1057	AI28	AI 28 process value	R
1059	AI29	AI 29 process value	R
1061	AI30	AI 30 process value	R
1063	AI31	AI 31 process value	R
1065	AI32	AI 32 process value	R
1067	AI33	AI 33 process value	R

1069	AI34	AI 34 process value	R
1071	AI35	AI 35 process value	R
1073	AI36	AI 36 process value	R
1075	AI37	AI 37 process value	R
1077	AI38	AI 38 process value	R
1079	AI39	AI 39 process value	R
1081	AI40	AI 40 process value	R
1083	AI41	AI 41 process value	R
1085	AI42	AI 42 process value	R
1087	AI43	AI 43 process value	R
1089	AI44	AI 44 process value	R
1091	AI45	AI 45 process value	R
1093	AI46	AI 46 process value	R
1095	AI47	AI 47 process value	R
1097	AI48	AI 48 process value	R
1099	DI1	DI 1 process value	R
1101	DI2	DI 2 process value	R
1103	DI3	DI 3 process value	R
1105	DI4	DI 4 process value	R
1107	DI5	DI 5 process value	R
1109	DI6	DI 6 process value	R
1111	DI7	DI 7 process value	R
1113	DI8	DI 8 process value	R
1115	DI9	DI 9 process value	R
1117	DI10	DI 10 process value	R
1119	DI11	DI 11 process value	R
1121	DI12	DI 12 process value	R
1123	DI13	DI 13 process value	R
1125	DI14	DI 14 process value	R
1127	DI15	DI 15 process value	R
1129	DI16	DI 16 process value	R
1131	DI17	DI 17 process value	R
1133	DI18	DI 18 process value	R
1135	DI19	DI 19 process value	R
1137	DI20	DI 20 process value	R
1139	DI21	DI 21 process value	R

1141	DI22	DI 22 process value	R
1143	DI23	DI 23 process value	R
1145	DI24	DI 24 process value	R
1147	DO1	DO 1 process value	R
1149	DO2	DO 2 process value	R
1151	DO3	DO 3 process value	R
1153	DO4	DO 4 process value	R
1155	DO5	DO 5 process value	R
1157	DO6	DO 6 process value	R
1159	DO7	DO 7 process value	R
1161	DO8	DO 8 process value	R
1163	DO9	DO 9 process value	R
1165	DO10	DO 10 process value	R
1167	DO11	DO 11 process value	R
1169	DO12	DO 12 process value	R
1171	DO13	DO 13 process value	R
1173	DO14	DO 14 process value	R
1175	DO15	DO 15 process value	R
1177	DO16	DO 16 process value	R
1179	DO17	DO 17 process value	R
1181	DO18	DO 18 process value	R
1183	DO19	DO 19 process value	R
1185	DO20	DO 20 process value	R
1187	DO21	DO 21 process value	R
1189	DO22	DO 22 process value	R
1191	DO23	DO 23 process value	R
1193	DO24	DO 24 process value	R
1195	AO1	AO 1 process value	R
1197	AO2	AO 2 process value	R
1199	AO3	AO 3 process value	R
1201	AO4	AO 4 process value	R
1203	AO5	AO 5 process value	R
1205	AO6	AO 6 process value	R
1207	AO7	AO 7 process value	R
1209	AO8	AO 8 process value	R
1211	AO9	AO 9 process value	R

1213	AO10	AO 10 process value	R
1215	AO11	AO 11 process value	R
1217	AO12	AO 12 process value	R

* *Note: If the register value is 3.0+E38, which value represents communication error.*

1.3 Math Area (Integer Type)

Modbus Address	Notation	Register Name	Access
201	Math1	Math 1 process value high word	R
202	Math1	Math 1 process value low word	R
203	Math2	Math 2 process value high word	R
204	Math2	Math 2 process value low word	R
205	Math3	Math 3 process value high word	R
206	Math3	Math 3 process value low word	R
207	Math4	Math 4 process value high word	R
208	Math4	Math 4 process value low word	R
209	Math5	Math 5 process value high word	R
210	Math5	Math 5 process value low word	R
211	Math6	Math 6 process value high word	R
212	Math6	Math 6 process value low word	R
213	Math7	Math 7 process value high word	R
214	Math7	Math 7 process value low word	R
215	Math8	Math 8 process value high word	R
216	Math8	Math 8 process value low word	R
217	Math9	Math 9 process value high word	R
218	Math9	Math 9 process value low word	R
219	Math10	Math 10 process value high word	R
220	Math10	Math 10 process value low word	R
221	Math11	Math 11 process value high word	R
222	Math11	Math 11 process value low word	R
223	Math12	Math 12 process value high word	R
224	Math12	Math 12 process value low word	R
225	Math13	Math 13 process value high word	R
226	Math13	Math 13 process value low word	R
227	Math14	Math 14 process value high word	R
228	Math14	Math 14 process value low word	R
229	Math15	Math 15 process value high word	R
230	Math15	Math 15 process value low word	R
231	Math16	Math 16 process value high word	R
232	Math16	Math 16 process value low word	R
233	Math17	Math 17 process value high word	R
234	Math17	Math 17 process value low word	R

235	Math18	Math 18 process value high word	R
236	Math18	Math 18 process value low word	R
237	Math19	Math 19 process value high word	R
238	Math19	Math 19 process value low word	R
239	Math20	Math 20 process value high word	R
240	Math20	Math 20 process value low word	R
241	Math21	Math 21 process value high word	R
242	Math21	Math 21 process value low word	R
243	Math22	Math 22 process value high word	R
244	Math22	Math 22 process value low word	R
245	Math23	Math 23 process value high word	R
246	Math23	Math 23 process value low word	R
247	Math24	Math 24 process value high word	R
248	Math24	Math 24 process value low word	R
249	Math25	Math 25 process value high word	R
250	Math25	Math 25 process value low word	R
251	Math26	Math 26 process value high word	R
252	Math26	Math 26 process value low word	R
253	Math27	Math 27 process value high word	R
254	Math27	Math 27 process value low word	R
255	Math28	Math 28 process value high word	R
256	Math28	Math 28 process value low word	R
257	Math29	Math 29 process value high word	R
258	Math29	Math 29 process value low word	R
259	Math30	Math 30 process value high word	R
260	Math30	Math 30 process value low word	R
261	Math31	Math 31 process value high word	R
262	Math31	Math 31 process value low word	R
263	Math32	Math 32 process value high word	R
264	Math32	Math 32 process value low word	R
265	Math33	Math 33 process value high word	R
266	Math33	Math 33 process value low word	R
267	Math34	Math 34 process value high word	R
268	Math34	Math 34 process value low word	R
269	Math35	Math 35 process value high word	R
270	Math35	Math 35 process value low word	R

271	Math36	Math 36 process value high word	R
272	Math36	Math 36 process value low word	R
273	Math37	Math 37 process value high word	R
274	Math37	Math 37 process value low word	R
275	Math38	Math 38 process value high word	R
276	Math38	Math 38 process value low word	R
277	Math39	Math 39 process value high word	R
278	Math39	Math 39 process value low word	R
279	Math40	Math 40 process value high word	R
280	Math40	Math 40 process value low word	R
281	Math41	Math 41 process value high word	R
282	Math41	Math 41 process value low word	R
283	Math42	Math 42 process value high word	R
284	Math42	Math 42 process value low word	R
285	Math43	Math 43 process value high word	R
286	Math43	Math 43 process value low word	R
287	Math44	Math 44 process value high word	R
288	Math44	Math 44 process value low word	R
289	Math45	Math 45 process value high word	R
290	Math45	Math 45 process value low word	R
291	Math46	Math 46 process value high word	R
292	Math46	Math 46 process value low word	R
293	Math47	Math 47 process value high word	R
294	Math47	Math 47 process value low word	R
295	Math48	Math 48 process value high word	R
296	Math48	Math 48 process value low word	R
297	Math49	Math 49 process value high word	R
298	Math49	Math 49 process value low word	R
299	Math50	Math 50 process value high word	R
300	Math50	Math 50 process value low word	R
301	Math51	Math 51 process value high word	R
302	Math51	Math 51 process value low word	R
303	Math52	Math 52 process value high word	R
304	Math52	Math 52 process value low word	R
305	Math53	Math 53 process value high word	R
306	Math53	Math 53 process value low word	R

307	Math54	Math 54 process value high word	R
308	Math54	Math 54 process value low word	R
309	Math55	Math 55 process value high word	R
310	Math55	Math 55 process value low word	R
311	Math56	Math 56 process value high word	R
312	Math56	Math 56 process value low word	R
313	Math57	Math 57 process value high word	R
314	Math57	Math 57 process value low word	R
315	Math58	Math 58 process value high word	R
316	Math58	Math 58 process value low word	R
317	Math59	Math 59 process value high word	R
318	Math59	Math 59 process value low word	R
319	Math60	Math 60 process value high word	R
320	Math60	Math 60 process value low word	R

* *Note: If the register value is 4294967294, which value represents communication error.*

1.4 Math Area (Float Type)

Modbus Address	Notation	Register Name	Access
1401	Math1	Math 1 process value	R
1403	Math2	Math 2 process value	R
1405	Math3	Math 3 process value	R
1407	Math4	Math 4 process value	R
1409	Math5	Math 5 process value	R
1411	Math6	Math 6 process value	R
1413	Math7	Math 7 process value	R
1415	Math8	Math 8 process value	R
1417	Math9	Math 9 process value	R
1419	Math10	Math 10 process value	R
1421	Math11	Math 11 process value	R
1423	Math12	Math 12 process value	R
1425	Math13	Math 13 process value	R
1427	Math14	Math 14 process value	R
1429	Math15	Math 15 process value	R
1431	Math16	Math 16 process value	R
1433	Math17	Math 17 process value	R
1435	Math18	Math 18 process value	R
1437	Math19	Math 19 process value	R
1439	Math20	Math 20 process value	R
1441	Math21	Math 21 process value	R
1443	Math22	Math 22 process value	R
1445	Math23	Math 23 process value	R
1447	Math24	Math 24 process value	R
1449	Math25	Math 25 process value	R
1451	Math26	Math 26 process value	R
1453	Math27	Math 27 process value	R
1455	Math28	Math 28 process value	R
1457	Math29	Math 29 process value	R
1459	Math30	Math 30 process value	R
1461	Math31	Math 31 process value	R
1463	Math32	Math 32 process value	R
1465	Math33	Math 33 process value	R
1467	Math34	Math 34 process value	R

1469	Math35	Math 35 process value	R
1471	Math36	Math 36 process value	R
1473	Math37	Math 37 process value	R
1475	Math38	Math 38 process value	R
1477	Math39	Math 39 process value	R
1479	Math40	Math 40 process value	R
1481	Math41	Math 41 process value	R
1483	Math42	Math 42 process value	R
1485	Math43	Math 43 process value	R
1487	Math44	Math 44 process value	R
1489	Math45	Math 45 process value	R
1491	Math46	Math 46 process value	R
1493	Math47	Math 47 process value	R
1495	Math48	Math 48 process value	R
1497	Math49	Math 49 process value	R
1499	Math50	Math 50 process value	R
1501	Math51	Math 51 process value	R
1503	Math52	Math 52 process value	R
1505	Math53	Math 53 process value	R
1507	Math54	Math 54 process value	R
1509	Math55	Math 55 process value	R
1511	Math56	Math 56 process value	R
1513	Math57	Math 57 process value	R
1515	Math58	Math 58 process value	R
1517	Math59	Math 59 process value	R
1519	Math60	Math 60 process value	R

* *Note: If the register value is 3.0+E38, which value represents communication error.*

1.5 Controller Area (Integer Type)

Modbus Address	Notation	Register Name	Access
401	C1_PV	Current process value	R
402	C1_SV	Current set point Value	R
403	C1_PVMD	PV mode selection[1] 0 : PV1 1 : PV2 2 : PV1 - 2 3 : PV2 - 1	R
404	C1_IN1U	IN1 unit selection[2] 0 : ℃ 1 : ℉ 2 : PU	R
405	C1_IN2U	IN2 unit selection[3] 0 : ℃ 1 : ℉ 2 : PU	R
406	C1_MV1	Current output 1 value	R
407	C1_MV2	Current output 2 value	R
408	C1_ALM	Contains conditional code of parameters' resolution and current alarm status[4]	R
409	C1_ERROR	Current error code[5]	R
410	C1_SPMD	Set point mode selection[6] 0 : SP1.2 1 : MIN.R 2 : HR.R 3 : PV1 4 : PV2 5 : PUMP	R
411	C1_EIFN	Event input function[7] 0 : None 1 : SP2 2 : PID2 3 : SP.P2 4 : RS.A1 5 : RS.A2 6 : R.A1.2	R

		7 : D.O1 8 : D.O2 9 : D.O1.2 10 : LOCK	
412	Reserve	Reserve	R
413	C1_SP1	Set point 1	R
414	C1_SP2	Set point 2	R
415	C1_Profile	Profile number	R
416	C1_Segment	Segment number	R
417	C1_Cycle	Cycle remaining for the current loop	R
418	C1_Run	Profile running	R
419	C1_Hold	Profile held	R
420	C1_Up	Running ramp up segment	R
421	C1_Down	Running ramp down segment	R
422	C1_Unit	Current input unit	R
423	C1_ProfileERROR	Profile error 0 : Normal 1 : Holdback timeout	R
424	C2_PV	Current process value	R
425	C2_SV	Current set point Value	R
426	C2_PVMD	PV mode selection[1] 0 : PV1 1 : PV2 2 : PV1 - 2 3 : PV2 - 1	R
427	C2_IN1U	IN1 unit selection[2] 0 : ℃ 1 : ℉ 2 : PU	R
428	C2_IN2U	IN2 unit selection[3] 0 : ℃ 1 : ℉ 2 : PU	R
429	C2_MV1	Current output 1 value	R
430	C2_MV2	Current output 2 value	R
431	C2_ALM	Contains conditional code of parameters' resolution and current alarm status[4]	R

432	C2_ERROR	Current error code[5]	R
433	C2_SPMD	Set point mode selection[6] 0 : SP1.2 1 : MIN.R 2 : HR.R 3 : PV1 4 : PV2 5 : PUMP	R
434	C2_EIFN	Event input function[7] 0 : None 1 : SP2 2 : PID2 3 : SP.P2 4 : RS.A1 5 : RS.A2 6 : R.A1.2 7 : D.O1 8 : D.O2 9 : D.O1.2 10 : LOCK	R
435	Reserve	Reserve	R
436	C2_SP1	Set point 1	R
437	C2_SP2	Set point 2	R
438	C2_Profile	Profile number	R
439	C2_Segment	Segment number	R
440	C2_Cycle	Cycle remaining for the current loop	R
441	C2_Run	Profile running	R
442	C2_Hold	Profile held	R
443	C2_Up	Running ramp up segment	R
444	C2_Down	Running ramp down segment	R
445	C2_Unit	Current input unit	R
446	C2_ProfileERROR	Profile error 0 : Normal 1 : Holdback timeout	R
447	C3_PV	Current process value	R
448	C3_SV	Current set point Value	R
449	C3_PVMD	PV mode selection[1]	R

		0 : PV1 1 : PV2 2 : PV1 - 2 3 : PV2 - 1	
450	C3_IN1U	IN1 unit selection[2] 0 : ℃ 1 : ℉ 2 : PU	R
451	C3_IN2U	IN2 unit selection[3] 0 : ℃ 1 : ℉ 2 : PU	R
452	C3_MV1	Current output 1 value	R
453	C3_MV2	Current output 2 value	R
454	C3_ALM	Contains conditional code of parameters' resolution and current alarm status[4]	R
455	C3_ERROR	Current error code[5]	R
456	C3_SPMD	Set point mode selection[6] 0 : SP1.2 1 : MIN.R 2 : HR.R 3 : PV1 4 : PV2 5 : PUMP	R
457	C3_EIFN	Event input function[7] 0 : None 1 : SP2 2 : PID2 3 : SP.P2 4 : RS.A1 5 : RS.A2 6 : R.A1.2 7 : D.O1 8 : D.O2 9 : D.O1.2 10 : LOCK	R
458	Reserve	Reserve	R
459	C3_SP1	Set point 1	R

460	C3_SP2	Set point 2	R
461	C3_Profile	Profile number	R
462	C3_Segment	Segment number	R
463	C3_Cycle	Cycle remaining for the current loop	R
464	C3_Run	Profile running	R
465	C3_Hold	Profile held	R
466	C3_Up	Running ramp up segment	R
467	C3_Down	Running ramp down segment	R
468	C3_Unit	Current input unit	R
469	C3_ProfileERROR	Profile error 0 : Normal 1 : Holdback timeout	R
470	C4_PV	Current process value	R
471	C4_SV	Current set point Value	R
472	C4_PVMD	PV mode selection[1] 0 : PV1 1 : PV2 2 : PV1 - 2 3 : PV2 - 1	R
473	C4_IN1U	IN1 unit selection[2] 0 : ℃ 1 : ℉ 2 : PU	R
474	C4_IN2U	IN2 unit selection[3] 0 : ℃ 1 : ℉ 2 : PU	R
475	C4_MV1	Current output 1 value	R
476	C4_MV2	Current output 2 value	R
477	C4_ALM	Contains conditional code of parameters' resolution and current alarm status[4]	R
478	C4_ERROR	Current error code[5]	R
479	C4_SPMD	Set point mode selection[6] 0 : SP1.2 1 : MIN.R 2 : HR.R 3 : PV1	R

		4 : PV2 5 : PUMP	
480	C4_EIFN	Event input function[7] 0 : None 1 : SP2 2 : PID2 3 : SP.P2 4 : RS.A1 5 : RS.A2 6 : R.A1.2 7 : D.O1 8 : D.O2 9 : D.O1.2 10 : LOCK	R
481	Reserve	Reserve	R
482	C4_SP1	Set point 1	R
483	C4_SP2	Set point 2	R
484	C4_Profile	Profile number	R
485	C4_Segment	Segment number	R
486	C4_Cycle	Cycle remaining for the current loop	R
487	C4_Run	Profile running	R
488	C4_Hold	Profile held	R
489	C4_Up	Running ramp up segment	R
490	C4_Down	Running ramp down segment	R
491	C4_Unit	Current input unit	R
492	C4_ProfileERROR	Profile error 0 : Normal 1 : Holdback timeout	R
493	C5_PV	Current process value	R
494	C5_SV	Current set point Value	R
495	C5_PVMD	PV mode selection[1] 0 : PV1 1 : PV2 2 : PV1 - 2 3 : PV2 - 1	R
496	C5_IN1U	IN1 unit selection[2] 0 : ℃	R

		1 : ℉ 2 : PU	
497	C5_IN2U	IN2 unit selection[3] 0 : ℃ 1 : ℉ 2 : PU	R
498	C5_MV1	Current output 1 value	R
499	C5_MV2	Current output 2 value	R
500	C5_ALM	Contains conditional code of parameters' resolution and current alarm status[4]	R
501	C5_ERROR	Current error code[5]	R
502	C5_SPMD	Set point mode selection[6] 0 : SP1.2 1 : MIN.R 2 : HR.R 3 : PV1 4 : PV2 5 : PUMP	R
503	C5_EIFN	Event input function[7] 0 : None 1 : SP2 2 : PID2 3 : SP.P2 4 : RS.A1 5 : RS.A2 6 : R.A1.2 7 : D.O1 8 : D.O2 9 : D.O1.2 10 : LOCK	R
504	Reserve	Reserve	R
505	C5_SP1	Set point 1	R
506	C5_SP2	Set point 2	R
507	C5_Profile	Profile number	R
508	C5_Segment	Segment number	R
509	C5_Cycle	Cycle remaining for the current loop	R
510	C5_Run	Profile running	R

511	C5_Hold	Profile held	R
512	C5_Up	Running ramp up segment	R
513	C5_Down	Running ramp down segment	R
514	C5_Unit	Current input unit	R
515	C5_ProfileERROR	Profile error 0 : Normal 1 : Holdback timeout	R
516	C6_PV	Current process value	R
517	C6_SV	Current set point Value	R
518	C6_PVMD	PV mode selection[1] 0 : PV1 1 : PV2 2 : PV1 - 2 3 : PV2 - 1	R
519	C6_IN1U	IN1 unit selection[2] 0 : ℃ 1 : ℉ 2 : PU	R
520	C6_IN2U	IN2 unit selection[3] 0 : ℃ 1 : ℉ 2 : PU	R
521	C6_MV1	Current output 1 value	R
522	C6_MV2	Current output 2 value	R
523	C6_ALM	Contains conditional code of parameters' resolution and current alarm status[4]	R
524	C6_ERROR	Current error code[5]	R
525	C6_SPMD	Set point mode selection[6] 0 : SP1.2 1 : MIN.R 2 : HR.R 3 : PV1 4 : PV2 5 : PUMP	R
526	C6_EIFN	Event input function[7] 0 : None 1 : SP2	R

		2 : PID2 3 : SP.P2 4 : RS.A1 5 : RS.A2 6 : R.A1.2 7 : D.O1 8 : D.O2 9 : D.O1.2 10 : LOCK	
527	Reserve	Reserve	R
528	C6_SP1	Set point 1	R
529	C6_SP2	Set point 2	R
530	C6_Profile	Profile number	R
531	C6_Segment	Segment number	R
532	C6_Cycle	Cycle remaining for the current loop	R
533	C6_Run	Profile running	R
534	C6_Hold	Profile held	R
535	C6_Up	Running ramp up segment	R
536	C6_Down	Running ramp down segment	R
537	C6_Unit	Current input unit	R
538	C6_ProfileERROR	Profile error 0 : Normal 1 : Holdback timeout	R

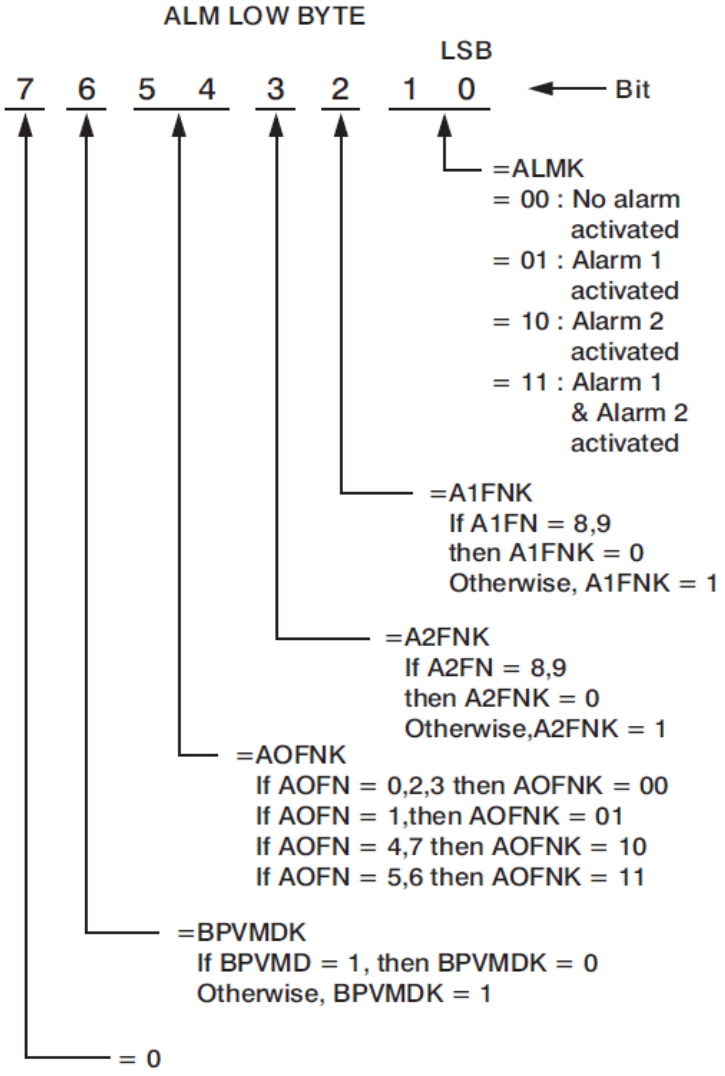
Note 1 : PVMD

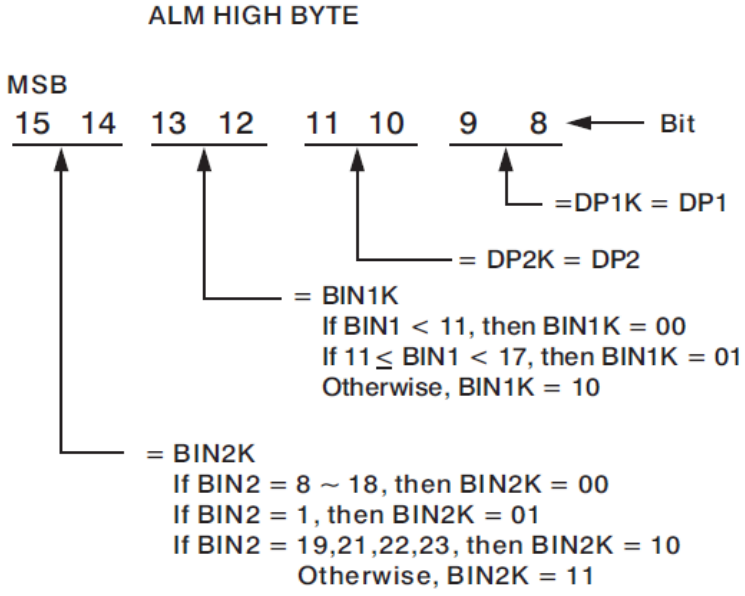
Parameter Value	Display Symbol	Description
0	PV1	Use PV1 as process value
1	PV2	Use PV2 as process value
2	P1 - 2	Use PV1 - PV2 (difference) as process value
3	P2 - 1	Use PV2 - PV1 (difference) as process value

Note 2, 3: IN1/IN2 unit

Parameter Value	Display Symbol	Description
0	℃	Degree C unit
1	℉	Degree F unit
2	PU	Process unit

Note 4 : ALM


ALM LOW BYTE
LSB
7 6 5 4 3 2 1 0
Bit
=ALMK
= 00 : No alarm activated
= 01 : Alarm 1 activated
= 10 : Alarm 2 activated
= 11 : Alarm 1 & Alarm 2 activated
=A1FNK
If A1FN = 8,9
then A1FNK = 0
Otherwise, A1FNK = 1
=A2FNK
If A2FN = 8,9
then A2FNK = 0
Otherwise,A2FNK = 1
=AOFNK
If AOFN = 0,2,3 then AOFNK = 00
If AOFN = 1,then AOFNK = 01
If AOFN = 4,7 then AOFNK = 10
If AOFN = 5,6 then AOFNK = 11
=BPVMDK
If BPVMD = 1, then BPVMDK = 0
Otherwise, BPVMDK = 1
= 0


ALM HIGH BYTE
MSB
15 14 13 12 11 10 9 8
Bit
=DP1K = DP1
= DP2K = DP2
= BIN1K
If BIN1 < 11, then BIN1K = 00
If 11≤ BIN1 < 17, then BIN1K = 01
Otherwise, BIN1K = 10
= BIN2K
If BIN2 = 8 ~ 18, then BIN2K = 00
If BIN2 = 1, then BIN2K = 01
If BIN2 = 19,21,22,23, then BIN2K = 10
Otherwise, BIN2K = 11

Note 5 : Error Code

Error Code	Error Description
1	Illegal setup values used: PV1 is used for both PVMD and SPMD that is meaningless for control
2	Illegal setup values used: PV2 is used for both PVMD and SPMD that is meaningless for control
3	Illegal setup values used: P1-2 or P2-1 is used for PVMD while PV1 or PV2 is used for SPMD. Dependent values are used for PV and SV will produce incorrect result of control
4	Illegal setup values used: COOL is used for OUT2, but DIRT (cooling action) is already used for OUT1 or PID mode is not used for OUT1 (that is PB1 or PB2 =0, and TI1 or TI2 =0)
5	Illegal setup values used: unequal IN1U and IN2U or unequal DP1 and DP2 while P1-2 or P2-1 is used for PVMD or, PV1 or PV2 is used for SPMD or, P1.2.H, P1.2.L, D1.2.H or D1.2.L are used for A1FN or A2FN
6	Illegal setup values used: OUT2 select =AL2 but A2FN select NONE
7	Illegal setup values used: Dwell timer (TIMR) is selected for both A1FN and A2FN
17	Computing error: Illegal floating point data
18	Computing error: Arithmetic result overflow or underflow
19	Computing error: divided by zero
20	Computing error: Illegal BCD data entry
21	Timing error: A to D conversion data error due to overrun
26	Fail to perform auto-tuning function
27	Incorrect calibration procedure or tolerance of analog component too big to meet specified accuracy
32	Cold junction compensation device(s) malfunction
34	Input 2 (IN2) signal too low
35	Input 2 (IN2) signal too high
36	Input 1 (IN1) signal too low
37	Input 1 (IN1) signal too high
38	Input 2 (IN2) sensor break, or input 2 current below 1 mA if 4-20 mA is selected, or input 2 voltage below 0.25V if 1 - 5V is selected
39	Input 1 (IN1) sensor break, or input 1 current below 1 mA if 4-20 mA is selected, or input 1 voltage below 0.25V if 1 - 5V is selected
40	A to D converter or related component(s) malfunction

Note 6: SPMD

Parameter Value	Display Symbol	Description
0	SP1.2	Use SP1 or SP2 (depends on EIFN) as set point
1	MIN.R	Use minute ramp rate as set point
2	HR.R	Use hour ramp rate as set point
3	PV1	Use IN1 process value as set point
4	PV2	Use IN2 process value as set point
5	PUMP	Selected for pump control

Note 7: EIFN

Parameter Value	Display Symbol	Description
0	NONE	Event input no function
1	SP2	SP2 activated to replace SP1
2	PID2	PB2, TI2, TD2 activated to replace PB1, TI1, TD1
3	SP.P2	SP2, PB2, TI2, TD2 activated to replace SP1, PB1, TI1, TD1
4	RS.A1	Reset alarm 1 output
5	RS.A2	Reset alarm 2 output
6	R.A1.2	Reset alarm 1 & alarm 2
7	D.O1	Disable Output 1
8	D.O2	Disable Output 2
9	D.O1.2	Disable Output 1 & Output 2
10	LOCK	Lock all parameters

1.6 Controller Area (Float Type)

Modbus Address	Notation	Register Name	Access
1601	C1_PV	Current process value	R
1603	C1_SV	Current set point Value	R
1605	C1_PVMD	PV mode selection[1] 0 : PV1 1 : PV2 2 : PV1 - 2 3 : PV2 - 1	R
1607	C1_IN1U	IN1 unit selection[2] 0 : ℃ 1 : ℉ 2 : PU	R
1609	C1_IN2U	IN2 unit selection[3] 0 : ℃ 1 : ℉ 2 : PU	R
1611	C1_MV1	Current output 1 value	R
1613	C1_MV2	Current output 2 value	R
1615	C1_ALM	Contains conditional code of parameters' resolution and current alarm status[4]	R
1617	C1_ERROR	Current error code[5]	R
1619	C1_SPMD	Set point mode selection[6] 0 : SP1.2 1 : MIN.R 2 : HR.R 3 : PV1 4 : PV2 5 : PUMP	R
1621	C1_EIFN	Event input function[7] 0 : None 1 : SP2 2 : PID2 3 : SP.P2 4 : RS.A1 5 : RS.A2	R

		6 : R.A1.2 7 : D.O1 8 : D.O2 9 : D.O1.2 10 : LOCK	
1623	Reserve	Reserve	R
1625	C1_SP1	Set point 1	R
1627	C1_SP2	Set point 2	R
1629	C1_Profile	Profile number	R
1631	C1_Segment	Segment number	R
1633	C1_Cycle	Cycle remaining for the current loop	R
1635	C1_Run	Profile running	R
1637	C1_Hold	Profile held	R
1639	C1_Up	Running ramp up segment	R
1641	C1_Down	Running ramp down segment	R
1643	C1_Unit	Current input unit	R
1645	C1_ProfileERROR	Profile error 0 : Normal 1 : Holdback timeout	R
1647	C2_PV	Current process value	R
1649	C2_SV	Current set point Value	R
1651	C2_PVMD	PV mode selection[1] 0 : PV1 1 : PV2 2 : PV1 - 2 3 : PV2 - 1	R
1653	C2_IN1U	IN1 unit selection[2] 0 : ℃ 1 : ℉ 2 : PU	R
1655	C2_IN2U	IN2 unit selection[3] 0 : ℃ 1 : ℉ 2 : PU	R
1657	C2_MV1	Current output 1 value	R
1659	C2_MV2	Current output 2 value	R
1661	C2_ALM	Contains conditional code of parameters'	R

		resolution and current alarm status[4]	
1663	C2_ERROR	Current error code[5]	R
1665	C2_SPMD	Set point mode selection[6] 0 : SP1.2 1 : MIN.R 2 : HR.R 3 : PV1 4 : PV2 5 : PUMP	R
1667	C2_EIFN	Event input function[7] 0 : None 1 : SP2 2 : PID2 3 : SP.P2 4 : RS.A1 5 : RS.A2 6 : R.A1.2 7 : D.O1 8 : D.O2 9 : D.O1.2 10 : LOCK	R
1669	Reserve	Reserve	R
1671	C2_SP1	Set point 1	R
1673	C2_SP2	Set point 2	R
1675	C2_Profile	Profile number	R
1677	C2_Segment	Segment number	R
1679	C2_Cycle	Cycle remaining for the current loop	R
1681	C2_Run	Profile running	R
1683	C2_Hold	Profile held	R
1685	C2_Up	Running ramp up segment	R
1687	C2_Down	Running ramp down segment	R
1689	C2_Unit	Current input unit	R
1691	C2_ProfileERROR	Profile error 0 : Normal 1 : Holdback timeout	R
1693	C3_PV	Current process value	R
1695	C3_SV	Current set point Value	R

1697	C3_PVMD	PV mode selection[1] 0 : PV1 1 : PV2 2 : PV1 - 2 3 : PV2 - 1	R
1699	C3_IN1U	IN1 unit selection[2] 0 : ℃ 1 : ℉ 2 : PU	R
1701	C3_IN2U	IN2 unit selection[3] 0 : ℃ 1 : ℉ 2 : PU	R
1703	C3_MV1	Current output 1 value	R
1705	C3_MV2	Current output 2 value	R
1707	C3_ALM	Contains conditional code of parameters' resolution and current alarm status[4]	R
1709	C3_ERROR	Current error code[5]	R
1711	C3_SPMD	Set point mode selection[6] 0 : SP1.2 1 : MIN.R 2 : HR.R 3 : PV1 4 : PV2 5 : PUMP	R
1713	C3_EIFN	Event input function[7] 0 : None 1 : SP2 2 : PID2 3 : SP.P2 4 : RS.A1 5 : RS.A2 6 : R.A1.2 7 : D.O1 8 : D.O2 9 : D.O1.2 10 : LOCK	R
1715	Reserve	Reserve	R

1717	C3_SP1	Set point 1	R
1719	C3_SP2	Set point 2	R
1721	C3_Profile	Profile number	R
1723	C3_Segment	Segment number	R
1725	C3_Cycle	Cycle remaining for the current loop	R
1727	C3_Run	Profile running	R
1729	C3_Hold	Profile held	R
1731	C3_Up	Running ramp up segment	R
1733	C3_Down	Running ramp down segment	R
1735	C3_Unit	Current input unit	R
1737	C3_ProfileERROR	Profile error 0 : Normal 1 : Holdback timeout	R
1739	C4_PV	Current process value	R
1741	C4_SV	Current set point Value	R
1743	C4_PVMD	PV mode selection[1] 0 : PV1 1 : PV2 2 : PV1 - 2 3 : PV2 - 1	R
1745	C4_IN1U	IN1 unit selection[2] 0 : ℃ 1 : ℉ 2 : PU	R
1747	C4_IN2U	IN2 unit selection[3] 0 : ℃ 1 : ℉ 2 : PU	R
1749	C4_MV1	Current output 1 value	R
1751	C4_MV2	Current output 2 value	R
1753	C4_ALM	Contains conditional code of parameters' resolution and current alarm status[4]	R
1755	C4_ERROR	Current error code[5]	R
1757	C4_SPMD	Set point mode selection[6] 0 : SP1.2 1 : MIN.R 2 : HR.R	R

		3 : PV1 4 : PV2 5 : PUMP	
1759	C4_EIFN	Event input function[7] 0 : None 1 : SP2 2 : PID2 3 : SP.P2 4 : RS.A1 5 : RS.A2 6 : R.A1.2 7 : D.O1 8 : D.O2 9 : D.O1.2 10 : LOCK	R
1761	Reserve	Reserve	R
1763	C4_SP1	Set point 1	R
1765	C4_SP2	Set point 2	R
1767	C4_Profile	Profile number	R
1769	C4_Segment	Segment number	R
1771	C4_Cycle	Cycle remaining for the current loop	R
1773	C4_Run	Profile running	R
1775	C4_Hold	Profile held	R
1777	C4_Up	Running ramp up segment	R
1779	C4_Down	Running ramp down segment	R
1781	C4_Unit	Current input unit	R
1783	C4_ProfileERROR	Profile error 0 : Normal 1 : Holdback timeout	R
1785	C5_PV	Current process value	R
1787	C5_SV	Current set point Value	R
1789	C5_PVMD	PV mode selection[1] 0 : PV1 1 : PV2 2 : PV1 - 2 3 : PV2 - 1	R
1791	C5_IN1U	IN1 unit selection[2]	R

		0 : ℃ 1 : ℉ 2 : PU	
1793	C5_IN2U	IN2 unit selection[3] 0 : ℃ 1 : ℉ 2 : PU	R
1795	C5_MV1	Current output 1 value	R
1797	C5_MV2	Current output 2 value	R
1799	C5_ALM	Contains conditional code of parameters' resolution and current alarm status[4]	R
1801	C5_ERROR	Current error code[5]	R
1803	C5_SPMD	Set point mode selection[6] 0 : SP1.2 1 : MIN.R 2 : HR.R 3 : PV1 4 : PV2 5 : PUMP	R
1805	C5_EIFN	Event input function[7] 0 : None 1 : SP2 2 : PID2 3 : SP.P2 4 : RS.A1 5 : RS.A2 6 : R.A1.2 7 : D.O1 8 : D.O2 9 : D.O1.2 10 : LOCK	R
1807	Reserve	Reserve	R
1809	C5_SP1	Set point 1	R
1811	C5_SP2	Set point 2	R
1813	C5_Profile	Profile number	R
1815	C5_Segment	Segment number	R
1817	C5_Cycle	Cycle remaining for the current loop	R

1819	C5_Run	Profile running	R
1821	C5_Hold	Profile held	R
1823	C5_Up	Running ramp up segment	R
1825	C5_Down	Running ramp down segment	R
1827	C5_Unit	Current input unit	R
1829	C5_ProfileERROR	Profile error 0 : Normal 1 : Holdback timeout	R
1831	C6_PV	Current process value	R
1833	C6_SV	Current set point Value	R
1835	C6_PVMD	PV mode selection[1] 0 : PV1 1 : PV2 2 : PV1 - 2 3 : PV2 - 1	R
1837	C6_IN1U	IN1 unit selection[2] 0 : ℃ 1 : ℉ 2 : PU	R
1839	C6_IN2U	IN2 unit selection[3] 0 : ℃ 1 : ℉ 2 : PU	R
1841	C6_MV1	Current output 1 value	R
1843	C6_MV2	Current output 2 value	R
1845	C6_ALM	Contains conditional code of parameters' resolution and current alarm status[4]	R
1847	C6_ERROR	Current error code[5]	R
1849	C6_SPMD	Set point mode selection[6] 0 : SP1.2 1 : MIN.R 2 : HR.R 3 : PV1 4 : PV2 5 : PUMP	R
1851	C6_EIFN	Event input function[7] 0 : None	R

		1 : SP2 2 : PID2 3 : SP.P2 4 : RS.A1 5 : RS.A2 6 : R.A1.2 7 : D.O1 8 : D.O2 9 : D.O1.2 10 : LOCK	
1853	Reserve	Reserve	R
1855	C6_SP1	Set point 1	R
1857	C6_SP2	Set point 2	R
1859	C6_Profile	Profile number	R
1861	C6_Segment	Segment number	R
1863	C6_Cycle	Cycle remaining for the current loop	R
1865	C6_Run	Profile running	R
1867	C6_Hold	Profile held	R
1869	C6_Up	Running ramp up segment	R
1871	C6_Down	Running ramp down segment	R
1873	C6_Unit	Current input unit	R
1875	C6_ProfileERROR	Profile error 0 : Normal 1 : Holdback timeout	R

2. Holding Register Parameter Table for Modbus RTU Slave / TCP Server

2.1 2 Bytes Type Area (Integer Type)

Modbus Address	Notation	Register Name	Access
1	Ext1	Measured data on External 1	R/W
2	Ext2	Measured data on External 2	R/W
3	Ext3	Measured data on External 3	R/W
4	Ext4	Measured data on External 4	R/W
5	Ext5	Measured data on External 5	R/W
6	Ext6	Measured data on External 6	R/W
7	Ext7	Measured data on External 7	R/W
8	Ext8	Measured data on External 8	R/W
9	Ext9	Measured data on External 9	R/W
10	Ext10	Measured data on External 10	R/W
11	Ext11	Measured data on External 11	R/W
12	Ext12	Measured data on External 12	R/W
13	Ext13	Measured data on External 13	R/W
14	Ext14	Measured data on External 14	R/W
15	Ext15	Measured data on External 15	R/W
16	Ext16	Measured data on External 16	R/W
17	Ext17	Measured data on External 17	R/W
18	Ext18	Measured data on External 18	R/W
19	Ext19	Measured data on External 19	R/W
20	Ext20	Measured data on External 20	R/W
21	Ext21	Measured data on External 21	R/W
22	Ext22	Measured data on External 22	R/W
23	Ext23	Measured data on External 23	R/W
24	Ext24	Measured data on External 24	R/W
25	Ext25	Measured data on External 25	R/W
26	Ext26	Measured data on External 26	R/W
27	Ext27	Measured data on External 27	R/W
28	Ext28	Measured data on External 28	R/W
29	Ext29	Measured data on External 29	R/W
30	Ext30	Measured data on External 30	R/W

31	Ext31	Measured data on External 31	R/W
32	Ext32	Measured data on External 32	R/W
33	Ext33	Measured data on External 33	R/W
34	Ext34	Measured data on External 34	R/W
35	Ext35	Measured data on External 35	R/W
36	Ext36	Measured data on External 36	R/W
37	Ext37	Measured data on External 37	R/W
38	Ext38	Measured data on External 38	R/W
39	Ext39	Measured data on External 39	R/W
40	Ext40	Measured data on External 40	R/W
41	Ext41	Measured data on External 41	R/W
42	Ext42	Measured data on External 42	R/W
43	Ext43	Measured data on External 43	R/W
44	Ext44	Measured data on External 44	R/W
45	Ext45	Measured data on External 45	R/W
46	Ext46	Measured data on External 46	R/W
47	Ext47	Measured data on External 47	R/W
48	Ext48	Measured data on External 48	R/W
49	Ext49	Measured data on External 49	R/W
50	Ext50	Measured data on External 50	R/W
51	Ext51	Measured data on External 51	R/W
52	Ext52	Measured data on External 52	R/W
53	Ext53	Measured data on External 53	R/W
54	Ext54	Measured data on External 54	R/W
55	Ext55	Measured data on External 55	R/W
56	Ext56	Measured data on External 56	R/W
57	Ext57	Measured data on External 57	R/W
58	Ext58	Measured data on External 58	R/W
59	Ext59	Measured data on External 59	R/W
60	Ext60	Measured data on External 60	R/W
61	Ext61	Measured data on External 61	R/W
62	Ext62	Measured data on External 62	R/W
63	Ext63	Measured data on External 63	R/W
64	Ext64	Measured data on External 64	R/W
65	Ext65	Measured data on External 65	R/W
66	Ext66	Measured data on External 66	R/W

67	Ext67	Measured data on External 67	R/W
68	Ext68	Measured data on External 68	R/W
69	Ext69	Measured data on External 69	R/W
70	Ext70	Measured data on External 70	R/W
71	Ext71	Measured data on External 71	R/W
72	Ext72	Measured data on External 72	R/W
73	Ext73	Measured data on External 73	R/W
74	Ext74	Measured data on External 74	R/W
75	Ext75	Measured data on External 75	R/W
76	Ext76	Measured data on External 76	R/W
77	Ext77	Measured data on External 77	R/W
78	Ext78	Measured data on External 78	R/W
79	Ext79	Measured data on External 79	R/W
80	Ext80	Measured data on External 80	R/W
81	Ext81	Measured data on External 81	R/W
82	Ext82	Measured data on External 82	R/W
83	Ext83	Measured data on External 83	R/W
84	Ext84	Measured data on External 84	R/W
85	Ext85	Measured data on External 85	R/W
86	Ext86	Measured data on External 86	R/W
87	Ext87	Measured data on External 87	R/W
88	Ext88	Measured data on External 88	R/W
89	Ext89	Measured data on External 89	R/W
90	Ext90	Measured data on External 90	R/W
91	Ext91	Measured data on External 91	R/W
92	Ext92	Measured data on External 92	R/W
93	Ext93	Measured data on External 93	R/W
94	Ext94	Measured data on External 94	R/W
95	Ext95	Measured data on External 95	R/W
96	Ext96	Measured data on External 96	R/W

* *Note: If the register value is 65534, which value represents communication error.*

2.2 4 Bytes Type Area (Integer Type)

Modbus Address	Notation	Register Name	Access
201	Ext1	The high word of measured data is on External 1	R/W
202	Ext1	The low word of measured data is on External 1	R/W
203	Ext2	The high word of measured data is on External 2	R/W
204	Ext2	The low word of measured data is on External 2	R/W
205	Ext3	The high word of measured data is on External 3	R/W
206	Ext3	The low word of measured data is on External 3	R/W
207	Ext4	The high word of measured data is on External 4	R/W
208	Ext4	The low word of measured data is on External 4	R/W
209	Ext5	The high word of measured data is on External 5	R/W
210	Ext5	The low word of measured data is on External 5	R/W
211	Ext6	The high word of measured data is on External 6	R/W
212	Ext6	The low word of measured data is on External 6	R/W
213	Ext7	The high word of measured data is on External 7	R/W
214	Ext7	The low word of measured data is on External 7	R/W
215	Ext8	The high word of measured data is on External 8	R/W
216	Ext8	The low word of measured data is on External 8	R/W
217	Ext9	The high word of measured data is on External 9	R/W

218	Ext9	The low word of measured data is on External 9	R/W
219	Ext10	The high word of measured data is on External 10	R/W
220	Ext10	The low word of measured data is on External 10	R/W
221	Ext11	The high word of measured data is on External 11	R/W
222	Ext11	The low word of measured data is on External 11	R/W
223	Ext12	The high word of measured data is on External 12	R/W
224	Ext12	The low word of measured data is on External 12	R/W
225	Ext13	The high word of measured data is on External 13	R/W
226	Ext13	The low word of measured data is on External 13	R/W
227	Ext14	The high word of measured data is on External 14	R/W
228	Ext14	The low word of measured data is on External 14	R/W
229	Ext15	The high word of measured data is on External 15	R/W
230	Ext15	The low word of measured data is on External 15	R/W
231	Ext16	The high word of measured data is on External 16	R/W
232	Ext16	The low word of measured data is on External 16	R/W
233	Ext17	The high word of measured data is on External 17	R/W
234	Ext17	The low word of measured data is on External 17	R/W
235	Ext18	The high word of measured data is on External 18	R/W
236	Ext18	The low word of measured data is on	R/W

		External 18	
237	Ext19	The high word of measured data is on External 19	R/W
238	Ext19	The low word of measured data is on External 19	R/W
239	Ext20	The high word of measured data is on External 20	R/W
240	Ext20	The low word of measured data is on External 20	R/W
241	Ext21	The high word of measured data is on External 21	R/W
242	Ext21	The low word of measured data is on External 21	R/W
243	Ext22	The high word of measured data is on External 22	R/W
244	Ext22	The low word of measured data is on External 22	R/W
245	Ext23	The high word of measured data is on External 23	R/W
246	Ext23	The low word of measured data is on External 23	R/W
247	Ext24	The high word of measured data is on External 24	R/W
248	Ext24	The low word of measured data is on External 24	R/W
249	Ext25	The high word of measured data is on External 25	R/W
250	Ext25	The low word of measured data is on External 25	R/W
251	Ext26	The high word of measured data is on External 26	R/W
252	Ext26	The low word of measured data is on External 26	R/W
253	Ext27	The high word of measured data is on External 27	R/W
254	Ext27	The low word of measured data is on External 27	R/W

255	Ext28	The high word of measured data is on External 28	R/W
256	Ext28	The low word of measured data is on External 28	R/W
257	Ext29	The high word of measured data is on External 29	R/W
258	Ext29	The low word of measured data is on External 29	R/W
259	Ext30	The high word of measured data is on External 30	R/W
260	Ext30	The low word of measured data is on External 30	R/W
261	Ext31	The high word of measured data is on External 31	R/W
262	Ext31	The low word of measured data is on External 31	R/W
263	Ext32	The high word of measured data is on External 32	R/W
264	Ext32	The low word of measured data is on External 32	R/W
265	Ext33	The high word of measured data is on External 33	R/W
266	Ext33	The low word of measured data is on External 33	R/W
267	Ext34	The high word of measured data is on External 34	R/W
268	Ext34	The low word of measured data is on External 34	R/W
269	Ext35	The high word of measured data is on External 35	R/W
270	Ext35	The high word of measured data is on External 35	R/W
271	Ext36	The high word of measured data is on External 36	R/W
272	Ext36	The low word of measured data is on External 36	R/W
273	Ext37	The high word of measured data is on	R/W

		External 37	
274	Ext37	The low word of measured data is on External 37	R/W
275	Ext38	The high word of measured data is on External 38	R/W
276	Ext38	The low word of measured data is on External 38	R/W
277	Ext39	The high word of measured data is on External 39	R/W
278	Ext39	The low word of measured data is on External 39	R/W
279	Ext40	The high word of measured data is on External 40	R/W
280	Ext40	The low word of measured data is on External 40	R/W
281	Ext41	The high word of measured data is on External 41	R/W
282	Ext41	The low word of measured data is on External 41	R/W
283	Ext42	The high word of measured data is on External 42	R/W
284	Ext42	The low word of measured data is on External 42	R/W
285	Ext43	The high word of measured data is on External 43	R/W
286	Ext43	The low word of measured data is on External 43	R/W
287	Ext44	The high word of measured data is on External 44	R/W
288	Ext44	The low word of measured data is on External 44	R/W
289	Ext45	The high word of measured data is on External 45	R/W
290	Ext45	The low word of measured data is on External 45	R/W
291	Ext46	The high word of measured data is on External 46	R/W

292	Ext46	The low word of measured data is on External 46	R/W
293	Ext47	The high word of measured data is on External 47	R/W
294	Ext47	The low word of measured data is on External 47	R/W
295	Ext48	The high word of measured data is on External 48	R/W
296	Ext48	The low word of measured data is on External 48	R/W
297	Ext49	The high word of measured data is on External 49	R/W
298	Ext49	The low word of measured data is on External 49	R/W
299	Ext50	The high word of measured data is on External 50	R/W
300	Ext50	The low word of measured data is on External 50	R/W
301	Ext51	The high word of measured data is on External 51	R/W
302	Ext51	The low word of measured data is on External 51	R/W
303	Ext52	The high word of measured data is on External 52	R/W
304	Ext52	The low word of measured data is on External 52	R/W
305	Ext53	The high word of measured data is on External 53	R/W
306	Ext53	The low word of measured data is on External 53	R/W
307	Ext54	The high word of measured data is on External 54	R/W
308	Ext54	The low word of measured data is on External 54	R/W
309	Ext55	The high word of measured data is on External 55	R/W
310	Ext55	The low word of measured data is on	R/W

		External 55	
311	Ext56	The high word of measured data is on External 56	R/W
312	Ext56	The low word of measured data is on External 56	R/W
313	Ext57	The high word of measured data is on External 57	R/W
314	Ext57	The low word of measured data is on External 57	R/W
315	Ext58	The high word of measured data is on External 58	R/W
316	Ext58	The low word of measured data is on External 58	R/W
317	Ext59	The high word of measured data is on External 59	R/W
318	Ext59	The low word of measured data is on External 59	R/W
319	Ext60	The high word of measured data is on External 60	R/W
320	Ext60	The low word of measured data is on External 60	R/W
321	Ext61	The high word of measured data is on External 61	R/W
322	Ext61	The low word of measured data is on External 61	R/W
323	Ext62	The high word of measured data is on External 62	R/W
324	Ext62	The low word of measured data is on External 62	R/W
325	Ext63	The high word of measured data is on External 63	R/W
326	Ext63	The low word of measured data is on External 63	R/W
327	Ext64	The high word of measured data is on External 64	R/W
328	Ext64	The low word of measured data is on External 64	R/W

329	Ext65	The high word of measured data is on External 65	R/W
330	Ext65	The low word of measured data is on External 65	R/W
331	Ext66	The high word of measured data is on External 66	R/W
332	Ext66	The low word of measured data is on External 66	R/W
333	Ext67	The high word of measured data is on External 67	R/W
334	Ext67	The low word of measured data is on External 67	R/W
335	Ext68	The high word of measured data is on External 68	R/W
336	Ext68	The low word of measured data is on External 68	R/W
337	Ext69	The high word of measured data is on External 69	R/W
338	Ext69	The low word of measured data is on External 69	R/W
339	Ext70	The high word of measured data is on External 70	R/W
340	Ext70	The low word of measured data is on External 70	R/W
341	Ext71	The high word of measured data is on External 71	R/W
342	Ext71	The low word of measured data is on External 71	R/W
343	Ext72	The high word of measured data is on External 72	R/W
344	Ext72	The low word of measured data is on External 72	R/W
345	Ext73	The high word of measured data is on External 73	R/W
346	Ext73	The low word of measured data is on External 73	R/W
347	Ext74	The high word of measured data is on	R/W

		External 74	
348	Ext74	The low word of measured data is on External 74	R/W
349	Ext75	The high word of measured data is on External 75	R/W
350	Ext75	The low word of measured data is on External 75	R/W
351	Ext76	The high word of measured data is on External 76	R/W
352	Ext76	The low word of measured data is on External 76	R/W
353	Ext77	The high word of measured data is on External 77	R/W
354	Ext77	The low word of measured data is on External 77	R/W
355	Ext78	The high word of measured data is on External 78	R/W
356	Ext78	The low word of measured data is on External 78	R/W
357	Ext79	The high word of measured data is on External 79	R/W
358	Ext79	The low word of measured data is on External 79	R/W
359	Ext80	The high word of measured data is on External 80	R/W
360	Ext80	The low word of measured data is on External 80	R/W
361	Ext81	The high word of measured data is on External 81	R/W
362	Ext81	The low word of measured data is on External 81	R/W
363	Ext82	The high word of measured data is on External 82	R/W
364	Ext82	The low word of measured data is on External 82	R/W
365	Ext83	The high word of measured data is on External 83	R/W

366	Ext83	The low word of measured data is on External 83	R/W
367	Ext84	The high word of measured data is on External 84	R/W
368	Ext84	The low word of measured data is on External 84	R/W
369	Ext85	The high word of measured data is on External 85	R/W
370	Ext85	The low word of measured data is on External 85	R/W
371	Ext86	The high word of measured data is on External 86	R/W
372	Ext86	The low word of measured data is on External 86	R/W
373	Ext87	The high word of measured data is on External 87	R/W
374	Ext87	The low word of measured data is on External 87	R/W
375	Ext88	The high word of measured data is on External 88	R/W
376	Ext88	The low word of measured data is on External 88	R/W
377	Ext89	The high word of measured data is on External 89	R/W
378	Ext89	The low word of measured data is on External 89	R/W
379	Ext90	The high word of measured data is on External 90	R/W
380	Ext90	The low word of measured data is on External 90	R/W
381	Ext91	The high word of measured data is on External 91	R/W
382	Ext91	The low word of measured data is on External 91	R/W
383	Ext92	The high word of measured data is on External 92	R/W
384	Ext92	The low word of measured data is on	R/W

		External 92	
385	Ext93	The high word of measured data is on External 93	R/W
386	Ext93	The low word of measured data is on External 93	R/W
387	Ext94	The high word of measured data is on External 94	R/W
388	Ext94	The low word of measured data is on External 94	R/W
389	Ext95	The high word of measured data is on External 95	R/W
390	Ext95	The low word of measured data is on External 95	R/W
391	Ext96	The high word of measured data is on External 96	R/W
392	Ext96	The low word of measured data is on External 96	R/W

* *Note: If the register value is 4294967294, which value represents communication error.*

2.3 4 Bytes Type Area (Float Type)

Modbus Address	Notation	Register Name	Access
1001	Ext1	Measured data on External 1	R/W
1003	Ext2	Measured data on External 2	R/W
1005	Ext3	Measured data on External 3	R/W
1007	Ext4	Measured data on External 4	R/W
1009	Ext5	Measured data on External 5	R/W
1011	Ext6	Measured data on External 6	R/W
1013	Ext7	Measured data on External 7	R/W
1015	Ext8	Measured data on External 8	R/W
1017	Ext9	Measured data on External 9	R/W
1019	Ext10	Measured data on External 10	R/W
1021	Ext11	Measured data on External 11	R/W
1023	Ext12	Measured data on External 12	R/W
1025	Ext13	Measured data on External 13	R/W
1027	Ext14	Measured data on External 14	R/W
1029	Ext15	Measured data on External 15	R/W
1031	Ext16	Measured data on External 16	R/W
1033	Ext17	Measured data on External 17	R/W
1035	Ext18	Measured data on External 18	R/W
1037	Ext19	Measured data on External 19	R/W
1039	Ext20	Measured data on External 20	R/W
1041	Ext21	Measured data on External 21	R/W
1043	Ext22	Measured data on External 22	R/W
1045	Ext23	Measured data on External 23	R/W
1047	Ext24	Measured data on External 24	R/W
1049	Ext25	Measured data on External 25	R/W
1051	Ext26	Measured data on External 26	R/W
1053	Ext27	Measured data on External 27	R/W
1055	Ext28	Measured data on External 28	R/W
1057	Ext29	Measured data on External 29	R/W
1059	Ext30	Measured data on External 30	R/W
1061	Ext31	Measured data on External 31	R/W
1063	Ext32	Measured data on External 32	R/W
1065	Ext33	Measured data on External 33	R/W

1067	Ext34	Measured data on External 34	R/W
1069	Ext35	Measured data on External 35	R/W
1071	Ext36	Measured data on External 36	R/W
1073	Ext37	Measured data on External 37	R/W
1075	Ext38	Measured data on External 38	R/W
1077	Ext39	Measured data on External 39	R/W
1079	Ext40	Measured data on External 40	R/W
1081	Ext41	Measured data on External 41	R/W
1083	Ext42	Measured data on External 42	R/W
1085	Ext43	Measured data on External 43	R/W
1087	Ext44	Measured data on External 44	R/W
1089	Ext45	Measured data on External 45	R/W
1091	Ext46	Measured data on External 46	R/W
1093	Ext47	Measured data on External 47	R/W
1095	Ext48	Measured data on External 48	R/W
1097	Ext49	Measured data on External 49	R/W
1099	Ext50	Measured data on External 50	R/W
1101	Ext51	Measured data on External 51	R/W
1103	Ext52	Measured data on External 52	R/W
1105	Ext53	Measured data on External 53	R/W
1107	Ext54	Measured data on External 54	R/W
1109	Ext55	Measured data on External 55	R/W
1111	Ext56	Measured data on External 56	R/W
1113	Ext57	Measured data on External 57	R/W
1115	Ext58	Measured data on External 58	R/W
1117	Ext59	Measured data on External 59	R/W
1119	Ext60	Measured data on External 60	R/W
1121	Ext61	Measured data on External 61	R/W
1123	Ext62	Measured data on External 62	R/W
1125	Ext63	Measured data on External 63	R/W
1127	Ext64	Measured data on External 64	R/W
1129	Ext65	Measured data on External 65	R/W
1131	Ext66	Measured data on External 66	R/W
1133	Ext67	Measured data on External 67	R/W
1135	Ext68	Measured data on External 68	R/W
1137	Ext69	Measured data on External 69	R/W

1139	Ext70	Measured data on External 70	R/W
1141	Ext71	Measured data on External 71	R/W
1143	Ext72	Measured data on External 72	R/W
1145	Ext73	Measured data on External 73	R/W
1147	Ext74	Measured data on External 74	R/W
1149	Ext75	Measured data on External 75	R/W
1151	Ext76	Measured data on External 76	R/W
1153	Ext77	Measured data on External 77	R/W
1155	Ext78	Measured data on External 78	R/W
1157	Ext79	Measured data on External 79	R/W
1159	Ext80	Measured data on External 80	R/W
1161	Ext81	Measured data on External 81	R/W
1163	Ext82	Measured data on External 82	R/W
1165	Ext83	Measured data on External 83	R/W
1167	Ext84	Measured data on External 84	R/W
1169	Ext85	Measured data on External 85	R/W
1171	Ext86	Measured data on External 86	R/W
1173	Ext87	Measured data on External 87	R/W
1175	Ext88	Measured data on External 88	R/W
1177	Ext89	Measured data on External 89	R/W
1179	Ext90	Measured data on External 90	R/W
1181	Ext91	Measured data on External 91	R/W
1183	Ext92	Measured data on External 92	R/W
1185	Ext93	Measured data on External 93	R/W
1187	Ext94	Measured data on External 94	R/W
1189	Ext95	Measured data on External 95	R/W
1191	Ext96	Measured data on External 96	R/W

* *Note: If the register value is 3.0+E38, which value represents communication error.*

3. Holding Register Parameter Table for Remote Command

3.1 Command Area

Modbus Address	Register Name	Note	Access
10002	Start / Stop data log	0 : Stop 1 : Start	R/W
10003	Year	2000 ~ 2030	W
10004	Month	1 ~ 12	W
10005	Day	1 ~ 31	W
10006	Hour	0 ~ 23	W
10007	Minute	0 ~ 59	W
10008	Second	0 ~ 59	W
10102	Batch Name	Include 2 characters for each register①	R/W
10103	Batch Name	①	R/W
10104	Batch Name	①	R/W
10105	Batch Name	①	R/W
10106	Batch Name	①	R/W
10107	Batch Name	①	R/W
10108	Batch Name	①	R/W
10109	Batch Name	①	R/W
10110	Batch Name	①	R/W
10111	Batch Name	①	R/W
10112	Batch Name	①	R/W
10113	Batch Name	①	R/W
10114	Batch Name	①	R/W
10115	Batch Name	①	R/W
10116	Batch Name	①	R/W
10117	Batch Name	①	R/W
10118	Batch Name	①	R/W
10119	Batch Name	①	R/W
10120	Lot NO.	1 ~ 65535	R/W
10121	Comment1	Include 2 characters for each register①	R/W

10122	Comment1	①	R/W
10123	Comment1	①	R/W
10124	Comment1	①	R/W
10125	Comment1	①	R/W
10126	Comment1	①	R/W
10127	Comment1	①	R/W
10128	Comment1	①	R/W
10129	Comment1	①	R/W
10130	Comment1	①	R/W
10131	Comment1	①	R/W
10132	Comment1	①	R/W
10133	Comment1	①	R/W
10134	Comment1	①	R/W
10135	Comment1	①	R/W
10136	Comment1	①	R/W
10137	Comment1	①	R/W
10138	Comment1	①	R/W
10139	Comment1	①	R/W
10140	Comment1	①	R/W
10141	Comment1	①	R/W
10142	Comment1	①	R/W
10143	Comment1	①	R/W
10144	Comment1	①	R/W
10145	Comment1	①	R/W
10146	Comment1	①	R/W
10147	Comment1	①	R/W
10148	Comment1	①	R/W
10149	Comment1	①	R/W
10150	Comment1	①	R/W
10151	Comment1	①	R/W
10152	Comment1	①	R/W
10153	Comment1	①	R/W
10154	Comment1	①	R/W
10155	Comment1	①	R/W
10156	Comment1	①	R/W
10157	Comment2	①	R/W

10158	Comment2	①	R/W
10159	Comment2	①	R/W
10160	Comment2	①	R/W
10161	Comment2	①	R/W
10162	Comment2	①	R/W
10163	Comment2	①	R/W
10164	Comment2	①	R/W
10165	Comment2	①	R/W
10166	Comment2	①	R/W
10167	Comment2	①	R/W
10168	Comment2	①	R/W
10169	Comment2	①	R/W
10170	Comment2	①	R/W
10171	Comment2	①	R/W
10172	Comment2	①	R/W
10173	Comment2	①	R/W
10174	Comment2	①	R/W
10175	Comment2	①	R/W
10176	Comment2	①	R/W
10177	Comment2	①	R/W
10178	Comment2	①	R/W
10179	Comment2	①	R/W
10180	Comment2	①	R/W
10181	Comment2	①	R/W
10182	Comment2	①	R/W
10183	Comment2	①	R/W
10184	Comment2	①	R/W
10185	Comment2	①	R/W
10186	Comment2	①	R/W
10187	Comment2	①	R/W
10188	Comment2	①	R/W
10189	Comment2	①	R/W
10190	Comment2	①	R/W
10191	Comment2	①	R/W
10192	Comment2	①	R/W
10193	Comment3	①	R/W

10194	Comment3	①	R/W
10195	Comment3	①	R/W
10196	Comment3	①	R/W
10197	Comment3	①	R/W
10198	Comment3	①	R/W
10199	Comment3	①	R/W
10200	Comment3	①	R/W
10201	Comment3	①	R/W
10202	Comment3	①	R/W
10203	Comment3	①	R/W
10204	Comment3	①	R/W
10205	Comment3	①	R/W
10206	Comment3	①	R/W
10207	Comment3	①	R/W
10208	Comment3	①	R/W
10209	Comment3	①	R/W
10210	Comment3	①	R/W
10211	Comment3	①	R/W
10212	Comment3	①	R/W
10213	Comment3	①	R/W
10214	Comment3	①	R/W
10215	Comment3	①	R/W
10216	Comment3	①	R/W
10217	Comment3	①	R/W
10218	Comment3	①	R/W
10219	Comment3	①	R/W
10220	Comment3	①	R/W
10221	Comment3	①	R/W
10222	Comment3	①	R/W
10223	Comment3	①	R/W
10224	Comment3	①	R/W
10225	Comment3	①	R/W
10226	Comment3	①	R/W
10227	Comment3	①	R/W
10228	Comment3	①	R/W
10229	Comment4	①	R/W

10230	Comment4	①	R/W
10231	Comment4	①	R/W
10232	Comment4	①	R/W
10233	Comment4	①	R/W
10234	Comment4	①	R/W
10235	Comment4	①	R/W
10236	Comment4	①	R/W
10237	Comment4	①	R/W
10238	Comment4	①	R/W
10239	Comment4	①	R/W
10240	Comment4	①	R/W
10241	Comment4	①	R/W
10242	Comment4	①	R/W
10243	Comment4	①	R/W
10244	Comment4	①	R/W
10245	Comment4	①	R/W
10246	Comment4	①	R/W
10247	Comment4	①	R/W
10248	Comment4	①	R/W
10249	Comment4	①	R/W
10250	Comment4	①	R/W
10251	Comment4	①	R/W
10252	Comment4	①	R/W
10253	Comment4	①	R/W
10254	Comment4	①	R/W
10255	Comment4	①	R/W
10256	Comment4	①	R/W
10257	Comment4	①	R/W
10258	Comment4	①	R/W
10259	Comment4	①	R/W
10260	Comment4	①	R/W
10261	Comment4	①	R/W
10262	Comment4	①	R/W
10263	Comment4	①	R/W
10264	Comment4	①	R/W
10265	Comment5	①	R/W

10266	Comment5	①	R/W
10267	Comment5	①	R/W
10268	Comment5	①	R/W
10269	Comment5	①	R/W
10270	Comment5	①	R/W
10271	Comment5	①	R/W
10272	Comment5	①	R/W
10273	Comment5	①	R/W
10274	Comment5	①	R/W
10275	Comment5	①	R/W
10276	Comment5	①	R/W
10277	Comment5	①	R/W
10278	Comment5	①	R/W
10279	Comment5	①	R/W
10280	Comment5	①	R/W
10281	Comment5	①	R/W
10282	Comment5	①	R/W
10283	Comment5	①	R/W
10284	Comment5	①	R/W
10285	Comment5	①	R/W
10286	Comment5	①	R/W
10287	Comment5	①	R/W
10288	Comment5	①	R/W
10289	Comment5	①	R/W
10290	Comment5	①	R/W
10291	Comment5	①	R/W
10292	Comment5	①	R/W
10293	Comment5	①	R/W
10294	Comment5	①	R/W
10295	Comment5	①	R/W
10296	Comment5	①	R/W
10297	Comment5	①	R/W
10298	Comment5	①	R/W
10299	Comment5	①	R/W
10300	Comment5	①	R/W
10301	Comment6	①	R/W

10302	Comment6	①	R/W
10303	Comment6	①	R/W
10304	Comment6	①	R/W
10305	Comment6	①	R/W
10306	Comment6	①	R/W
10307	Comment6	①	R/W
10308	Comment6	①	R/W
10309	Comment6	①	R/W
10310	Comment6	①	R/W
10311	Comment6	①	R/W
10312	Comment6	①	R/W
10313	Comment6	①	R/W
10314	Comment6	①	R/W
10315	Comment6	①	R/W
10316	Comment6	①	R/W
10317	Comment6	①	R/W
10318	Comment6	①	R/W
10319	Comment6	①	R/W
10320	Comment6	①	R/W
10321	Comment6	①	R/W
10322	Comment6	①	R/W
10323	Comment6	①	R/W
10324	Comment6	①	R/W
10325	Comment6	①	R/W
10326	Comment6	①	R/W
10327	Comment6	①	R/W
10328	Comment6	①	R/W
10329	Comment6	①	R/W
10330	Comment6	①	R/W
10331	Comment6	①	R/W
10332	Comment6	①	R/W
10333	Comment6	①	R/W
10334	Comment6	①	R/W
10335	Comment6	①	R/W
10336	Comment6	①	R/W
10337	Comment7	①	R/W

10338	Comment7	①	R/W
10339	Comment7	①	R/W
10340	Comment7	①	R/W
10341	Comment7	①	R/W
10342	Comment7	①	R/W
10343	Comment7	①	R/W
10344	Comment7	①	R/W
10345	Comment7	①	R/W
10346	Comment7	①	R/W
10347	Comment7	①	R/W
10348	Comment7	①	R/W
10349	Comment7	①	R/W
10350	Comment7	①	R/W
10351	Comment7	①	R/W
10352	Comment7	①	R/W
10353	Comment7	①	R/W
10354	Comment7	①	R/W
10355	Comment7	①	R/W
10356	Comment7	①	R/W
10357	Comment7	①	R/W
10358	Comment7	①	R/W
10359	Comment7	①	R/W
10360	Comment7	①	R/W
10361	Comment7	①	R/W
10362	Comment7	①	R/W
10363	Comment7	①	R/W
10364	Comment7	①	R/W
10365	Comment7	①	R/W
10366	Comment7	①	R/W
10367	Comment7	①	R/W
10368	Comment7	①	R/W
10369	Comment7	①	R/W
10370	Comment7	①	R/W
10371	Comment7	①	R/W
10372	Comment7	①	R/W
10373	Comment8	①	R/W

10374	Comment8	①	R/W
10375	Comment8	①	R/W
10376	Comment8	①	R/W
10377	Comment8	①	R/W
10378	Comment8	①	R/W
10379	Comment8	①	R/W
10380	Comment8	①	R/W
10381	Comment8	①	R/W
10382	Comment8	①	R/W
10383	Comment8	①	R/W
10384	Comment8	①	R/W
10385	Comment8	①	R/W
10386	Comment8	①	R/W
10387	Comment8	①	R/W
10388	Comment8	①	R/W
10389	Comment8	①	R/W
10390	Comment8	①	R/W
10391	Comment8	①	R/W
10392	Comment8	①	R/W
10393	Comment8	①	R/W
10394	Comment8	①	R/W
10395	Comment8	①	R/W
10396	Comment8	①	R/W
10397	Comment8	①	R/W
10398	Comment8	①	R/W
10399	Comment8	①	R/W
10400	Comment8	①	R/W
10401	Comment8	①	R/W
10402	Comment8	①	R/W
10403	Comment8	①	R/W
10404	Comment8	①	R/W
10405	Comment8	①	R/W
10406	Comment8	①	R/W
10407	Comment8	①	R/W
10408	Comment8	①	R/W
10409	Comment9	①	R/W

10410	Comment9	①	R/W
10411	Comment9	①	R/W
10412	Comment9	①	R/W
10413	Comment9	①	R/W
10414	Comment9	①	R/W
10415	Comment9	①	R/W
10416	Comment9	①	R/W
10417	Comment9	①	R/W
10418	Comment9	①	R/W
10419	Comment9	①	R/W
10420	Comment9	①	R/W
10421	Comment9	①	R/W
10422	Comment9	①	R/W
10423	Comment9	①	R/W
10424	Comment9	①	R/W
10425	Comment9	①	R/W
10426	Comment9	①	R/W
10427	Comment9	①	R/W
10428	Comment9	①	R/W
10429	Comment9	①	R/W
10430	Comment9	①	R/W
10431	Comment9	①	R/W
10432	Comment9	①	R/W
10433	Comment9	①	R/W
10434	Comment9	①	R/W
10435	Comment9	①	R/W
10436	Comment9	①	R/W
10437	Comment9	①	R/W
10438	Comment9	①	R/W
10439	Comment9	①	R/W
10440	Comment9	①	R/W
10441	Comment9	①	R/W
10442	Comment9	①	R/W
10443	Comment9	①	R/W
10444	Comment9	①	R/W
10445	Comment10	①	R/W

10446	Comment10	①	R/W
10447	Comment10	①	R/W
10448	Comment10	①	R/W
10449	Comment10	①	R/W
10450	Comment10	①	R/W
10451	Comment10	①	R/W
10452	Comment10	①	R/W
10453	Comment10	①	R/W
10454	Comment10	①	R/W
10455	Comment10	①	R/W
10456	Comment10	①	R/W
10457	Comment10	①	R/W
10458	Comment10	①	R/W
10459	Comment10	①	R/W
10460	Comment10	①	R/W
10461	Comment10	①	R/W
10462	Comment10	①	R/W
10463	Comment10	①	R/W
10464	Comment10	①	R/W
10465	Comment10	①	R/W
10466	Comment10	①	R/W
10467	Comment10	①	R/W
10468	Comment10	①	R/W
10469	Comment10	①	R/W
10470	Comment10	①	R/W
10471	Comment10	①	R/W
10472	Comment10	①	R/W
10473	Comment10	①	R/W
10474	Comment10	①	R/W
10475	Comment10	①	R/W
10476	Comment10	①	R/W
10477	Comment10	①	R/W
10478	Comment10	①	R/W
10479	Comment10	①	R/W
10480	Comment10	①	R/W
10481	Description	①	R/W

10482	Description	①	R/W
10483	Description	①	R/W
10484	Description	①	R/W
10485	Description	①	R/W
10486	Description	①	R/W
10487	Description	①	R/W
10488	Description	①	R/W
10489	Description	①	R/W
10490	Description	①	R/W
10491	Description	①	R/W
10492	Description	①	R/W
10493	Description	①	R/W
10494	Description	①	R/W
10495	Description	①	R/W
10496	Description	①	R/W
10497	Description	①	R/W
10498	Description	①	R/W
10499	Description	①	R/W
10500	Description	①	R/W
10501	Description	①	R/W
10502	Description	①	R/W
10503	Description	①	R/W
10504	Description	①	R/W
10505	Description	①	R/W
10506	Description	①	R/W
10507	Description	①	R/W
10508	Description	①	R/W
10509	Description	①	R/W
10510	Description	①	R/W
10511	Description	①	R/W
10512	Description	①	R/W
10513	Description	①	R/W
10514	Description	①	R/W
10515	Description	①	R/W
10516	Description	①	R/W
10517	Description	①	R/W

10518	Description	①	R/W
10519	Description	①	R/W
10520	Description	①	R/W
10521	Description	①	R/W
10522	Description	①	R/W
10523	Description	①	R/W
10524	Description	①	R/W
10525	Description	①	R/W
10526	Description	①	R/W
10527	Description	①	R/W
10528	Description	①	R/W
10529	Description	①	R/W
10530	Description	①	R/W

Note:

① Don't input invalid character, such as : 0x00, 0x01 etc..

3.2 Decimal Point Area (Word Type)

Modbus Address	Register Name	Note	Access
2001	AI1 Decimal Places	Maximum : 5	R
2002	AI2 Decimal Places		R
2003	AI3 Decimal Places		R
2004	AI4 Decimal Places		R
2005	AI5 Decimal Places		R
2006	AI6 Decimal Places		R
2007	AI7 Decimal Places		R
2008	AI8 Decimal Places		R
2009	AI9 Decimal Places		R
2010	AI10 Decimal Places		R
2011	AI11 Decimal Places		R
2012	AI12 Decimal Places		R
2013	AI13 Decimal Places		R
2014	AI14 Decimal Places		R
2015	AI15 Decimal Places		R
2016	AI16 Decimal Places		R
2017	AI17 Decimal Places		R
2018	AI18 Decimal Places		R
2019	AI19 Decimal Places		R
2020	AI20 Decimal Places		R
2021	AI21 Decimal Places		R
2022	AI22 Decimal Places		R
2023	AI23 Decimal Places		R
2024	AI24 Decimal Places		R
2025	AI25 Decimal Places		R
2026	AI26 Decimal Places		R
2027	AI27 Decimal Places		R
2028	AI28 Decimal Places		R
2029	AI29 Decimal Places		R

2030	AI30 Decimal Places		R
2031	AI31 Decimal Places		R
2032	AI32 Decimal Places		R
2033	AI33 Decimal Places		R
2034	AI34 Decimal Places		R
2035	AI35 Decimal Places		R
2036	AI36 Decimal Places		R
2037	AI37 Decimal Places		R
2038	AI38 Decimal Places		R
2039	AI39 Decimal Places		R
2040	AI40 Decimal Places		R
2041	AI41 Decimal Places		R
2042	AI42 Decimal Places		R
2043	AI43 Decimal Places		R
2044	AI44 Decimal Places		R
2045	AI45 Decimal Places		R
2046	AI46 Decimal Places		R
2047	AI47 Decimal Places		R
2048	AI48 Decimal Places		R
2049	DI1 Decimal Places		R
2050	DI2 Decimal Places		R
2051	DI3 Decimal Places		R
2052	DI4 Decimal Places		R
2053	DI5 Decimal Places		R
2054	DI6 Decimal Places		R
2055	DI7 Decimal Places		R
2056	DI8 Decimal Places		R
2057	DI9 Decimal Places		R
2058	DI10 Decimal Places		R
2059	DI11 Decimal Places		R
2060	DI12 Decimal Places		R
2061	DI13 Decimal Places		R
2062	DI14 Decimal Places		R
2063	DI15 Decimal Places		R
2064	DI16 Decimal Places		R
2065	DI17 Decimal Places		R

2066	DI18 Decimal Places		R
2067	DI19 Decimal Places		R
2068	DI20 Decimal Places		R
2069	DI21 Decimal Places		R
2070	DI22 Decimal Places		R
2071	DI23 Decimal Places		R
2072	DI24 Decimal Places		R
2073	DO1 Decimal Places		R
2074	DO2 Decimal Places		R
2075	DO3 Decimal Places		R
2076	DO4 Decimal Places		R
2077	DO5 Decimal Places		R
2078	DO6 Decimal Places		R
2079	DO7 Decimal Places		R
2080	DO8 Decimal Places		R
2081	DO9 Decimal Places		R
2082	DO10 Decimal Places		R
2083	DO11 Decimal Places		R
2084	DO12 Decimal Places		R
2085	DO13 Decimal Places		R
2086	DO14 Decimal Places		R
2087	DO15 Decimal Places		R
2088	DO16 Decimal Places		R
2089	DO17 Decimal Places		R
2090	DO18 Decimal Places		R
2091	DO19 Decimal Places		R
2092	DO20 Decimal Places		R
2093	DO21 Decimal Places		R
2094	DO22 Decimal Places		R
2095	DO23 Decimal Places		R
2096	DO24 Decimal Places		R
2097	AO1 Decimal Places		R
2098	AO2 Decimal Places		R
2099	AO3 Decimal Places		R
2100	AO4 Decimal Places		R
2101	AO5 Decimal Places		R

2102	AO6 Decimal Places		R
2103	AO7 Decimal Places		R
2104	AO8 Decimal Places		R
2105	AO9 Decimal Places		R
2106	AO10 Decimal Places		R
2107	AO11 Decimal Places		R
2108	AO12 Decimal Places		R
2109	Math1 Decimal Places		R
2110	Math2 Decimal Places		R
2111	Math3 Decimal Places		R
2112	Math4 Decimal Places		R
2113	Math5 Decimal Places		R
2114	Math6 Decimal Places		R
2115	Math7 Decimal Places		R
2116	Math8 Decimal Places		R
2117	Math9 Decimal Places		R
2118	Math10 Decimal Places		R
2119	Math11 Decimal Places		R
2120	Math12 Decimal Places		R
2121	Math13 Decimal Places		R
2122	Math14 Decimal Places		R
2123	Math15 Decimal Places		R
2124	Math16 Decimal Places		R
2125	Math17 Decimal Places		R
2126	Math18 Decimal Places		R
2127	Math19 Decimal Places		R
2128	Math20 Decimal Places		R
2129	Math21 Decimal Places		R
2130	Math22 Decimal Places		R
2131	Math23 Decimal Places		R
2132	Math24 Decimal Places		R
2133	Math25 Decimal Places		R
2134	Math26 Decimal Places		R
2135	Math27 Decimal Places		R
2136	Math28 Decimal Places		R
2137	Math29 Decimal Places		R

2138	Math30 Decimal Places		R
2139	Math31 Decimal Places		R
2140	Math32 Decimal Places		R
2141	Math33 Decimal Places		R
2142	Math34 Decimal Places		R
2143	Math35 Decimal Places		R
2144	Math36 Decimal Places		R
2145	Math37 Decimal Places		R
2146	Math38 Decimal Places		R
2147	Math39 Decimal Places		R
2148	Math40 Decimal Places		R
2149	Math41 Decimal Places		R
2150	Math42 Decimal Places		R
2151	Math43 Decimal Places		R
2152	Math44 Decimal Places		R
2153	Math45 Decimal Places		R
2154	Math46 Decimal Places		R
2155	Math47 Decimal Places		R
2156	Math48 Decimal Places		R
2157	Math49 Decimal Places		R
2158	Math50 Decimal Places		R
2159	Math51 Decimal Places		R
2160	Math52 Decimal Places		R
2161	Math53 Decimal Places		R
2162	Math54 Decimal Places		R
2163	Math55 Decimal Places		R
2164	Math56 Decimal Places		R
2165	Math57 Decimal Places		R
2166	Math58 Decimal Places		R
2167	Math59 Decimal Places		R
2168	Math60 Decimal Places		R
2169	Ext1 Decimal Places		R
2170	Ext2 Decimal Places		R
2171	Ext3 Decimal Places		R
2172	Ext4 Decimal Places		R
2173	Ext5 Decimal Places		R

2174	Ext6 Decimal Places		R
2175	Ext7 Decimal Places		R
2176	Ext8 Decimal Places		R
2177	Ext9 Decimal Places		R
2178	Ext10 Decimal Places		R
2179	Ext11 Decimal Places		R
2180	Ext12 Decimal Places		R
2181	Ext13 Decimal Places		R
2182	Ext14 Decimal Places		R
2183	Ext15 Decimal Places		R
2184	Ext16 Decimal Places		R
2185	Ext17 Decimal Places		R
2186	Ext18 Decimal Places		R
2187	Ext19 Decimal Places		R
2188	Ext20 Decimal Places		R
2189	Ext21 Decimal Places		R
2190	Ext22 Decimal Places		R
2191	Ext23 Decimal Places		R
2192	Ext24 Decimal Places		R
2193	Ext25 Decimal Places		R
2194	Ext26 Decimal Places		R
2195	Ext27 Decimal Places		R
2196	Ext28 Decimal Places		R
2197	Ext29 Decimal Places		R
2198	Ext30 Decimal Places		R
2199	Ext31 Decimal Places		R
2200	Ext32 Decimal Places		R
2201	Ext33 Decimal Places		R
2202	Ext34 Decimal Places		R
2203	Ext35 Decimal Places		R
2204	Ext36 Decimal Places		R
2205	Ext37 Decimal Places		R
2206	Ext38 Decimal Places		R
2207	Ext39 Decimal Places		R
2208	Ext40 Decimal Places		R
2209	Ext41 Decimal Places		R

2210	Ext42 Decimal Places		R
2211	Ext43 Decimal Places		R
2212	Ext44 Decimal Places		R
2213	Ext45 Decimal Places		R
2214	Ext46 Decimal Places		R
2215	Ext47 Decimal Places		R
2216	Ext48 Decimal Places		R
2217	Ext49 Decimal Places		R
2218	Ext50 Decimal Places		R
2219	Ext51 Decimal Places		R
2220	Ext52 Decimal Places		R
2221	Ext53 Decimal Places		R
2222	Ext54 Decimal Places		R
2223	Ext55 Decimal Places		R
2224	Ext56 Decimal Places		R
2225	Ext57 Decimal Places		R
2226	Ext58 Decimal Places		R
2227	Ext59 Decimal Places		R
2228	Ext60 Decimal Places		R
2229	Ext61 Decimal Places		R
2230	Ext62 Decimal Places		R
2231	Ext63 Decimal Places		R
2232	Ext64 Decimal Places		R
2233	Ext65 Decimal Places		R
2234	Ext66 Decimal Places		R
2235	Ext67 Decimal Places		R
2236	Ext68 Decimal Places		R
2237	Ext69 Decimal Places		R
2238	Ext70 Decimal Places		R
2239	Ext71 Decimal Places		R
2240	Ext72 Decimal Places		R
2241	Ext73 Decimal Places		R
2242	Ext74 Decimal Places		R
2243	Ext75 Decimal Places		R
2244	Ext76 Decimal Places		R
2245	Ext77 Decimal Places		R

2246	Ext78 Decimal Places		R
2247	Ext79 Decimal Places		R
2248	Ext80 Decimal Places		R
2249	Ext81 Decimal Places		R
2250	Ext82 Decimal Places		R
2251	Ext83 Decimal Places		R
2252	Ext84 Decimal Places		R
2253	Ext85 Decimal Places		R
2254	Ext86 Decimal Places		R
2255	Ext87 Decimal Places		R
2256	Ext88 Decimal Places		R
2257	Ext89 Decimal Places		R
2258	Ext90 Decimal Places		R
2259	Ext91 Decimal Places		R
2260	Ext92 Decimal Places		R
2261	Ext93 Decimal Places		R
2262	Ext94 Decimal Places		R
2263	Ext95 Decimal Places		R
2264	Ext96 Decimal Places		R

3.3 Modbus Scale Low Area (DWord Type)

Modbus Address	Register Name	Note	Access
4001	The low word of Scale Low data is on AI1	①	R/W
4002	The high word of Scale Low data is on AI1	①	R/W
4003	The low word of Scale Low data is on AI2	①	R/W
4004	The high word of Scale Low data is on AI2	①	R/W
4005	The low word of Scale Low data is on AI3	①	R/W
4006	The high word of Scale Low data is on AI3	①	R/W
4007	The low word of Scale Low data is on AI4	①	R/W
4008	The high word of Scale Low data is on AI4	①	R/W
4009	The low word of Scale Low data is on AI5	①	R/W
4010	The high word of Scale Low data is on AI5	①	R/W
4011	The low word of Scale Low data is on AI6	①	R/W
4012	The high word of Scale Low data is on AI6	①	R/W
4013	The low word of Scale Low data is on AI7	①	R/W
4014	The high word of Scale Low data is on AI7	①	R/W
4015	The low word of Scale Low data is on AI8	①	R/W
4016	The high word of Scale Low data is on AI8	①	R/W
4017	The low word of Scale Low data is on AI9	①	R/W
4018	The high word of Scale Low data is on AI9	①	R/W
4019	The low word of Scale Low data is on AI10	①	R/W
4020	The high word of Scale Low data is on	①	R/W

	AI10		
4021	The low word of Scale Low data is on AI11	①	R/W
4022	The high word of Scale Low data is on AI11	①	R/W
4023	The low word of Scale Low data is on AI12	①	R/W
4024	The high word of Scale Low data is on AI12	①	R/W
4025	The low word of Scale Low data is on AI13	①	R/W
4026	The high word of Scale Low data is on AI13	①	R/W
4027	The low word of Scale Low data is on AI14	①	R/W
4028	The high word of Scale Low data is on AI14	①	R/W
4029	The low word of Scale Low data is on AI15	①	R/W
4030	The high word of Scale Low data is on AI15	①	R/W
4031	The low word of Scale Low data is on AI16	①	R/W
4032	The high word of Scale Low data is on AI16	①	R/W
4033	The low word of Scale Low data is on AI17	①	R/W
4034	The high word of Scale Low data is on AI17	①	R/W
4035	The low word of Scale Low data is on AI18	①	R/W
4036	The high word of Scale Low data is on AI18	①	R/W
4037	The low word of Scale Low data is on AI19	①	R/W
4038	The high word of Scale Low data is on AI19	①	R/W
4039	The low word of Scale Low data is on AI20	①	R/W
4040	The high word of Scale Low data is on AI20	①	R/W
4041	The low word of Scale Low data is on AI21	①	R/W
4042	The high word of Scale Low data is on AI21	①	R/W
4043	The low word of Scale Low data is on AI22	①	R/W
4044	The high word of Scale Low data is on AI22	①	R/W

4045	The low word of Scale Low data is on AI23	①	R/W
4046	The high word of Scale Low data is on AI23	①	R/W
4047	The low word of Scale Low data is on AI24	①	R/W
4048	The high word of Scale Low data is on AI24	①	R/W
4049	The low word of Scale Low data is on AI25	①	R/W
4050	The high word of Scale Low data is on AI25	①	R/W
4051	The low word of Scale Low data is on AI26	①	R/W
4052	The high word of Scale Low data is on AI26	①	R/W
4053	The low word of Scale Low data is on AI27	①	R/W
4054	The high word of Scale Low data is on AI27	①	R/W
4055	The low word of Scale Low data is on AI28	①	R/W
4056	The high word of Scale Low data is on AI28	①	R/W
4057	The low word of Scale Low data is on AI29	①	R/W
4058	The high word of Scale Low data is on AI29	①	R/W
4059	The low word of Scale Low data is on AI30	①	R/W
4060	The high word of Scale Low data is on AI30	①	R/W
4061	The low word of Scale Low data is on AI31	①	R/W
4062	The high word of Scale Low data is on AI31	①	R/W
4063	The low word of Scale Low data is on AI32	①	R/W
4064	The high word of Scale Low data is on AI32	①	R/W
4065	The low word of Scale Low data is on AI33	①	R/W
4066	The high word of Scale Low data is on AI33	①	R/W
4067	The low word of Scale Low data is on AI34	①	R/W
4068	The high word of Scale Low data is on AI34	①	R/W
4069	The low word of Scale Low data is on AI35	①	R/W

4070	The high word of Scale Low data is on AI35	①	R/W
4071	The low word of Scale Low data is on AI36	①	R/W
4072	The high word of Scale Low data is on AI36	①	R/W
4073	The low word of Scale Low data is on AI37	①	R/W
4074	The high word of Scale Low data is on AI37	①	R/W
4075	The low word of Scale Low data is on AI38	①	R/W
4076	The high word of Scale Low data is on AI38	①	R/W
4077	The low word of Scale Low data is on AI39	①	R/W
4078	The high word of Scale Low data is on AI39	①	R/W
4079	The low word of Scale Low data is on AI40	①	R/W
4080	The high word of Scale Low data is on AI40	①	R/W
4081	The low word of Scale Low data is on AI41	①	R/W
4082	The high word of Scale Low data is on AI41	①	R/W
4083	The low word of Scale Low data is on AI42	①	R/W
4084	The high word of Scale Low data is on AI42	①	R/W
4085	The low word of Scale Low data is on AI43	①	R/W
4086	The high word of Scale Low data is on AI43	①	R/W
4087	The low word of Scale Low data is on AI44	①	R/W
4088	The high word of Scale Low data is on AI44	①	R/W
4089	The low word of Scale Low data is on AI45	①	R/W
4090	The high word of Scale Low data is on AI45	①	R/W
4091	The low word of Scale Low data is on AI46	①	R/W
4492	The high word of Scale Low data is on AI46	①	R/W
4093	The low word of Scale Low data is on AI47	①	R/W
4094	The high word of Scale Low data is on	①	R/W

	AI47		
4095	The low word of Scale Low data is on AI48	①	R/W
4096	The high word of Scale Low data is on AI48	①	R/W
4097	The low word of Scale Low data is on DI1		R
4098	The high word of Scale Low data is on DI1		R
4099	The low word of Scale Low data is on DI2		R
4100	The high word of Scale Low data is on DI2		R
4101	The low word of Scale Low data is on DI3		R
4102	The high word of Scale Low data is on DI3		R
4103	The low word of Scale Low data is on DI4		R
4104	The high word of Scale Low data is on DI4		R
4105	The low word of Scale Low data is on DI5		R
4106	The high word of Scale Low data is on DI5		R
4107	The low word of Scale Low data is on DI6		R
4108	The high word of Scale Low data is on DI6		R
4109	The low word of Scale Low data is on DI7		R
4110	The high word of Scale Low data is on DI7		R
4111	The low word of Scale Low data is on DI8		R
4112	The high word of Scale Low data is on DI8		R
4113	The low word of Scale Low data is on DI9		R
4114	The high word of Scale Low data is on DI9		R
4115	The low word of Scale Low data is on DI10		R
4116	The high word of Scale Low data is on DI10		R
4117	The low word of Scale Low data is on DI11		R
4118	The high word of Scale Low data is on DI11		R

4119	The low word of Scale Low data is on DI12		R
4120	The high word of Scale Low data is on DI12		R
4121	The low word of Scale Low data is on DI13		R
4122	The high word of Scale Low data is on DI13		R
4123	The low word of Scale Low data is on DI14		R
4124	The high word of Scale Low data is on DI14		R
4125	The low word of Scale Low data is on DI15		R
4126	The high word of Scale Low data is on DI15		R
4127	The low word of Scale Low data is on DI16		R
4128	The high word of Scale Low data is on DI16		R
4129	The low word of Scale Low data is on DI17		R
4130	The high word of Scale Low data is on DI17		R
4131	The low word of Scale Low data is on DI18		R
4132	The high word of Scale Low data is on DI18		R
4133	The low word of Scale Low data is on DI19		R
4134	The high word of Scale Low data is on DI19		R
4135	The low word of Scale Low data is on DI20		R
4136	The high word of Scale Low data is on DI20		R
4137	The low word of Scale Low data is on DI21		R
4138	The high word of Scale Low data is on DI21		R
4139	The low word of Scale Low data is on DI22		R
4140	The high word of Scale Low data is on DI22		R
4141	The low word of Scale Low data is on DI23		R
4142	The high word of Scale Low data is on DI23		R
4143	The low word of Scale Low data is on DI24		R

4144	The high word of Scale Low data is on DI24		R
4145	The low word of Scale Low data is on DO1		R
4146	The high word of Scale Low data is on DO1		R
4147	The low word of Scale Low data is on DO2		R
4148	The high word of Scale Low data is on DO2		R
4149	The low word of Scale Low data is on DO3		R
4150	The high word of Scale Low data is on DO3		R
4151	The low word of Scale Low data is on DO4		R
4152	The high word of Scale Low data is on DO4		R
4153	The low word of Scale Low data is on DO5		R
4154	The high word of Scale Low data is on DO5		R
4155	The low word of Scale Low data is on DO6		R
4156	The high word of Scale Low data is on DO6		R
4157	The low word of Scale Low data is on DO7		R
4158	The high word of Scale Low data is on DO7		R
4159	The low word of Scale Low data is on DO8		R
4160	The high word of Scale Low data is on DO8		R
4161	The low word of Scale Low data is on DO9		R
4162	The high word of Scale Low data is on DO9		R
4163	The low word of Scale Low data is on DO10		R
4164	The high word of Scale Low data is on DO10		R
4165	The low word of Scale Low data is on DO11		R
4166	The high word of Scale Low data is on DO11		R

4167	The low word of Scale Low data is on DO12		R
4168	The high word of Scale Low data is on DO12		R
4169	The low word of Scale Low data is on DO13		R
4170	The high word of Scale Low data is on DO13		R
4171	The low word of Scale Low data is on DO14		R
4172	The high word of Scale Low data is on DO14		R
4173	The low word of Scale Low data is on DO15		R
4174	The high word of Scale Low data is on DO15		R
4175	The low word of Scale Low data is on DO16		R
4176	The high word of Scale Low data is on DO16		R
4177	The low word of Scale Low data is on DO17		R
4178	The high word of Scale Low data is on DO17		R
4179	The low word of Scale Low data is on DO18		R
4180	The high word of Scale Low data is on DO18		R
4181	The low word of Scale Low data is on DO19		R
4182	The high word of Scale Low data is on DO19		R
4183	The low word of Scale Low data is on DO20		R
4184	The high word of Scale Low data is on DO20		R
4185	The low word of Scale Low data is on		R

	DO21		
4186	The high word of Scale Low data is on DO21		R
4187	The low word of Scale Low data is on DO22		R
4188	The high word of Scale Low data is on DO22		R
4189	The low word of Scale Low data is on DO23		R
4190	The high word of Scale Low data is on DO23		R
4191	The low word of Scale Low data is on DO24		R
4192	The high word of Scale Low data is on DO24		R
4193	The low word of Scale Low data is on AO1		R
4194	The high word of Scale Low data is on AO1		R
4195	The low word of Scale Low data is on AO2		R
4196	The high word of Scale Low data is on AO2		R
4197	The low word of Scale Low data is on AO3		R
4198	The high word of Scale Low data is on AO3		R
4199	The low word of Scale Low data is on AO4		R
4200	The high word of Scale Low data is on AO4		R
4201	The low word of Scale Low data is on AO5		R
4202	The high word of Scale Low data is on AO5		R
4203	The low word of Scale Low data is on AO6		R
4204	The high word of Scale Low data is on AO6		R
4205	The low word of Scale Low data is on AO7		R
4206	The high word of Scale Low data is on AO7		R
4207	The low word of Scale Low data is on AO8		R

4208	The high word of Scale Low data is on AO8		R
4209	The low word of Scale Low data is on AO9		R
4210	The high word of Scale Low data is on AO9		R
4211	The low word of Scale Low data is on AO10		R
4212	The high word of Scale Low data is on AO10		R
4213	The low word of Scale Low data is on AO11		R
4214	The high word of Scale Low data is on AO11		R
4215	The low word of Scale Low data is on AO12		R
4216	The high word of Scale Low data is on AO12		R
4217	The low word of Scale Low data is on Math1		R
4218	The high word of Scale Low data is on Math1		R
4219	The low word of Scale Low data is on Math2		R
4220	The high word of Scale Low data is on Math2		R
4221	The low word of Scale Low data is on Math3		R
4222	The high word of Scale Low data is on Math3		R
4223	The low word of Scale Low data is on Math4		R
4224	The high word of Scale Low data is on Math4		R
4225	The low word of Scale Low data is on Math5		R
4226	The high word of Scale Low data is on Math5		R

4227	The low word of Scale Low data is on Math6		R
4228	The high word of Scale Low data is on Math6		R
4229	The low word of Scale Low data is on Math7		R
4230	The high word of Scale Low data is on Math7		R
4231	The low word of Scale Low data is on Math8		R
4232	The high word of Scale Low data is on Math8		R
4233	The low word of Scale Low data is on Math9		R
4234	The high word of Scale Low data is on Math9		R
4235	The low word of Scale Low data is on Math10		R
4236	The high word of Scale Low data is on Math10		R
4237	The low word of Scale Low data is on Math11		R
4238	The high word of Scale Low data is on Math11		R
4239	The low word of Scale Low data is on Math12		R
4240	The high word of Scale Low data is on Math12		R
4241	The low word of Scale Low data is on Math13		R
4242	The high word of Scale Low data is on Math13		R
4243	The low word of Scale Low data is on Math14		R
4244	The high word of Scale Low data is on Math14		R
4245	The low word of Scale Low data is on		R

	Math15		
4246	The high word of Scale Low data is on Math15		R
4247	The low word of Scale Low data is on Math16		R
4248	The high word of Scale Low data is on Math16		R
4249	The low word of Scale Low data is on Math17		R
4250	The high word of Scale Low data is on Math17		R
4251	The low word of Scale Low data is on Math18		R
4252	The high word of Scale Low data is on Math18		R
4253	The low word of Scale Low data is on Math19		R
4254	The high word of Scale Low data is on Math19		R
4255	The low word of Scale Low data is on Math20		R
4256	The high word of Scale Low data is on Math20		R
4257	The low word of Scale Low data is on Math21		R
4258	The high word of Scale Low data is on Math21		R
4259	The low word of Scale Low data is on Math22		R
4260	The high word of Scale Low data is on Math22		R
4261	The low word of Scale Low data is on Math23		R
4262	The high word of Scale Low data is on Math23		R
4263	The low word of Scale Low data is on Math24		R

4264	The high word of Scale Low data is on Math24		R
4265	The low word of Scale Low data is on Math25	Maximum : 5	R
4266	The high word of Scale Low data is on Math25		R
4267	The low word of Scale Low data is on Math26		R
4268	The high word of Scale Low data is on Math26		R
4269	The low word of Scale Low data is on Math27		R
4270	The high word of Scale Low data is on Math27		R
4271	The low word of Scale Low data is on Math28		R
4272	The high word of Scale Low data is on Math28		R
4273	The low word of Scale Low data is on Math29		R
4274	The high word of Scale Low data is on Math29		R
4275	The low word of Scale Low data is on Math30		R
4276	The high word of Scale Low data is on Math30		R
4277	The low word of Scale Low data is on Math31		R
4278	The high word of Scale Low data is on Math31		R
4279	The low word of Scale Low data is on Math32		R
4280	The high word of Scale Low data is on Math32		R
4281	The low word of Scale Low data is on Math33		R
4282	The high word of Scale Low data is on		R

	Math33		
4283	The low word of Scale Low data is on Math34		R
4284	The high word of Scale Low data is on Math34		R
4285	The low word of Scale Low data is on Math35		R
4286	The high word of Scale Low data is on Math35		R
4287	The low word of Scale Low data is on Math36		R
4288	The high word of Scale Low data is on Math36		R
4289	The low word of Scale Low data is on Math37		R
4290	The high word of Scale Low data is on Math37		R
4291	The low word of Scale Low data is on Math38		R
4292	The high word of Scale Low data is on Math38		R
4293	The low word of Scale Low data is on Math39		R
4294	The high word of Scale Low data is on Math39		R
4295	The low word of Scale Low data is on Math40		R
4296	The high word of Scale Low data is on Math40		R
4297	The low word of Scale Low data is on Math41		R
4298	The high word of Scale Low data is on Math41		R
4299	The low word of Scale Low data is on Math42		R
4300	The high word of Scale Low data is on Math42		R

4301	The low word of Scale Low data is on Math43		R
4302	The high word of Scale Low data is on Math43		R
4303	The low word of Scale Low data is on Math44		R
4304	The high word of Scale Low data is on Math44		R
4305	The low word of Scale Low data is on Math45		R
4306	The high word of Scale Low data is on Math45		R
4307	The low word of Scale Low data is on Math46		R
4308	The high word of Scale Low data is on Math46		R
4309	The low word of Scale Low data is on Math47		R
4310	The high word of Scale Low data is on Math47		R
4311	The low word of Scale Low data is on Math48		R
4312	The high word of Scale Low data is on Math48		R
4313	The low word of Scale Low data is on Math49		R
4314	The high word of Scale Low data is on Math49		R
4315	The low word of Scale Low data is on Math50		R
4316	The high word of Scale Low data is on Math50		R
4317	The low word of Scale Low data is on Math51		R
4318	The high word of Scale Low data is on Math51		R
4319	The low word of Scale Low data is on		R

	Math52		
4320	The high word of Scale Low data is on Math52		R
4321	The low word of Scale Low data is on Math53		R
4322	The high word of Scale Low data is on Math53		R
4323	The low word of Scale Low data is on Math54		R
4324	The high word of Scale Low data is on Math54		R
4325	The low word of Scale Low data is on Math55		R
4326	The high word of Scale Low data is on Math55		R
4327	The low word of Scale Low data is on Math56		R
4328	The high word of Scale Low data is on Math56		R
4329	The low word of Scale Low data is on Math57		R
4330	The high word of Scale Low data is on Math57		R
4331	The low word of Scale Low data is on Math58		R
4332	The high word of Scale Low data is on Math58		R
4333	The low word of Scale Low data is on Math59		R
4334	The high word of Scale Low data is on Math59		R
4335	The low word of Scale Low data is on Math60		R
4336	The high word of Scale Low data is on Math60		R
4337	The low word of Scale Low data is on Ext1		R
4338	The high word of Scale Low data is on		R

	Ext1		
4339	The low word of Scale Low data is on Ext2		R
4340	The high word of Scale Low data is on Ext2		R
4341	The low word of Scale Low data is on Ext3		R
4342	The high word of Scale Low data is on Ext3		R
4343	The low word of Scale Low data is on Ext4		R
4344	The high word of Scale Low data is on Ext4		R
4345	The low word of Scale Low data is on Ext5		R
4346	The high word of Scale Low data is on Ext5		R
4347	The low word of Scale Low data is on Ext6		R
4348	The high word of Scale Low data is on Ext6		R
4349	The low word of Scale Low data is on Ext7		R
4350	The high word of Scale Low data is on Ext7		R
4351	The low word of Scale Low data is on Ext8		R
4352	The high word of Scale Low data is on Ext8		R
4353	The low word of Scale Low data is on Ext9		R
4354	The high word of Scale Low data is on Ext9		R
4355	The low word of Scale Low data is on Ext10		R
4356	The high word of Scale Low data is on Ext10		R
4357	The low word of Scale Low data is on Ext11		R
4358	The high word of Scale Low data is on Ext11		R
4359	The low word of Scale Low data is on Ext12		R
4360	The high word of Scale Low data is on Ext12		R

4361	The low word of Scale Low data is on Ext13		R
4362	The high word of Scale Low data is on Ext13		R
4363	The low word of Scale Low data is on Ext14		R
4364	The high word of Scale Low data is on Ext14		R
4365	The low word of Scale Low data is on Ext15		R
4366	The high word of Scale Low data is on Ext15		R
4367	The low word of Scale Low data is on Ext16		R
4368	The high word of Scale Low data is on Ext16		R
4369	The low word of Scale Low data is on Ext17		R
4370	The high word of Scale Low data is on Ext17		R
4371	The low word of Scale Low data is on Ext18		R
4372	The high word of Scale Low data is on Ext18		R
4373	The low word of Scale Low data is on Ext19		R
4374	The high word of Scale Low data is on Ext19		R
4375	The low word of Scale Low data is on Ext20		R
4376	The high word of Scale Low data is on Ext20		R
4377	The low word of Scale Low data is on Ext21		R
4378	The high word of Scale Low data is on Ext21		R
4379	The low word of Scale Low data is on		R

	Ext22		
4380	The high word of Scale Low data is on Ext22		R
4381	The low word of Scale Low data is on Ext23		R
4382	The high word of Scale Low data is on Ext23		R
4383	The low word of Scale Low data is on Ext24		R
4384	The high word of Scale Low data is on Ext24		R
4385	The low word of Scale Low data is on Ext25		R
4386	The high word of Scale Low data is on Ext25		R
4387	The low word of Scale Low data is on Ext26		R
4388	The high word of Scale Low data is on Ext26		R
4389	The low word of Scale Low data is on Ext27		R
4390	The high word of Scale Low data is on Ext27		R
4391	The low word of Scale Low data is on Ext28		R
4392	The high word of Scale Low data is on Ext28		R
4393	The low word of Scale Low data is on Ext29		R
4394	The high word of Scale Low data is on Ext29		R
4395	The low word of Scale Low data is on Ext30		R
4396	The high word of Scale Low data is on Ext30		R
4397	The low word of Scale Low data is on Ext31		R

4398	The high word of Scale Low data is on Ext31		R
4399	The low word of Scale Low data is on Ext32		R
4400	The high word of Scale Low data is on Ext32		R
4401	The low word of Scale Low data is on Ext33		R
4402	The high word of Scale Low data is on Ext33		R
4403	The low word of Scale Low data is on Ext34		R
4404	The high word of Scale Low data is on Ext34		R
4405	The low word of Scale Low data is on Ext35		R
4406	The high word of Scale Low data is on Ext35		R
4407	The low word of Scale Low data is on Ext36		R
4408	The high word of Scale Low data is on Ext36		R
4409	The low word of Scale Low data is on Ext37		R
4410	The high word of Scale Low data is on Ext37		R
4411	The low word of Scale Low data is on Ext38		R
4412	The high word of Scale Low data is on Ext38		R
4413	The low word of Scale Low data is on Ext39		R
4414	The high word of Scale Low data is on Ext39		R
4415	The low word of Scale Low data is on Ext40		R
4416	The high word of Scale Low data is on		R

	Ext40		
4417	The low word of Scale Low data is on Ext41		R
4418	The high word of Scale Low data is on Ext41		R
4419	The low word of Scale Low data is on Ext42		R
4420	The high word of Scale Low data is on Ext42		R
4421	The low word of Scale Low data is on Ext43		R
4422	The high word of Scale Low data is on Ext43		R
4423	The low word of Scale Low data is on Ext44		R
4424	The high word of Scale Low data is on Ext44		R
4425	The low word of Scale Low data is on Ext45		R
4426	The high word of Scale Low data is on Ext45		R
4427	The low word of Scale Low data is on Ext46		R
4428	The high word of Scale Low data is on Ext46		R
4429	The low word of Scale Low data is on Ext47		R
4430	The high word of Scale Low data is on Ext47		R
4431	The low word of Scale Low data is on Ext48		R
4432	The high word of Scale Low data is on Ext48		R
4433	The low word of Scale Low data is on Ext49		R
4434	The high word of Scale Low data is on Ext49		R

4435	The low word of Scale Low data is on Ext50		R
4436	The high word of Scale Low data is on Ext50		R
4437	The low word of Scale Low data is on Ext51		R
4438	The high word of Scale Low data is on Ext51		R
4439	The low word of Scale Low data is on Ext52		R
4440	The high word of Scale Low data is on Ext52		R
4441	The low word of Scale Low data is on Ext53		R
4442	The high word of Scale Low data is on Ext53		R
4443	The low word of Scale Low data is on Ext54		R
4444	The high word of Scale Low data is on Ext54		R
4445	The low word of Scale Low data is on Ext55		R
4446	The high word of Scale Low data is on Ext55		R
4447	The low word of Scale Low data is on Ext56		R
4448	The high word of Scale Low data is on Ext56		R
4449	The low word of Scale Low data is on Ext57		R
4450	The high word of Scale Low data is on Ext57		R
4451	The low word of Scale Low data is on Ext58		R
4452	The high word of Scale Low data is on Ext58		R
4453	The low word of Scale Low data is on		R

	Ext59		
4454	The high word of Scale Low data is on Ext59		R
4455	The low word of Scale Low data is on Ext60		R
4456	The high word of Scale Low data is on Ext60		R
4457	The low word of Scale Low data is on Ext61		R
4458	The high word of Scale Low data is on Ext61		R
4459	The low word of Scale Low data is on Ext62		R
4460	The high word of Scale Low data is on Ext62		R
4461	The low word of Scale Low data is on Ext63		R
4462	The high word of Scale Low data is on Ext63		R
4463	The low word of Scale Low data is on Ext64		R
4464	The high word of Scale Low data is on Ext64		R
4465	The low word of Scale Low data is on Ext65		R
4466	The high word of Scale Low data is on Ext65		R
4467	The low word of Scale Low data is on Ext66		R
4468	The high word of Scale Low data is on Ext66		R
4469	The low word of Scale Low data is on Ext67		R
4470	The high word of Scale Low data is on Ext67		R
4471	The low word of Scale Low data is on Ext68		R

4472	The high word of Scale Low data is on Ext68		R
4473	The low word of Scale Low data is on Ext69		R
4474	The high word of Scale Low data is on Ext69		R
4475	The low word of Scale Low data is on Ext70		R
4476	The high word of Scale Low data is on Ext70		R
4477	The low word of Scale Low data is on Ext71		R
4478	The high word of Scale Low data is on Ext71		R
4479	The low word of Scale Low data is on Ext72		R
4480	The high word of Scale Low data is on Ext72		R
4481	The low word of Scale Low data is on Ext73		R
4482	The high word of Scale Low data is on Ext73		R
4483	The low word of Scale Low data is on Ext74		R
4484	The high word of Scale Low data is on Ext74		R
4485	The low word of Scale Low data is on Ext75		R
4486	The high word of Scale Low data is on Ext75		R
4487	The low word of Scale Low data is on Ext76		R
4488	The high word of Scale Low data is on Ext76		R
4489	The low word of Scale Low data is on Ext77		R
4490	The high word of Scale Low data is on		R

	Ext77		
4491	The low word of Scale Low data is on Ext78		R
4492	The high word of Scale Low data is on Ext78		R
4493	The low word of Scale Low data is on Ext79		R
4494	The high word of Scale Low data is on Ext79		R
4495	The low word of Scale Low data is on Ext80		R
4496	The high word of Scale Low data is on Ext80		R
4497	The low word of Scale Low data is on Ext81		R
4498	The high word of Scale Low data is on Ext81		R
4499	The low word of Scale Low data is on Ext82		R
4500	The high word of Scale Low data is on Ext82		R
4501	The low word of Scale Low data is on Ext83		R
4502	The high word of Scale Low data is on Ext83		R
4503	The low word of Scale Low data is on Ext84		R
4504	The high word of Scale Low data is on Ext84		R
4505	The low word of Scale Low data is on Ext85		R
4506	The high word of Scale Low data is on Ext85		R
4507	The low word of Scale Low data is on Ext86		R
4508	The high word of Scale Low data is on Ext86		R

4509	The low word of Scale Low data is on Ext87		R
4510	The high word of Scale Low data is on Ext87		R
4511	The low word of Scale Low data is on Ext88		R
4512	The high word of Scale Low data is on Ext88		R
4513	The low word of Scale Low data is on Ext89		R
4514	The high word of Scale Low data is on Ext89		R
4515	The low word of Scale Low data is on Ext90		R
4516	The high word of Scale Low data is on Ext90		R
4517	The low word of Scale Low data is on Ext91		R
4518	The high word of Scale Low data is on Ext91		R
4519	The low word of Scale Low data is on Ext92		R
4520	The high word of Scale Low data is on Ext92		R
4521	The low word of Scale Low data is on Ext93		R
4522	The high word of Scale Low data is on Ext93		R
4523	The low word of Scale Low data is on Ext94		R
4524	The high word of Scale Low data is on Ext94		R
4525	The low word of Scale Low data is on Ext95		R
4526	The high word of Scale Low data is on Ext95		R
4527	The low word of Scale Low data is on		R

	Ext96		
4528	The high word of Scale Low data is on Ext96		R

Note:

① The Scale Low / High can be modified when the type is Linear.

How to calculate Modbus Scale Low / High:
Step 1: Calculate ΔScale Range, ΔScale Range = Scale High - Scale Low
Step 2: Calculate Modbus Range, Modbus ΔScale Range = ΔScale Range * 1.2
Step 3: Calculate Modbus Low: Scale Low - (Modbus ΔScale Range - ΔScale Range)
Calculate Modbus Scale High: Scale High + (Modbus ΔScale Range - ΔScale Range)
Step 4: To convert the Modbus Scale Low / High value to DWord value

For example: Scale Low is 0, Scale High is 10
Step 1: ΔScale Range = Scale High - Scale Low = 10 - 0 = 10
Step 2: Modbus ΔScale Range = ΔScale Range * 1.2 = 12

Step 3: Modbus Scale Low = Scale Low - (Modbus ΔScale Range - ΔScale Range) = 0 - (12 - 10) = 0 - 2 = -2
Modbus Scale High = Scale High + (Modbus ΔScale Range - ΔScale Range) = 10 + (12 - 10) = 10 + 2 = 12
Step 4: Convert the Modbus Scale Low value to DWord value :
(((-2 * DP Value) - (-2147483648)) / (2147483647-(-2147483648))) * 4294967295
The DP Value is 1000 when the DP is 3 =>
(-2000 - (-2147483648)) / (2147483647 - (-2147483648)) * 4294967295 = 2147481648
Convert the Modbus Scale High value to DWord value :
(((12 * DP Value) - (-2147483648)) / (2147483647-(-2147483648))) * 4294967295
The DP Value is 1000 when the DP is 3 =>
(12000 - (-2147483648)) / (2147483647 - (-2147483648)) * 4294967295 = 2147495648

Convert DWord value to real Scale Low value :

Real Scale Low Value = ((((DWord Value - 0) * 4294967295) / 4294967295) + (-2147483648)) / DP Value

DP	DP Value
0	1
1	10
2	100
3	1000
4	10000
5	100000

3.4 Modbus Scale High Area (DWord Type)

Modbus Address	Register Name	Note	Access
6001	The low word of Scale High data is on AI1	①	R/W
6002	The high word of Scale High data is on AI1	①	R/W
6003	The low word of Scale High data is on AI2	①	R/W
6004	The high word of Scale High data is on AI2	①	R/W
6005	The low word of Scale High data is on AI3	①	R/W
6006	The high word of Scale High data is on AI3	①	R/W
6007	The low word of Scale High data is on AI4	①	R/W
6008	The high word of Scale High data is on AI4	①	R/W
6009	The low word of Scale High data is on AI5	①	R/W

6010	The high word of Scale High data is on AI5	①	R/W
6011	The low word of Scale High data is on AI6	①	R/W
6012	The high word of Scale High data is on AI6	①	R/W
6013	The low word of Scale High data is on AI7	①	R/W
6014	The high word of Scale High data is on AI7	①	R/W
6015	The low word of Scale High data is on AI8	①	R/W
6016	The high word of Scale High data is on AI8	①	R/W
6017	The low word of Scale High data is on AI9	①	R/W
6018	The high word of Scale High data is on AI9	①	R/W
6019	The low word of Scale High data is on AI10	①	R/W
6020	The high word of Scale High data is on AI10	①	R/W
6021	The low word of Scale High data is on AI11	①	R/W
6022	The high word of Scale High data is on AI11	①	R/W
6023	The low word of Scale High data is on AI12	①	R/W
6024	The high word of Scale High data is on AI12	①	R/W
6025	The low word of Scale High data is on AI13	①	R/W
6026	The high word of Scale Low data is on AI13	①	R/W
6027	The low word of Scale High data is on AI14	①	R/W
6028	The high word of Scale High data is on AI14	①	R/W
6029	The low word of Scale High data is on AI15	①	R/W
6030	The high word of Scale High data is on	①	R/W

	AI15		
6031	The low word of Scale High data is on AI16	①	R/W
6032	The high word of Scale High data is on AI16	①	R/W
6033	The low word of Scale High data is on AI17	①	R/W
6034	The high word of Scale High data is on AI17	①	R/W
6035	The low word of Scale High data is on AI18	①	R/W
6036	The high word of Scale High data is on AI18	①	R/W
6037	The low word of Scale High data is on AI19	①	R/W
6038	The high word of Scale High data is on AI19	①	R/W
6039	The low word of Scale High data is on AI20	①	R/W
6040	The high word of Scale High data is on AI20	①	R/W
6041	The low word of Scale High data is on AI21	①	R/W
6042	The high word of Scale High data is on AI21	①	R/W
6043	The low word of Scale High data is on AI22	①	R/W
6044	The high word of Scale High data is on AI22	①	R/W
6045	The low word of Scale High data is on AI23	①	R/W
6046	The high word of Scale High data is on AI23	①	R/W
6047	The low word of Scale High data is on AI24	①	R/W
6048	The high word of Scale High data is on AI24	①	R/W

6049	The low word of Scale High data is on AI25	①	R/W
6050	The high word of Scale High data is on AI25	①	R/W
6051	The low word of Scale High data is on AI26	①	R/W
6052	The high word of Scale High data is on AI26	①	R/W
6053	The low word of Scale High data is on AI27	①	R/W
6054	The high word of Scale High data is on AI27	①	R/W
6055	The low word of Scale High data is on AI28	①	R/W
6056	The high word of Scale High data is on AI28	①	R/W
6057	The low word of Scale High data is on AI29	①	R/W
6058	The high word of Scale High data is on AI29	①	R/W
6059	The low word of Scale High data is on AI30	①	R/W
6060	The high word of Scale High data is on AI30	①	R/W
6061	The low word of Scale High data is on AI31	①	R/W
6062	The high word of Scale High data is on AI31	①	R/W
6063	The low word of Scale High data is on AI32	①	R/W
6064	The high word of Scale High data is on AI32	①	R/W
6065	The low word of Scale High data is on AI33	①	R/W
6066	The high word of Scale High data is on AI33	①	R/W
6067	The low word of Scale High data is on	①	R/W

	AI34		
6068	The high word of Scale High data is on AI34	①	R/W
6069	The low word of Scale High data is on AI35	①	R/W
6070	The high word of Scale High data is on AI35	①	R/W
6071	The low word of Scale High data is on AI36	①	R/W
6072	The high word of Scale High data is on AI36	①	R/W
6073	The low word of Scale High data is on AI37	①	R/W
6074	The high word of Scale High data is on AI37	①	R/W
6075	The low word of Scale High data is on AI38	①	R/W
6076	The high word of Scale High data is on AI38	①	R/W
6077	The low word of Scale High data is on AI39	①	R/W
6078	The high word of Scale High data is on AI39	①	R/W
6079	The low word of Scale High data is on AI40	①	R/W
6080	The high word of Scale High data is on AI40	①	R/W
6081	The low word of Scale High data is on AI41	①	R/W
6082	The high word of Scale High data is on AI41	①	R/W
6083	The low word of Scale High data is on AI42	①	R/W
6084	The high word of Scale High data is on AI42	①	R/W
6085	The low word of Scale High data is on AI43	①	R/W

6086	The high word of Scale High data is on AI43	①	R/W
6087	The low word of Scale High data is on AI44	①	R/W
6088	The high word of Scale High data is on AI44	①	R/W
6089	The low word of Scale High data is on AI45	①	R/W
6090	The high word of Scale High data is on AI45	①	R/W
6091	The low word of Scale High data is on AI46	①	R/W
6492	The high word of Scale High data is on AI46	①	R/W
6093	The low word of Scale High data is on AI47	①	R/W
6094	The high word of Scale High data is on AI47	①	R/W
6095	The low word of Scale High data is on AI48	①	R/W
6096	The high word of Scale High data is on AI48	①	R/W
6097	The low word of Scale High data is on DI1		R
6098	The high word of Scale High data is on DI1		R
6099	The low word of Scale High data is on DI2		R
6100	The high word of Scale High data is on DI2		R
6101	The low word of Scale High data is on DI3		R
6102	The high word of Scale High data is on DI3		R
6103	The low word of Scale High data is on DI4		R
6104	The high word of Scale High data is on DI4		R
6105	The low word of Scale High data is on DI5		R
6106	The high word of Scale High data is on DI5		R

6107	The low word of Scale High data is on DI6		R
6108	The high word of Scale High data is on DI6		R
6109	The low word of Scale High data is on DI7		R
6110	The high word of Scale High data is on DI7		R
6111	The low word of Scale High data is on DI8		R
6112	The high word of Scale High data is on DI8		R
6113	The low word of Scale High data is on DI9		R
6114	The high word of Scale High data is on DI9		R
6115	The low word of Scale High data is on DI10		R
6116	The high word of Scale High data is on DI10		R
6117	The low word of Scale High data is on DI11		R
6118	The high word of Scale High data is on DI11		R
6119	The low word of Scale High data is on DI12		R
6120	The high word of Scale High data is on DI12		R
6121	The low word of Scale High data is on DI13		R
6122	The high word of Scale High data is on DI13		R
6123	The low word of Scale High data is on DI14		R
6124	The high word of Scale High data is on DI14		R
6125	The low word of Scale High data is on DI15		R
6126	The high word of Scale High data is on DI15		R
6127	The low word of Scale High data is on		R

	DI16		
6128	The high word of Scale High data is on DI16		R
6129	The low word of Scale High data is on DI17		R
6130	The high word of Scale High data is on DI17		R
6131	The low word of Scale High data is on DI18		R
6132	The high word of Scale High data is on DI18		R
6133	The low word of Scale High data is on DI19		R
6134	The high word of Scale High data is on DI19		R
6135	The low word of Scale High data is on DI20		R
6136	The high word of Scale High data is on DI20		R
6137	The low word of Scale High data is on DI21		R
6138	The high word of Scale High data is on DI21		R
6139	The low word of Scale High data is on DI22		R
6140	The high word of Scale High data is on DI22		R
6141	The low word of Scale High data is on DI23		R
6142	The high word of Scale High data is on DI23		R
6143	The low word of Scale High data is on DI24		R
6144	The high word of Scale High data is on DI24		R
6145	The low word of Scale High data is on DO1		R
6146	The high word of Scale High data is on		R

	DO1		
6147	The low word of Scale High data is on DO2		R
6148	The high word of Scale High data is on DO2		R
6149	The low word of Scale High data is on DO3		R
6150	The high word of Scale High data is on DO3		R
6151	The low word of Scale High data is on DO4		R
6152	The high word of Scale High data is on DO4		R
6153	The low word of Scale High data is on DO5		R
6154	The high word of Scale High data is on DO5		R
6155	The low word of Scale High data is on DO6		R
6156	The high word of Scale High data is on DO6		R
6157	The low word of Scale High data is on DO7		R
6158	The high word of Scale High data is on DO7		R
6159	The low word of Scale High data is on DO8		R
6160	The high word of Scale High data is on DO8		R
6161	The low word of Scale High data is on DO9		R
6162	The high word of Scale High data is on DO9		R
6163	The low word of Scale High data is on DO10		R
6164	The high word of Scale High data is on DO10		R
6165	The low word of Scale High data is on DO11		R
6166	The high word of Scale High data is on DO11		R
6167	The low word of Scale High data is on DO12		R
6168	The high word of Scale High data is on DO12		R

6169	The low word of Scale High data is on DO13		R
6170	The high word of Scale High data is on DO13		R
6171	The low word of Scale High data is on DO14		R
6172	The high word of Scale High data is on DO14		R
6173	The low word of Scale High data is on DO15		R
6174	The high word of Scale High data is on DO15		R
6175	The low word of Scale High data is on DO16		R
6176	The high word of Scale High data is on DO16		R
6177	The low word of Scale High data is on DO17		R
6178	The high word of Scale High data is on DO17		R
6179	The low word of Scale High data is on DO18		R
6180	The high word of Scale High data is on DO18		R
6181	The low word of Scale High data is on DO19		R
6182	The high word of Scale High data is on DO19		R
6183	The low word of Scale High data is on DO20		R
6184	The high word of Scale High data is on DO20		R
6185	The low word of Scale High data is on DO21		R
6186	The high word of Scale High data is on DO21		R
6187	The low word of Scale High data is on		R

	DO22		
6188	The high word of Scale High data is on DO22		R
6189	The low word of Scale High data is on DO23		R
6190	The high word of Scale High data is on DO23		R
6191	The low word of Scale High data is on DO24		R
6192	The high word of Scale High data is on DO24		R
6193	The low word of Scale High data is on AO1		R
6194	The high word of Scale High data is on AO1		R
6195	The low word of Scale High data is on AO2		R
6196	The high word of Scale High data is on AO2		R
6197	The low word of Scale High data is on AO3		R
6198	The high word of Scale High data is on AO3		R
6199	The low word of Scale High data is on AO4		R
6200	The high word of Scale High data is on AO4		R
6201	The low word of Scale High data is on AO5		R
6202	The high word of Scale High data is on AO5		R
6203	The low word of Scale High data is on AO6		R
6204	The high word of Scale High data is on AO6		R
6205	The low word of Scale High data is on AO7		R
6206	The high word of Scale High data is on AO7		R
6207	The low word of Scale High data is on AO8		R
6208	The high word of Scale High data is on AO8		R
6209	The low word of Scale High data is on AO9		R
6210	The high word of Scale High data is on		R

	AO9		
6211	The low word of Scale High data is on AO10		R
6212	The high word of Scale High data is on AO10		R
6213	The low word of Scale High data is on AO11		R
6214	The high word of Scale High data is on AO11		R
6215	The low word of Scale High data is on AO12		R
6216	The high word of Scale High data is on AO12		R
6217	The low word of Scale High data is on Math1		R
6218	The high word of Scale High data is on Math1		R
6219	The low word of Scale High data is on Math2		R
6220	The high word of Scale High data is on Math2		R
6221	The low word of Scale High data is on Math3		R
6222	The high word of Scale High data is on Math3		R
6223	The low word of Scale High data is on Math4		R
6224	The high word of Scale High data is on Math4		R
6225	The low word of Scale High data is on Math5		R
6226	The high word of Scale High data is on Math5		R
6227	The low word of Scale High data is on Math6		R
6228	The high word of Scale High data is on Math6		R

6229	The low word of Scale High data is on Math7		R
6230	The high word of Scale High data is on Math7		R
6231	The low word of Scale High data is on Math8		R
6232	The high word of Scale High data is on Math8		R
6233	The low word of Scale High data is on Math9		R
6234	The high word of Scale High data is on Math9		R
6235	The low word of Scale High data is on Math10		R
6236	The high word of Scale High data is on Math10		R
6237	The low word of Scale High data is on Math11		R
6238	The high word of Scale High data is on Math11		R
6239	The low word of Scale High data is on Math12		R
6240	The high word of Scale High data is on Math12		R
6241	The low word of Scale High data is on Math13		R
6242	The high word of Scale High data is on Math13		R
6243	The low word of Scale High data is on Math14		R
6244	The high word of Scale High data is on Math14		R
6245	The low word of Scale High data is on Math15		R
6246	The high word of Scale High data is on Math15		R
6247	The low word of Scale High data is on		R

	Math16		
6248	The high word of Scale High data is on Math16		R
6249	The low word of Scale High data is on Math17		R
6250	The high word of Scale High data is on Math17		R
6251	The low word of Scale High data is on Math18		R
6252	The high word of Scale High data is on Math18		R
6253	The low word of Scale High data is on Math19		R
6254	The high word of Scale High data is on Math19		R
6255	The low word of Scale High data is on Math20		R
6256	The high word of Scale High data is on Math20		R
6257	The low word of Scale High data is on Math21		R
6258	The high word of Scale High data is on Math21		R
6259	The low word of Scale High data is on Math22		R
6260	The high word of Scale High data is on Math22		R
6261	The low word of Scale High data is on Math23		R
6262	The high word of Scale High data is on Math23		R
6263	The low word of Scale High data is on Math24		R
6264	The high word of Scale High data is on Math24		R
6265	The low word of Scale High data is on Math25	Maximum : 5	R

6266	The high word of Scale High data is on Math25		R
6267	The low word of Scale High data is on Math26		R
6268	The high word of Scale High data is on Math26		R
6269	The low word of Scale High data is on Math27		R
6270	The high word of Scale High data is on Math27		R
6271	The low word of Scale High data is on Math28		R
6272	The high word of Scale High data is on Math28		R
6273	The low word of Scale High data is on Math29		R
6274	The high word of Scale High data is on Math29		R
6275	The low word of Scale High data is on Math30		R
6276	The high word of Scale High data is on Math30		R
6277	The low word of Scale High data is on Math31		R
6278	The high word of Scale High data is on Math31		R
6279	The low word of Scale High data is on Math32		R
6280	The high word of Scale High data is on Math32		R
6281	The low word of Scale High data is on Math33		R
6282	The high word of Scale High data is on Math33		R
6283	The low word of Scale High data is on Math34		R
6284	The high word of Scale High data is on		R

	Math34		
6285	The low word of Scale High data is on Math35		R
6286	The high word of Scale High data is on Math35		R
6287	The low word of Scale High data is on Math36		R
6288	The high word of Scale High data is on Math36		R
6289	The low word of Scale High data is on Math37		R
6290	The high word of Scale High data is on Math37		R
6291	The low word of Scale High data is on Math38		R
6292	The high word of Scale High data is on Math38		R
6293	The low word of Scale High data is on Math39		R
6294	The high word of Scale High data is on Math39		R
6295	The low word of Scale High data is on Math40		R
6296	The high word of Scale High data is on Math40		R
6297	The low word of Scale High data is on Math41		R
6298	The high word of Scale High data is on Math41		R
6299	The low word of Scale High data is on Math42		R
6300	The high word of Scale High data is on Math42		R
6301	The low word of Scale High data is on Math43		R
6302	The high word of Scale High data is on Math43		R

6303	The low word of Scale High data is on Math44		R
6304	The high word of Scale High data is on Math44		R
6305	The low word of Scale High data is on Math45		R
6306	The high word of Scale High data is on Math45		R
6307	The low word of Scale High data is on Math46		R
6308	The high word of Scale High data is on Math46		R
6309	The low word of Scale High data is on Math47		R
6310	The high word of Scale High data is on Math47		R
6311	The low word of Scale High data is on Math48		R
6312	The high word of Scale High data is on Math48		R
6313	The low word of Scale High data is on Math49		R
6314	The high word of Scale High data is on Math49		R
6315	The low word of Scale High data is on Math50		R
6316	The high word of Scale High data is on Math50		R
6317	The low word of Scale High data is on Math51		R
6318	The high word of Scale High data is on Math51		R
6319	The low word of Scale High data is on Math52		R
6320	The high word of Scale High data is on Math52		R
6321	The low word of Scale High data is on		R

	Math53		
6322	The high word of Scale High data is on Math53		R
6323	The low word of Scale High data is on Math54		R
6324	The high word of Scale High data is on Math54		R
6325	The low word of Scale High data is on Math55		R
6326	The high word of Scale High data is on Math55		R
6327	The low word of Scale High data is on Math56		R
6328	The high word of Scale High data is on Math56		R
6329	The low word of Scale High data is on Math57		R
6330	The high word of Scale High data is on Math57		R
6331	The low word of Scale High data is on Math58		R
6332	The high word of Scale High data is on Math58		R
6333	The low word of Scale High data is on Math59		R
6334	The high word of Scale High data is on Math59		R
6335	The low word of Scale High data is on Math60		R
6336	The high word of Scale High data is on Math60		R
6337	The low word of Scale High data is on Ext1		R
6338	The high word of Scale High data is on Ext1		R
6339	The low word of Scale High data is on Ext2		R
6340	The high word of Scale High data is on Ext2		R

6341	The low word of Scale High data is on Ext3		R
6342	The high word of Scale High data is on Ext3		R
6343	The low word of Scale High data is on Ext4		R
6344	The high word of Scale High data is on Ext4		R
6345	The low word of Scale High data is on Ext5		R
6346	The high word of Scale High data is on Ext5		R
6347	The low word of Scale High data is on Ext6		R
6348	The high word of Scale High data is on Ext6		R
6349	The low word of Scale High data is on Ext7		R
6350	The high word of Scale High data is on Ext7		R
6351	The low word of Scale High data is on Ext8		R
6352	The high word of Scale High data is on Ext8		R
6353	The low word of Scale High data is on Ext9		R
6354	The high word of Scale High data is on Ext9		R
6355	The low word of Scale High data is on Ext10		R
6356	The high word of Scale High data is on Ext10		R
6357	The low word of Scale High data is on Ext11		R
6358	The high word of Scale High data is on Ext11		R
6359	The low word of Scale High data is on Ext12		R
6360	The high word of Scale High data is on Ext12		R
6361	The low word of Scale High data is on Ext13		R
6362	The high word of Scale High data is on Ext13		R

6363	The low word of Scale High data is on Ext14		R
6364	The high word of Scale High data is on Ext14		R
6365	The low word of Scale High data is on Ext15		R
6366	The high word of Scale High data is on Ext15		R
6367	The low word of Scale High data is on Ext16		R
6368	The high word of Scale High data is on Ext16		R
6369	The low word of Scale High data is on Ext17		R
6370	The high word of Scale High data is on Ext17		R
6371	The low word of Scale High data is on Ext18		R
6372	The high word of Scale High data is on Ext18		R
6373	The low word of Scale High data is on Ext19		R
6374	The high word of Scale High data is on Ext19		R
6375	The low word of Scale High data is on Ext20		R
6376	The high word of Scale High data is on Ext20		R
6377	The low word of Scale High data is on Ext21		R
6378	The high word of Scale High data is on Ext21		R
6379	The low word of Scale High data is on Ext22		R
6380	The high word of Scale High data is on Ext22		R
6381	The low word of Scale High data is on		R

	Ext23		
6382	The high word of Scale High data is on Ext23		R
6383	The low word of Scale High data is on Ext24		R
6384	The high word of Scale High data is on Ext24		R
6385	The low word of Scale High data is on Ext25		R
6386	The high word of Scale High data is on Ext25		R
6387	The low word of Scale High data is on Ext26		R
6388	The high word of Scale High data is on Ext26		R
6389	The low word of Scale High data is on Ext27		R
6390	The high word of Scale High data is on Ext27		R
6391	The low word of Scale High data is on Ext28		R
6392	The high word of Scale High data is on Ext28		R
6393	The low word of Scale High data is on Ext29		R
6394	The high word of Scale High data is on Ext29		R
6395	The low word of Scale High data is on Ext30		R
6396	The high word of Scale High data is on Ext30		R
6397	The low word of Scale High data is on Ext31		R
6398	The high word of Scale High data is on Ext31		R
6399	The low word of Scale High data is on Ext32		R

6400	The high word of Scale High data is on Ext32		R
6401	The low word of Scale High data is on Ext33		R
6402	The high word of Scale High data is on Ext33		R
6403	The low word of Scale High data is on Ext34		R
6404	The high word of Scale High data is on Ext34		R
6405	The low word of Scale High data is on Ext35		R
6406	The high word of Scale High data is on Ext35		R
6407	The low word of Scale High data is on Ext36		R
6408	The high word of Scale High data is on Ext36		R
6409	The low word of Scale High data is on Ext37		R
6410	The high word of Scale High data is on Ext37		R
6411	The low word of Scale High data is on Ext38		R
6412	The high word of Scale High data is on Ext38		R
6413	The low word of Scale High data is on Ext39		R
6414	The high word of Scale High data is on Ext39		R
6415	The low word of Scale High data is on Ext40		R
6416	The high word of Scale High data is on Ext40		R
6417	The low word of Scale High data is on Ext41		R
6418	The high word of Scale High data is on		R

	Ext41		
6419	The low word of Scale High data is on Ext42		R
6420	The high word of Scale High data is on Ext42		R
6421	The low word of Scale High data is on Ext43		R
6422	The high word of Scale High data is on Ext43		R
6423	The low word of Scale High data is on Ext44		R
6424	The high word of Scale High data is on Ext44		R
6425	The low word of Scale High data is on Ext45		R
6426	The high word of Scale High data is on Ext45		R
6427	The low word of Scale High data is on Ext46		R
6428	The high word of Scale High data is on Ext46		R
6429	The low word of Scale High data is on Ext47		R
6430	The high word of Scale High data is on Ext47		R
6431	The low word of Scale High data is on Ext48		R
6432	The high word of Scale High data is on Ext48		R
6433	The low word of Scale High data is on Ext49		R
6434	The high word of Scale High data is on Ext49		R
6435	The low word of Scale High data is on Ext50		R
6436	The high word of Scale High data is on Ext50		R

6437	The low word of Scale High data is on Ext51		R
6438	The high word of Scale High data is on Ext51		R
6439	The low word of Scale High data is on Ext52		R
6440	The high word of Scale High data is on Ext52		R
6441	The low word of Scale High data is on Ext53		R
6442	The high word of Scale High data is on Ext53		R
6443	The low word of Scale High data is on Ext54		R
6444	The high word of Scale High data is on Ext54		R
6445	The low word of Scale High data is on Ext55		R
6446	The high word of Scale High data is on Ext55		R
6447	The low word of Scale High data is on Ext56		R
6448	The high word of Scale High data is on Ext56		R
6449	The low word of Scale High data is on Ext57		R
6450	The high word of Scale High data is on Ext57		R
6451	The low word of Scale High data is on Ext58		R
6452	The high word of Scale High data is on Ext58		R
6453	The low word of Scale High data is on Ext59		R
6454	The high word of Scale High data is on Ext59		R
6455	The low word of Scale High data is on		R

	Ext60		
6456	The high word of Scale High data is on Ext60		R
6457	The low word of Scale High data is on Ext61		R
6458	The high word of Scale High data is on Ext61		R
6459	The low word of Scale High data is on Ext62		R
6460	The high word of Scale High data is on Ext62		R
6461	The low word of Scale High data is on Ext63		R
6462	The high word of Scale High data is on Ext63		R
6463	The low word of Scale High data is on Ext64		R
6464	The high word of Scale High data is on Ext64		R
6465	The low word of Scale High data is on Ext65		R
6466	The high word of Scale High data is on Ext65		R
6467	The low word of Scale High data is on Ext66		R
6468	The high word of Scale High data is on Ext66		R
6469	The low word of Scale High data is on Ext67		R
6470	The high word of Scale High data is on Ext67		R
6471	The low word of Scale High data is on Ext68		R
6472	The high word of Scale High data is on Ext68		R
6473	The low word of Scale High data is on Ext69		R

6474	The high word of Scale High data is on Ext69		R
6475	The low word of Scale High data is on Ext70		R
6476	The high word of Scale High data is on Ext70		R
6477	The low word of Scale High data is on Ext71		R
6478	The high word of Scale High data is on Ext71		R
6479	The low word of Scale High data is on Ext72		R
6480	The high word of Scale High data is on Ext72		R
6481	The low word of Scale High data is on Ext73		R
6482	The high word of Scale High data is on Ext73		R
6483	The low word of Scale High data is on Ext74		R
6484	The high word of Scale High data is on Ext74		R
6485	The low word of Scale High data is on Ext75		R
6486	The high word of Scale High data is on Ext75		R
6487	The low word of Scale High data is on Ext76		R
6488	The high word of Scale High data is on Ext76		R
6489	The low word of Scale High data is on Ext77		R
6490	The high word of Scale High data is on Ext77		R
6491	The low word of Scale High data is on Ext78		R
6492	The high word of Scale High data is on		R

	Ext78		
6493	The low word of Scale High data is on Ext79		R
6494	The high word of Scale High data is on Ext79		R
6495	The low word of Scale High data is on Ext80		R
6496	The high word of Scale High data is on Ext80		R
6497	The low word of Scale High data is on Ext81		R
6498	The high word of Scale High data is on Ext81		R
6499	The low word of Scale High data is on Ext82		R
6500	The high word of Scale High data is on Ext82		R
6501	The low word of Scale High data is on Ext83		R
6502	The high word of Scale High data is on Ext83		R
6503	The low word of Scale High data is on Ext84		R
6504	The high word of Scale High data is on Ext84		R
6505	The low word of Scale High data is on Ext85		R
6506	The high word of Scale High data is on Ext85		R
6507	The low word of Scale High data is on Ext86		R
6508	The high word of Scale High data is on Ext86		R
6509	The low word of Scale High data is on Ext87		R
6510	The high word of Scale High data is on Ext87		R

6511	The low word of Scale High data is on Ext88		R
6512	The high word of Scale High data is on Ext88		R
6513	The low word of Scale High data is on Ext89		R
6514	The high word of Scale High data is on Ext89		R
6515	The low word of Scale High data is on Ext90		R
6516	The high word of Scale High data is onExt90		R
6517	The low word of Scale High data is on Ext91		R
6518	The high word of Scale High data is on Ext91		R
6519	The low word of Scale High data is on Ext92		R
6520	The high word of Scale High data is on Ext92		R
6521	The low word of Scale High data is on Ext93		R
6522	The high word of Scale High data is on Ext93		R
6523	The low word of Scale High data is on Ext94		R
6524	The high word of Scale High data is on Ext94		R
6525	The low word of Scale High data is on Ext95		R
6526	The high word of Scale High data is on Ext95		R
6527	The low word of Scale High data is on Ext96		R
6528	The high word of Scale High data is on Ext96		R

Note:

① The Scale Low / High can be modified when the type is Linear.

How to calculate Modbus Scale Low / High:
Step 1: Calculate ΔScale Range, ΔScale Range = Scale High - Scale Low
Step 2: Calculate Modbus Range, Modbus ΔScale Range = ΔScale Range * 1.2
Step 3: Calculate Modbus Low: Scale Low - (Modbus ΔScale Range - ΔScale Range)
Calculate Modbus Scale High: Scale High + (Modbus ΔScale Range - ΔScale Range)
Step 4: To convert the Modbus Scale Low / High value to DWord value

For example: Scale Low is 0, Scale High is 10
Step 1: ΔScale Range = Scale High - Scale Low = 10 - 0 = 10
Step 2: Modbus ΔScale Range = ΔScale Range * 1.2 = 12
Step 3: Modbus Scale Low = Scale Low - (Modbus ΔScale Range - ΔScale Range) = 0 - (12 - 10) = 0 - 2 = -2
Modbus Scale High = Scale High + (Modbus ΔScale Range - ΔScale Range) = 10 + (12 - 10) = 10 + 2 = 12
Step 4: Convert the Modbus Scale Low value to DWord value :
(((-2 * DP Value) - (-2147483648)) / (2147483647-(-2147483648))) * 4294967295
The DP Value is 1000 when the DP is 3 =>
(-2000 - (-2147483648)) / (2147483647 - (-2147483648)) * 4294967295 = 2147481648
Convert the Modbus Scale High value to DWord value :
(((12 * DP Value) - (-2147483648)) / (2147483647-(-2147483648))) * 4294967295
The DP Value is 1000 when the DP is 3 =>
(12000 - (-2147483648)) / (2147483647 - (-2147483648)) * 4294967295 = 2147495648

Convert DWord value to real Scale High value :

Real Scale High Value = ((((DWord Value - 0) * 4294967295) / 4294967295)

+ (-2147483648)) / DP Value

DP	DP Value
0	1
1	10
2	100
3	1000
4	10000
5	100000

3.5 Others (Word Type)

Modbus Address	Register Name	Note	Access
11001	PG Version		R
11002	Plus NO.	①	R

Note:

①:

Value	Description
0	Standard
1	Plus 1
2	Plus 2
3	Plus 3

4. Modbus Communication

4.1 Read Input Registers (Function 0x04)

The function code is used to read from 1 to 120 contiguous input registers in remote device.

Query

The query message specifies the starting register and quantity of registers to be read. Registers are addressed starting at zero: register 1 – 16 are addressed as 0 – 15.

Here is an example of a request to read register 0 (register type is Input Register, address is 1) from slave device 1:

Field Name	RTU example (Hex)
Slave Address	01
Function	04
Starting Address Hi	00
Starting Address Lo	00
Quantity of Registers Hi	00
Quantity of Registers Lo	01
Error Check Lo	31
Error Check Hi	CA
Total Bytes	8

Response

The register data in the response message are packed as two bytes per registers, with the binary contents right justified within each byte. For each register, the first byte contains the high order bits and the second contains the low order bits.

The response is return when the data is completely assembled. Here is an example of a response to the query on the opposite page:

Field Name	RTU example (Hex)
Slave Address	01
Function	04
Byte Count	02
Data Hi	00
Data Lo	0A
Error Check Lo	39
Error Check Hi	37
Total Bytes	7

4.2 Preset (Write) Multiple Registers (Function 0x10)

The function code is used to write a block of contiguous registers (1 to 120 registers) in remote device.

Query

The query message specified the register references to be preset. Registers are addressed starting at zero: register 1 is addressed as 0. The requested preset values are specified in the query data field. Data is packed as two bytes per register.

Here is an example of a request to preset two registers starting at 40001 to 00 0A and 01 02 hex in slave device 1:

Field Name	RTU example (Hex)
Slave Address	01
Function	10
Starting Address Hi	00
Starting Address Lo	00
Quantity of Registers Hi	00
Quantity of Registers Lo	02
Byte Count	04
Data Hi	00
Data Lo	0A
Data Hi	01

Data Lo	02
Error Check Lo	53
Error Check Hi	FC
Total Bytes	13

Response

The normal response returns the slave address, function code, starting address and quantity of registers preset. Here is an example of a response to the query shown above:

Field Name	**RTU example (Hex)**
Slave Address	01
Function	10
Starting Address Hi	00
Starting Address Lo	00
Quantity of Registers Hi	00
Quantity of Registers Lo	02
Error Check Lo	41
Error Check Hi	C8
Total Bytes	13

4.3 Placing the CRC into message

When the 16 bit CRC (two 8 bit bytes) is transmitted in the message, the low order byte will be transmitted first, followed by the high order byte. For example, if the CRC value is 1241 hex:

Slave Address	Function	Data	CRC Lo	CRC Hi
--	--	--	**41**	**12**

* *Note: Broadcast is not supported.*

5. Sample Code

5.1 CRC Generation Function

An example of a C language function performing CRC generation is shown on the following pages. All of the possible CRC values are preloaded into two arrays, which are simply indexed as the function increments through the message buffer. One array contains all of the 256 possible CRC values for the high byte of the 16 bit CRC field, and the other array contains all of the values for the low byte. Indexing the CRC in this way provides faster execution than would be achieved by calculating a new CRC value with each new character from the message buffer.

```
/************************************************************/
//    Parameter:
//    puchMsg -> unsigned char* puchMsg: message to calculate CRC upon
//    usDataLne -> unsigned short usDataLen: quantity of bytes in message
/************************************************************/
unsigned short CRC16(puchMsg, usDataLen)
{
    unsigned char uchCRCHi=0xFF; /* high byte of CRC initialized */
    unsigned char uchCRCLo=0xFF; /* low byte of CRC initialized */
    unsigned uIndex; /* will index into CRC lookup table */
    while (usDataLen—) /* pass through message buffer */
```

```
        {
            uIndex = uchCRCHi ^ *puchMsgg++; /* calculate the CRC */
            uchCRCHi = uchCRCLo ^ auchCRCHi[uIndex];
            uchCRCLo = auchCRCLo[uIndex] ;
        }
        return (uchCRCHi << 8 | uchCRCLo) ;
    }
```

High-Order Byte Table

```
    /* Table of CRC values for high–order byte */
    static unsigned char auchCRCHi[] = {
0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81,
0x40, 0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40, 0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0,
0x80, 0x41, 0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40, 0x00, 0xC1, 0x81, 0x40, 0x01,
0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x01, 0xC0, 0x80, 0x41,
0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40, 0x00, 0xC1, 0x81,
0x40, 0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x01, 0xC0,
0x80, 0x41, 0x00, 0xC1, 0x81, 0x40, 0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x01,
0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40,
0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81,
0x40, 0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0,
0x80, 0x41, 0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40, 0x00, 0xC1, 0x81, 0x40, 0x01,
0xC0, 0x80, 0x41, 0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41,
0x00, 0xC1, 0x81, 0x40, 0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81,
0x40, 0x01, 0xC0, 0x80, 0x41, 0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0,
0x80, 0x41, 0x00, 0xC1, 0x81, 0x40, 0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x01,
0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40, 0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41,
0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81,
0x40
} ;
```

Low-Order Byte Table

```
/* Table of CRC values for low–order byte */
static char auchCRCLo[] = {
0x00, 0xC0, 0xC1, 0x01, 0xC3, 0x03, 0x02, 0xC2, 0xC6, 0x06, 0x07, 0xC7, 0x05, 0xC5, 0xC4,
0x04, 0xCC, 0x0C, 0x0D, 0xCD, 0x0F, 0xCF, 0xCE, 0x0E, 0x0A, 0xCA, 0xCB, 0x0B, 0xC9, 0x09,
0x08, 0xC8, 0xD8, 0x18, 0x19, 0xD9, 0x1B, 0xDB, 0xDA, 0x1A, 0x1E, 0xDE, 0xDF, 0x1F, 0xDD,
0x1D, 0x1C, 0xDC, 0x14, 0xD4, 0xD5, 0x15, 0xD7, 0x17, 0x16, 0xD6, 0xD2, 0x12, 0x13, 0xD3,
0x11, 0xD1, 0xD0, 0x10, 0xF0, 0x30, 0x31, 0xF1, 0x33, 0xF3, 0xF2, 0x32, 0x36, 0xF6, 0xF7,
```

```
0x37, 0xF5, 0x35, 0x34, 0xF4, 0x3C, 0xFC, 0xFD, 0x3D, 0xFF, 0x3F, 0x3E, 0xFE, 0xFA, 0x3A,
0x3B, 0xFB, 0x39, 0xF9, 0xF8, 0x38, 0x28, 0xE8, 0xE9, 0x29, 0xEB, 0x2B, 0x2A, 0xEA, 0xEE,
0x2E, 0x2F, 0xEF, 0x2D, 0xED, 0xEC, 0x2C, 0xE4, 0x24, 0x25, 0xE5, 0x27, 0xE7, 0xE6, 0x26,
0x22, 0xE2, 0xE3, 0x23, 0xE1, 0x21, 0x20, 0xE0, 0xA0, 0x60, 0x61, 0xA1, 0x63, 0xA3, 0xA2,
0x62, 0x66, 0xA6, 0xA7, 0x67, 0xA5, 0x65, 0x64, 0xA4, 0x6C, 0xAC, 0xAD, 0x6D, 0xAF, 0x6F,
0x6E, 0xAE, 0xAA, 0x6A, 0x6B, 0xAB, 0x69, 0xA9, 0xA8, 0x68, 0x78, 0xB8, 0xB9, 0x79, 0xBB,
0x7B, 0x7A, 0xBA, 0xBE, 0x7E, 0x7F, 0xBF, 0x7D, 0xBD, 0xBC, 0x7C, 0xB4, 0x74, 0x75, 0xB5,
0x77, 0xB7, 0xB6, 0x76, 0x72, 0xB2, 0xB3, 0x73, 0xB1, 0x71, 0x70, 0xB0, 0x50, 0x90, 0x91,
0x51, 0x93, 0x53, 0x52, 0x92, 0x96, 0x56, 0x57, 0x97, 0x55, 0x95, 0x94, 0x54, 0x9C, 0x5C,
0x5D, 0x9D, 0x5F, 0x9F, 0x9E, 0x5E, 0x5A, 0x9A, 0x9B, 0x5B, 0x99, 0x59, 0x58, 0x98, 0x88,
0x48, 0x49, 0x89, 0x4B, 0x8B, 0x8A, 0x4A, 0x4E, 0x8E, 0x8F, 0x4F, 0x8D, 0x4D, 0x4C, 0x8C,
0x44, 0x84, 0x85, 0x45, 0x87, 0x47, 0x46, 0x86, 0x82, 0x42, 0x43, 0x83, 0x41, 0x81, 0x80,
0x40
} ;
```

5.2 Read Data Function

```
/*************************************************************/
//    Parameter:
//    Addr -> Slave ID
//    StReg -> Starting Register Address
//    RegQuantities -> Register Quantities
//    MbsBuf -> Receive Data Buffer
/*************************************************************/
bool ReadData(unsigned char Addr, unsigned short StReg,
                    unsigned short RegQuantities, unsigned char* MbsBuf)
{
    unsigned char msg[8];
    unsigned char Func = 0x04;
    unsigned short Crc;

    msg[0] = Addr;
    msg[1] = Func;
    msg[2] = HIBYTE(StReg);
    msg[3] = LOBYTE(StReg);
    msg[4] = HIBYTE(RegQuantities);
    msg[5] = LOBYTE(RegQuantities);
    Crc = CRC16(msg,6);
```

```
    msg[6] = HIBYTE(Crc);
    msg[7] = LOBYTE(Crc);
    int snd = 8; /* byte number of buffer msg */
    int rcv = (5+(RegQuantities*2));
    /* Send snd bytes content of msg to COMM port */
    /* Receive rcv bytes of response from COMM port to MbsBuf */
    if (receiving data length is same as rcv)
        return true;
    else
        return false;
}
```

5.3 Convert Data Function

```
/*****************************************************************/
//  Parameter:
//  ValueRangeLo -> Minimum value of the value range
//  ValueRangeHi -> Maximum value of the value range
//  ScaleLo -> Minimum value of the scale value
//  ScaleHi -> Maximum value of the scale value
//  RegData -> Current register data from remote device
/*****************************************************************/
double ConvertData(double ValueRangeLo,
                   double ValueRangeHi,
                   double ScaleLo,
                   double ScaleHi,
                   double RegData)
{
    double ConvertValue;

    ConvertValue = (((RegData*(ScaleHi - ScaleLo))/
                    (ValueRangeHi - ValueRangeLo))
                    + ScaleLo);
    return ConvertValue;
}
```

5.4 Read AI Function[1]

```
bool ReadAIData(void)
{
    unsigned char MsgBuf[40];
    unsigned char Addr = 1; /* Slave Id */
    unsigned short StartRegAdd = 2;
    unsigned short RegQuantities = 5;
    int ScaleLo, ScaleHi,
        ValueRangeLo, ValueRangeHi,
        AiData;
    unsigned short RegData;


    // Read register data from remote device
    ReadData(Addr, StartRegAdd, RegQuantities, MsgBuf);

    // Step 1: Parsing data for AI1
    RegData = MAKEWORD(MsgBuf[4], MsgBuf[3]);

    // Step 2: Set value range
    // Because AI data type was set as 2 bytes, the value range would
be
    // showing between -32768 to 32767
    ValueRangeLo = -32768;
    ValueRangeHi = 32767;

    // Step 3: Set value range for scale

    // The default of Sensor type in AI1 is set as『Thermocouple K Type』.

    // Scale low value is showing "-120", scale high value is showing
    // "1000"
    // Please refer to Appendix B, it will explain that how to inquire AI
    // range in PG, as for another scale range of AI, please refer to AI
    // configuration
    ScaleLo = -120;
    ScaleHi = 1000;
```

```
    // Step 4: Execute converted function
    AiData = (int)ConvertData(ValueRangeLo,
                              ValueRangeHi,
                              ScaleLo,
                              ScaleHi,
                              RegData);

    // Step 5: Repeat Step 1 to Step 4 for getting another AI data
```

* *Note: Please refer to Appendix C for more details.*

```
}
```

5.5 Read Math Function[1]

```
bool ReadMathData(void)
{
    unsigned char MsgBuf[120];
    unsigned char i, j;
    unsigned char Addr = 1; /* Slave Id */
    unsigned short StartRegAdd = 201;
    unsigned short RegQuantities = (10*2); // Math data is float type, so
    each Math value take two registers
    double ScaleLo, ScaleHi, ValueRangeLo, ValueRangeHi;
    double RegData, MathData;

    // Read register data from remote device
    ReadData(Addr, StartRegAdd, RegQuantities, MsgBuf);

    // Step 1: Set value range
    // The default of Math data type was set as 4 bytes, the value range
    // will be showing between 0 to 4294967295
    ValueRangeLo = 0;
    ValueRangeHi = 4294967295;

    // Step 2: Set value range for scale
    // When the property of "Transformation" in scale was set as disable,
    // the range will be showing -2147483648 to 2147483647
```

```
// If the property of "Transformation" in Scale was set as "Value" or
// "Math Channel", please refer to Appendix D
ScaleLo = -2147483648;
ScaleHi = 2147483647;

// Step 3: Please refer to the decimal value for the conversion of
each
            Math
switch(decimal value)
{
    case 1:
        ScaleLo = ScaleLo / 10;
        ScaleHi = ScaleHi / 10;
        break;
    case 2:
        ScaleLo = ScaleLo / 100;
        ScaleHi = ScaleHi / 100;
        break;
    case 3:
        ScaleLo = ScaleLo / 1000;
        ScaleHi = ScaleHi / 1000;
        break;
    case 4:
        ScaleLo = ScaleLo / 10000;
        ScaleHi = ScaleHi / 10000;
        break;
    case 5:
        ScaleLo = ScaleLo / 100000;
        ScaleHi = ScaleHi / 100000;
        break;
    default:
        break;
        }

// Step 4: Parsing data for Math1
RegData = (UINT)MAKELONG(MAKEWORD(MsgBuf[j+1],
                                  MsgBuf[j]),
                         MAKEWORD(MsgBuf[j+3],
```

```
                                                    MsgBuf[j+2]));

        // Step 5: Execute converted function
        MathData = ConvertData(ValueRangeLo,
                               ValueRangeHi,
                               ScaleLo,
                               ScaleHi,
                               RegData);

        // Step 6: Repeat Step 1 to Step 5 for getting another data of Math

        * Note: Please refer to Appendix D for more details.
}
```

5.6 Read DI Function[1]

```
bool ReadDIData(void)
{
    unsigned char MsgBuf[96];
    unsigned char Addr = 1; /* Slave Id */
    unsigned short StartRegAdd = 50;
    unsigned short RegQuantities = 5;
    bool DiData;

    // Read register data from remote device
    ReadData(Addr, StartRegAdd, RegQuantities, MsgBuf);

    // Step 1: Parsing data for DI1
    DiData = (bool)MAKEWORD(MsgBuf[4], MsgBuf[3]);

    // Step 2: Repeat Step 1 for getting another DI data
}
```

5.7 Read AO Function[1]

```
bool ReadAOData(void)
{
    unsigned char MsgBuf[48];
```

```
    unsigned char Addr = 1; /* Slave Id */
    unsigned short StartRegAdd = 601;
    unsigned short RegQuantities = 5;
    unsigned short RegData;
    float AoData;

    // Read register data from remote device
    ReadData(Addr, StartRegAdd, RegQuantities, MsgBuf);

    // Because the AO expression is specific, so we need using specific
    // expression to convert the value as following:
    // Step 1: Parsing data for AO1
    RegData = MAKEWORD(MsgBuf[4], MsgBuf[3]);

    // Step2: To do converted expression for AO1
    AoData = ((RegData * 65.535)/65535)-32.768;

    // Step 3: Repeat Step 1 to Step 2 for getting another AO data
```

* *Note: Please refer to Appendix C for more details.*

```
}
```

5.8 Read DO Function[1]

```
bool ReadDOData(void)
{
    unsigned char MsgBuf[48];
    unsigned char Addr = 1; /* Slave Id */
    unsigned short StartRegAdd = 74;
    unsigned short RegQuantities = 5;
    bool DoData;

    // Read register data from remote device
    ReadData(Addr, StartRegAdd, RegQuantities, MsgBuf);

    // Step 1: Parsing data for DO1
    DiData = (bool)MAKEWORD(MsgBuf[4], MsgBuf[3]);
```

```
    // Step 2: Repeat Step 1 for getting another DO data
}
```

5.9 Read External Function[1]

```
bool ReadExtData(void)
{
    unsigned char MsgBuf[128];
    unsigned char Addr = 1; /* Slave Id */
    unsigned short StartRegAdd = 401;
    unsigned short RegQuantities = 20;
    unsigned short ExtData;

    // Read register data from remote device
    ReadData(Addr, StartRegAdd, RegQuantities, MsgBuf);

    // Step 1: Parsing data for Ext1
    DiData = MAKEWORD(MsgBuf[4], MsgBuf[3]);

    // Step 2: Repeat Step 1 for getting another Ext data
```

* Note: Because the Input Register Ext data is same like Holding Register Ext data, so the data type of the ExtData must according to the setting of real case, if the data type of ExtData is 4 bytes, please refer to "ReadMathData" function in Step 1, Step 2, Step 4 and Step 5 to convert data type of customer requirement (Such as: Int32 or UInt32 or float data type).

* Note: If user went to use Ext register to receive AI, DI, AO, DO and Math data of the PG10 or PG20 or PG30, please refer to Appendix F, Appendix G, Appendix H and Appendix I for more details.

```
}
```

*1: Above sample code is according to the PG20 setting, if user need changing the MsgBuf size and RegQuantities value from PG10 or PG30, please refer to the user manual.

Appendix A

Modbus RTU Slave / TCP Server Register data type table

Field Name	Data Size	Data Type	Note
AI	2 Bytes	WORD	Little Endian
Math	4 Bytes	UINT32	Little Endian
DI	2 Bytes	WORD	Little Endian
AO	2 Bytes	WORD	Little Endian
DO	2 Bytes	WORD	Little Endian
External	2 Bytes / 4 Bytes	WORD / DWORD	Little Endian

Table A-1

Appendix B

Inquire AI range

i. Press 『Menu』-> 『More』-> 『Config』

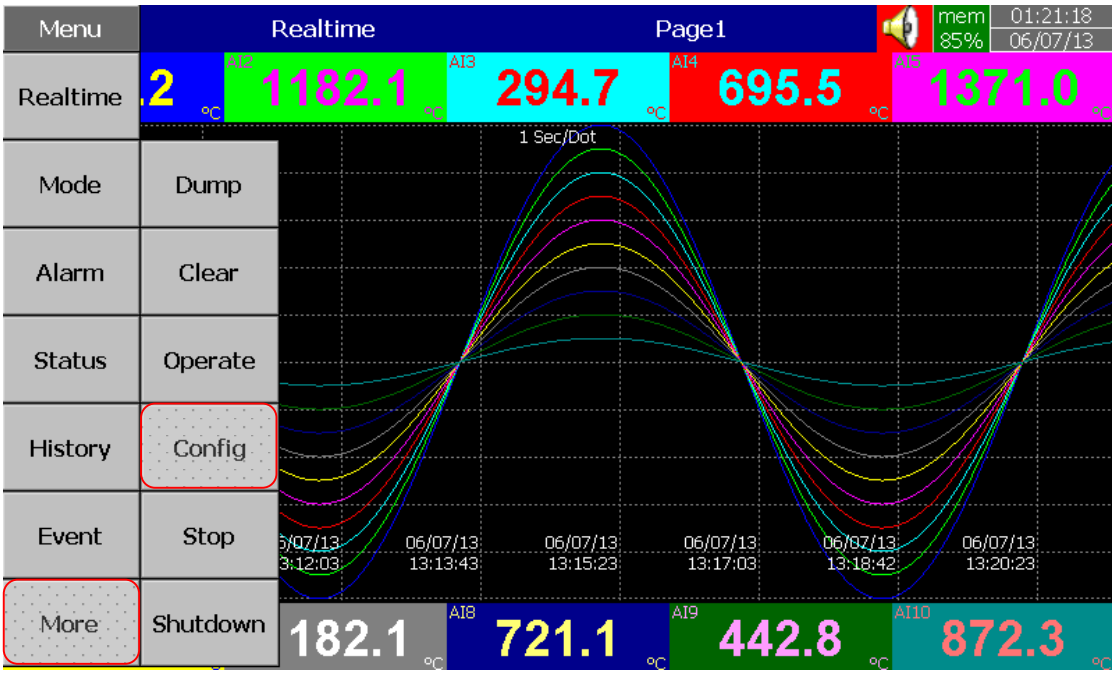


Fig. B-1

ii. Please select 『AI』

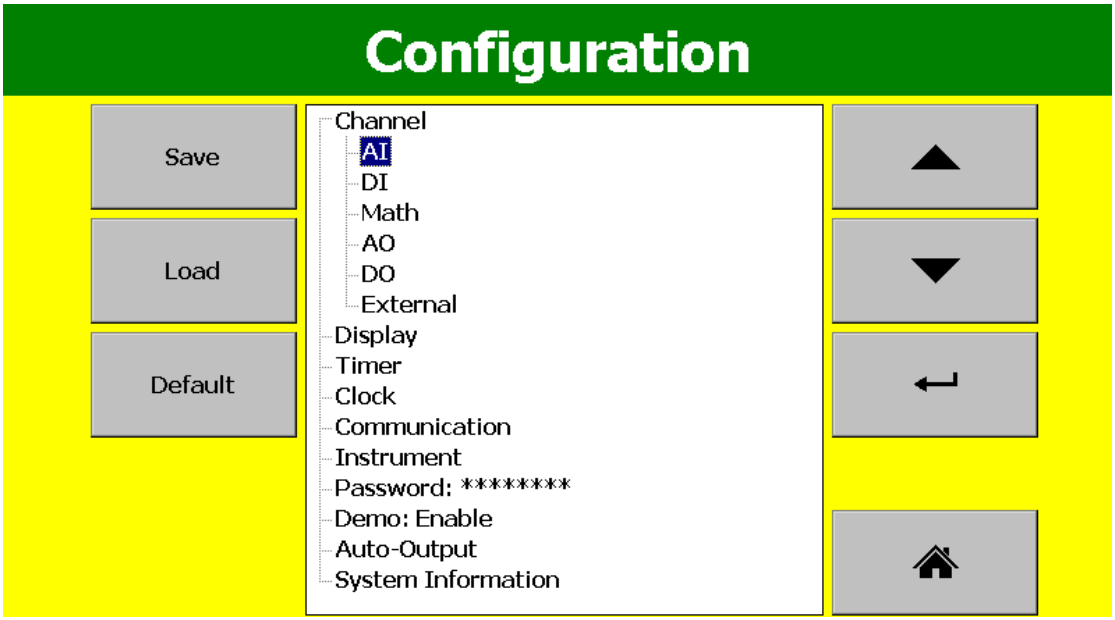


Fig. B-2

iii. We can see the value of AI in following screen

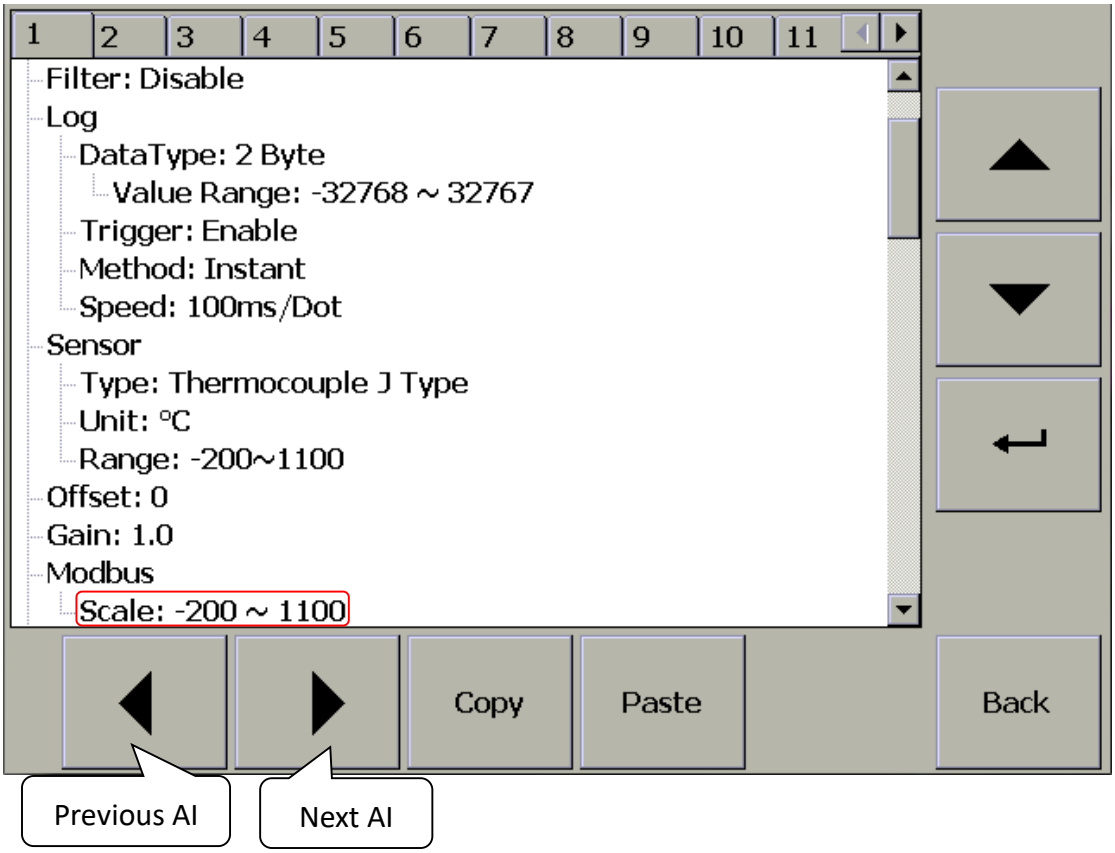


Fig. B-3

Appendix C

AI Convert Example

How to convert the value of getting from the master site, please refer to the following formula:

When the value of AI1 range is set between -120 ~ 1000 (Please refer to ***Fig. B-3***),

If the AI value is set as 0:

AI value = (((0 * (1000 – (-120)) / 65535) + (-120))
= ((0 / 65535) + (-120))
= -120

If the AI value is set as 65535:

AI value = (((65535 * (1000 – (-120)) / 65535) + (-120))
= (((65535 * 1120) / 65535) + (-120))
= ((73399200 / 65535) + (-120))
= (1120 + (-120))
= 1000

If the AI value is set as 32768:

AI value = (((32768 * (1000 – (-120)) / 65535) + (-120))
= (((32768 * 1120) / 65535) + (-120))
= ((36700160 / 65535) + (-120))
= (560 + (-120))
= 440

Appendix D

Math Convert Sample

i.1 Press 『Menu』-> 『More』-> 『Config』

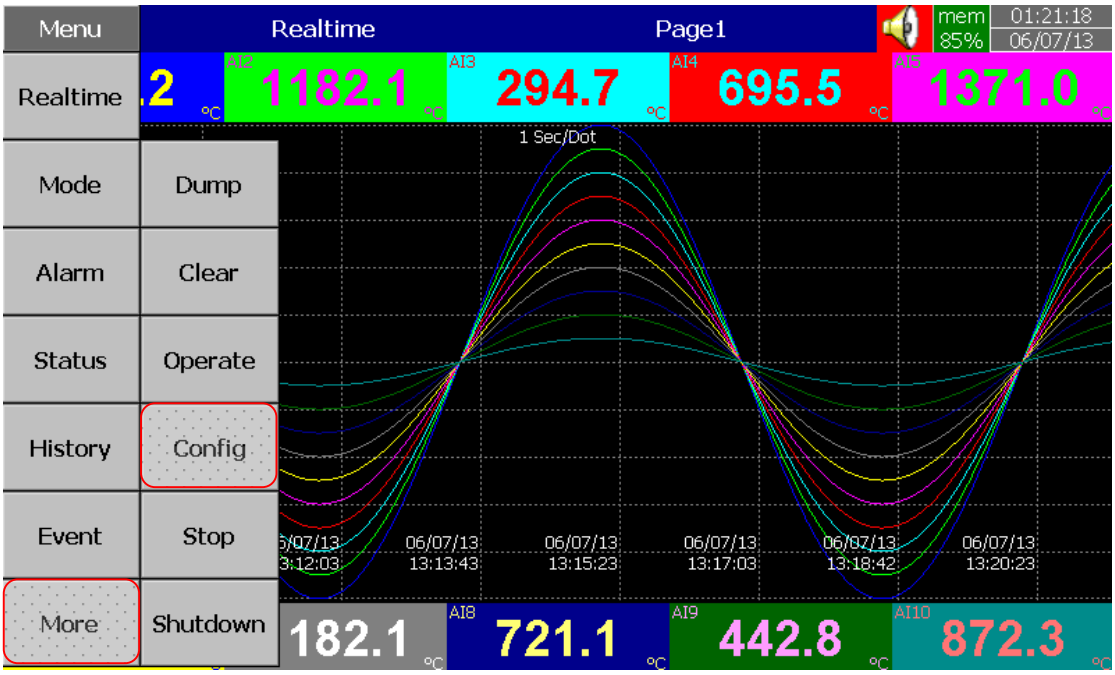


Fig. D-1

ii.1 Please select 『Math』

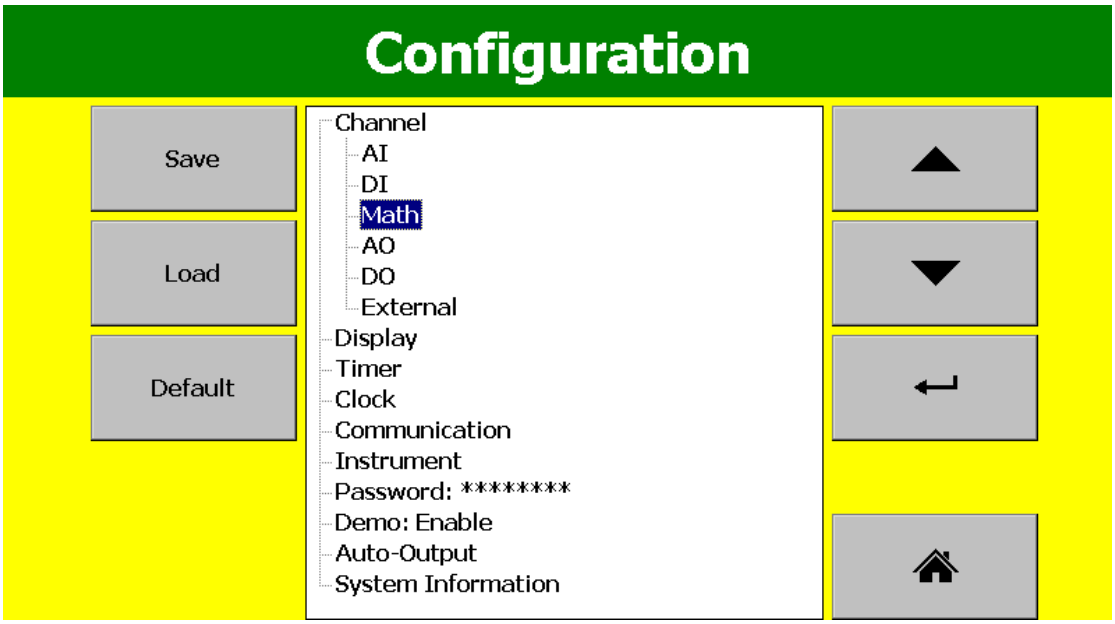


Fig. D-2

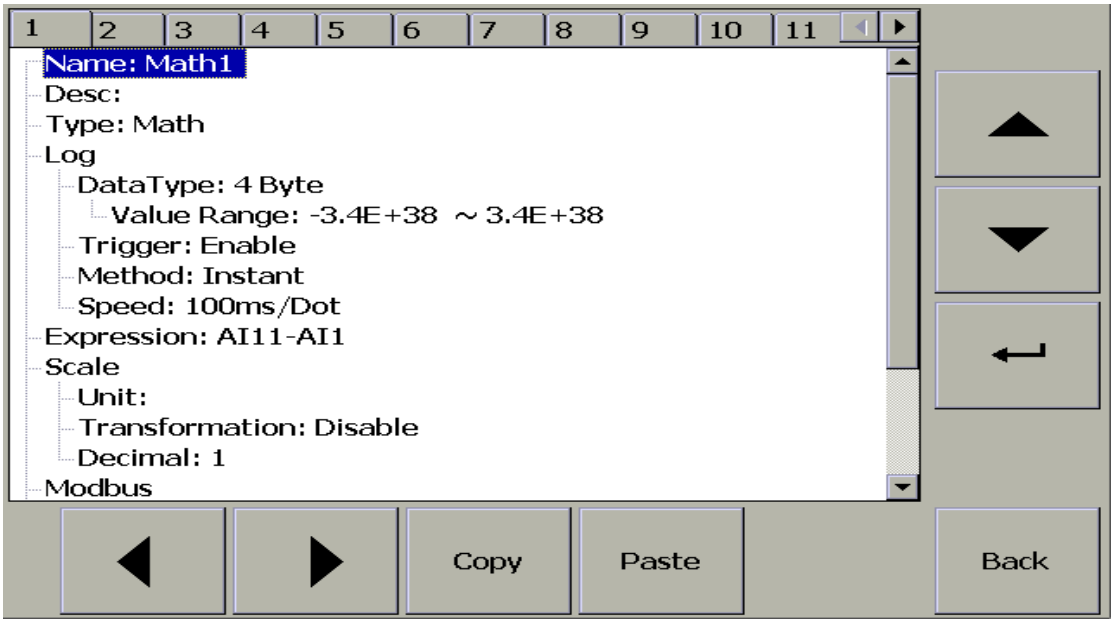


Fig. D-3

In the ***Fig. D-4*** and ***Fig. D-5***, we can see the Transformation of Scale in Math have three types can choose, so we will be showing three samples for explanation, to make the value in the master site can match with the value of PG site.

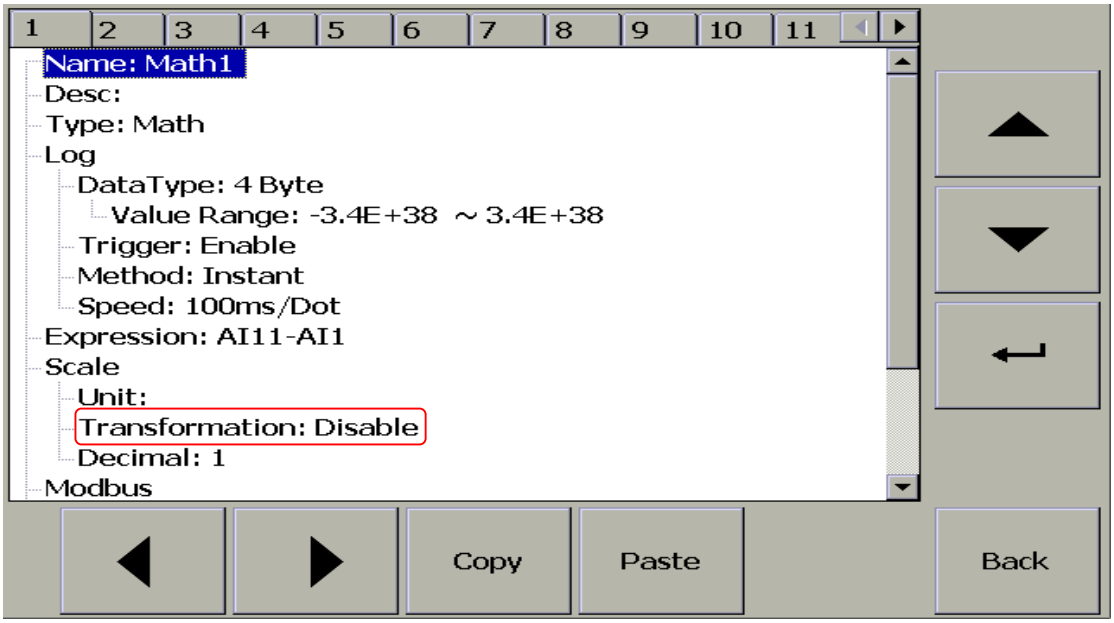


Fig. D-4

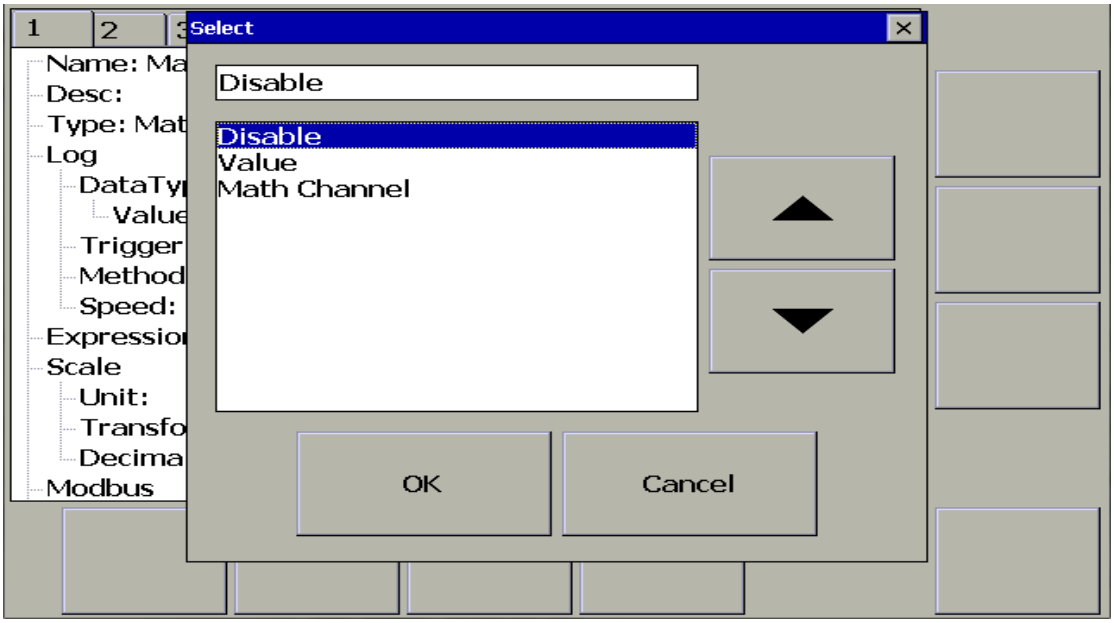


Fig. D-5

iii.1 Transformation : Disable

iii.1.1 Modify the content of expression in Math1 to 10 as following showing

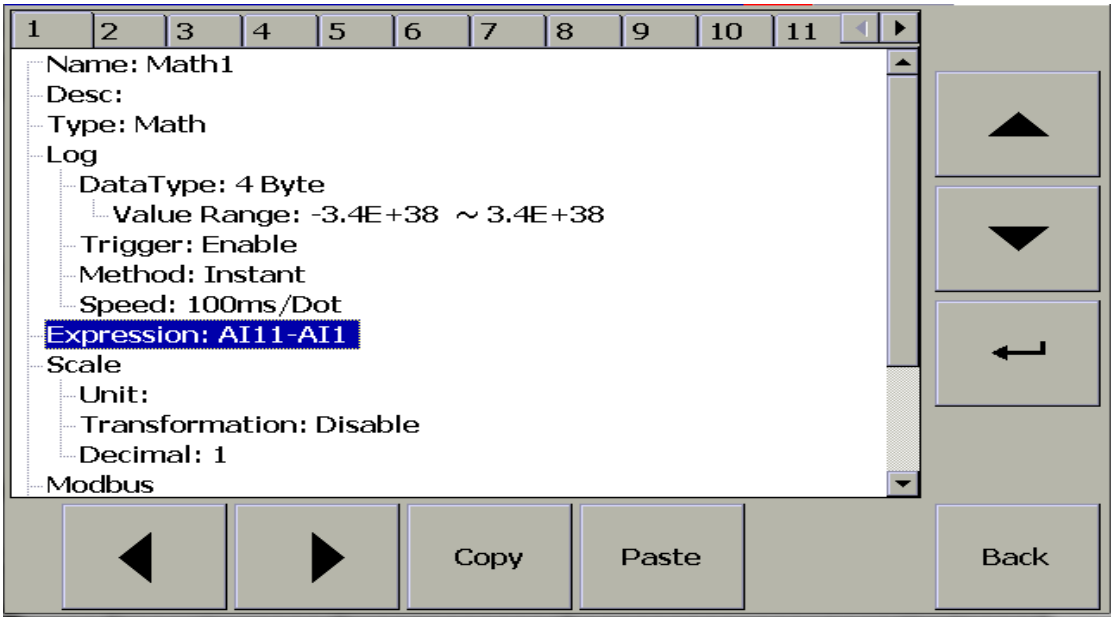


Fig. D-6

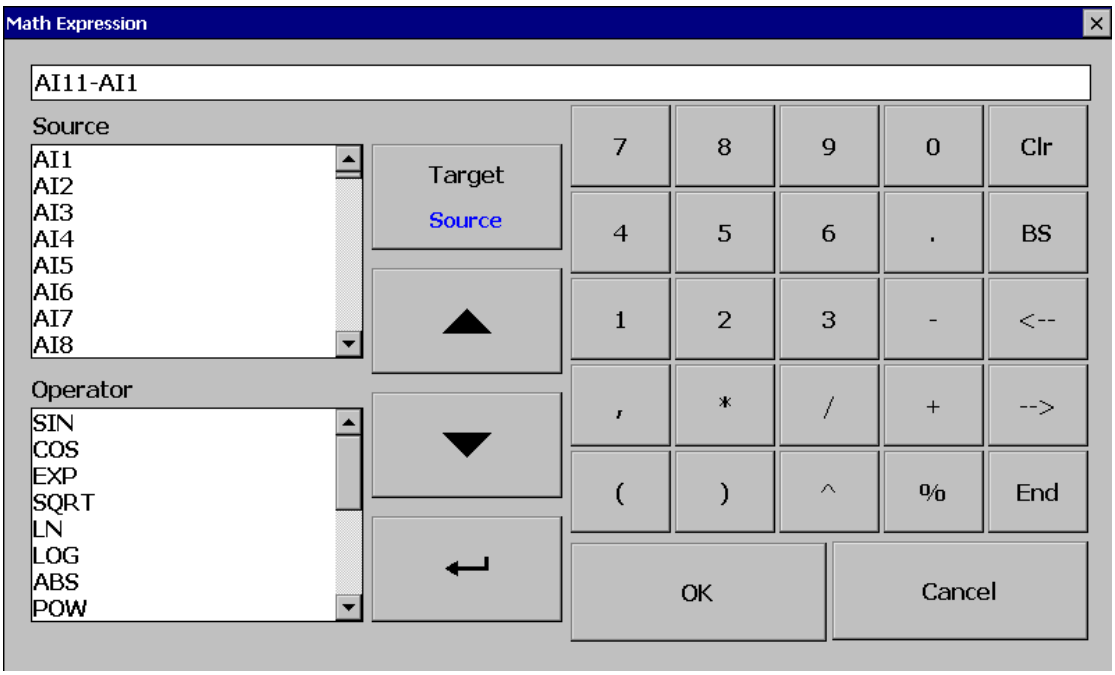

Math Expression
AI11-AI1
Source
AI1
AI2
AI3
AI4
AI5
AI6
AI7
AI8
Operator
SIN
COS
EXP
SQRT
LN
LOG
ABS
POW
Target
Source
7
8
9
0
Clr
4
5
6
.
BS
1
2
3
-
<--
,
*
/
+
-->
(
)
^
%
End
OK
Cancel

Fig. D-7

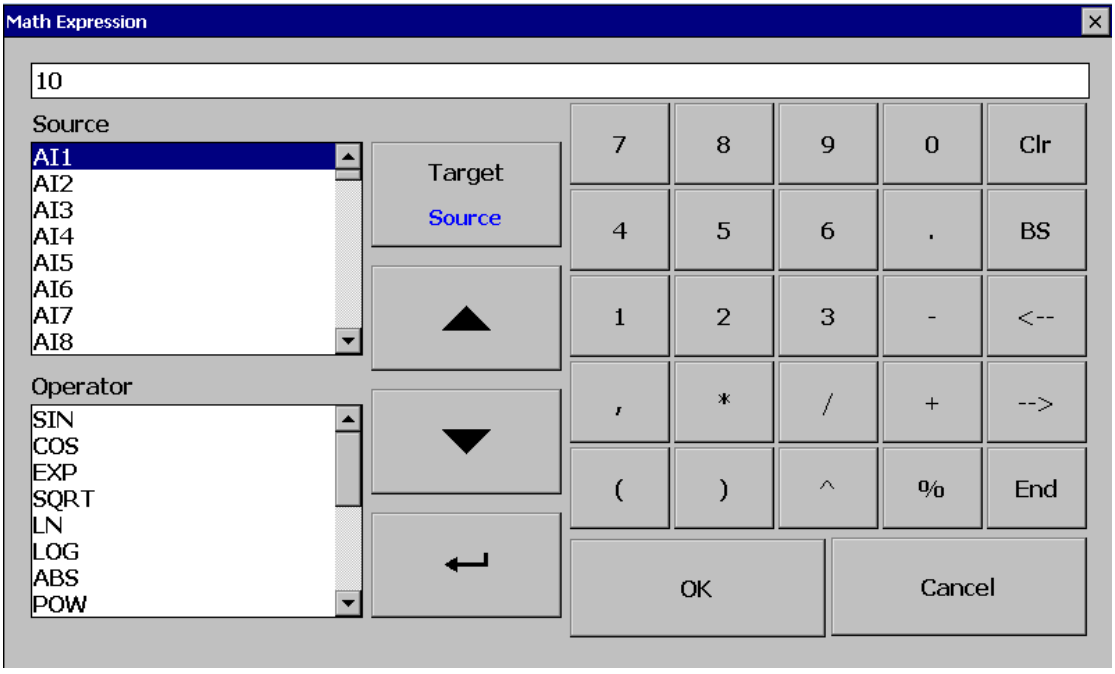

Math Expression
10
Source
AI1
AI2
AI3
AI4
AI5
AI6
AI7
AI8
Operator
SIN
COS
EXP
SQRT
LN
LOG
ABS
POW
Target
Source
7
8
9
0
Clr
4
5
6
.
BS
1
2
3
-
<--
,
*
/
+
-->
(
)
^
%
End
OK
Cancel

Fig. D-8

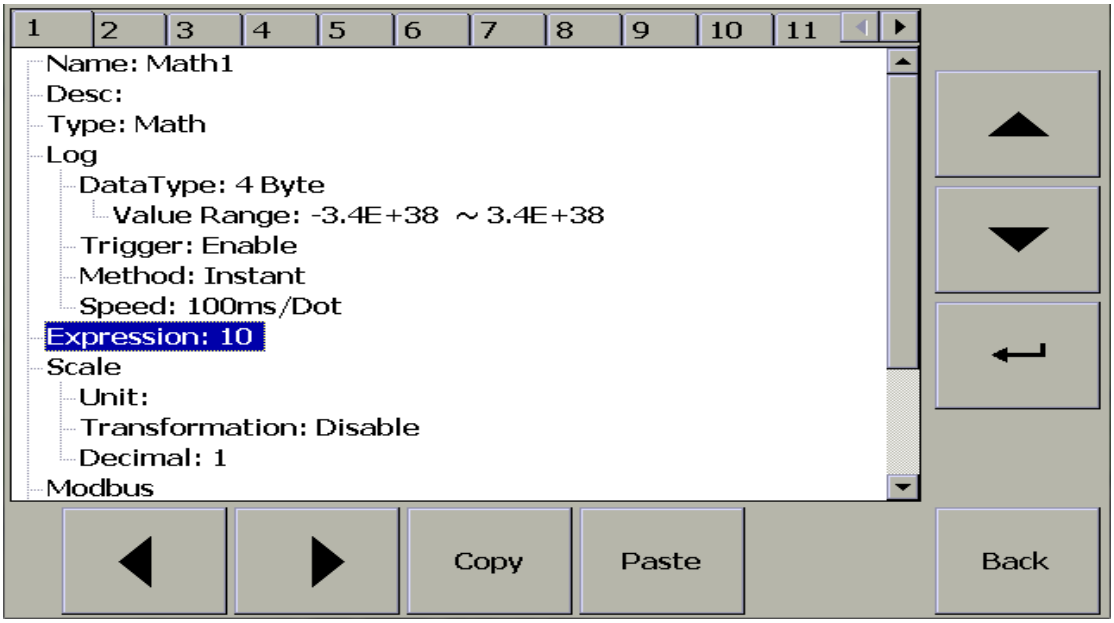


Fig. D-9

iii.1.2 Please come back to the "Overview" page, we can see the value In Math1 is showing "10"

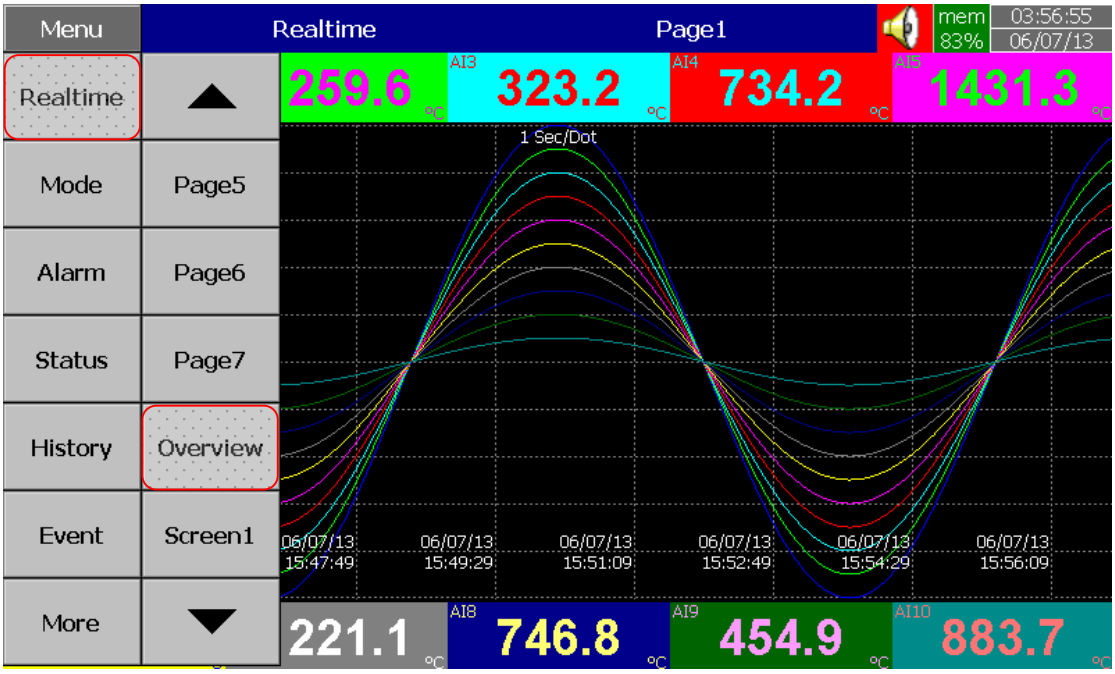


Fig. D-10

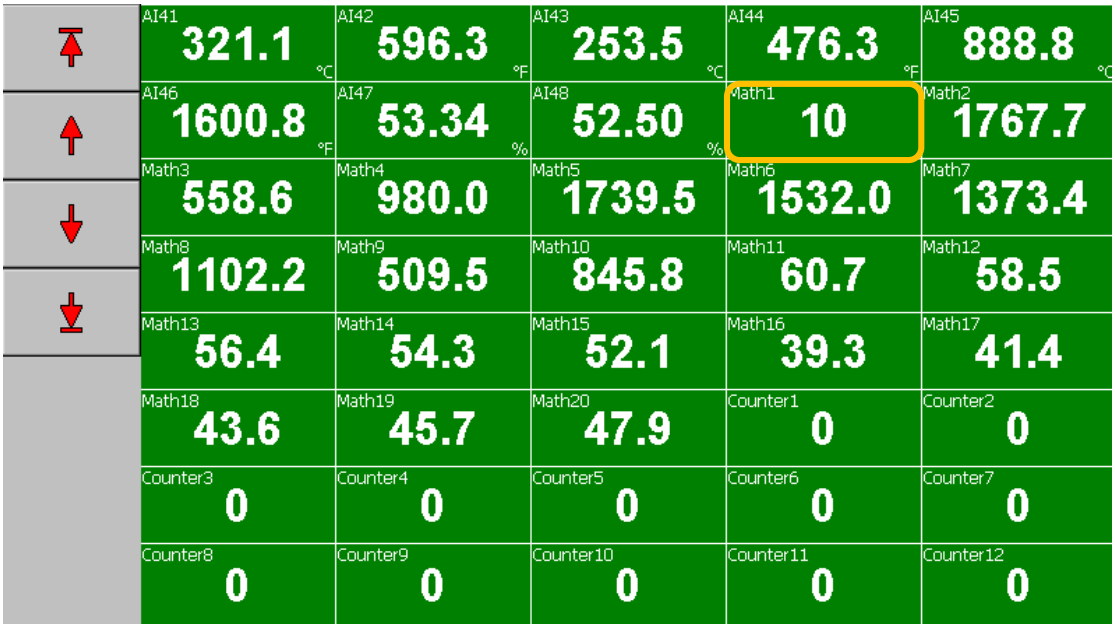


Fig. D-11

iii.1.3 Please go to the configuration of Math1 page and check the decimal value

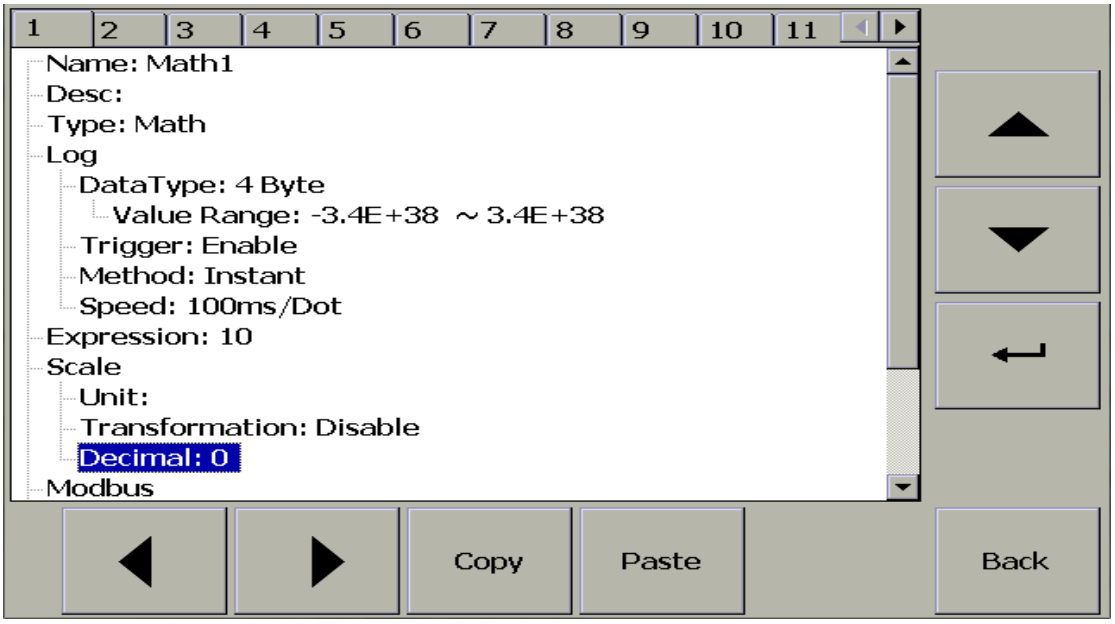


Fig. D-12

If the decimal value is set as "0", the value don't need to do any conversion in the master site, if the decimal value is set as "1", the value of getting from the master site must to be divided 10 then it just can match with the value in Math1 of PG, if the decimal value is set as "2", then the value of getting from the master site must to be divided 100, the it just can match with the value in Marth1 of PG, if the decimal value is set as "5", the value of getting from the

master site must to be divided 10000, then it just can match with the value in Math1 PG.

iii.2 Transformation : Value

iii.2.1 Change the Transformation type to "Value"

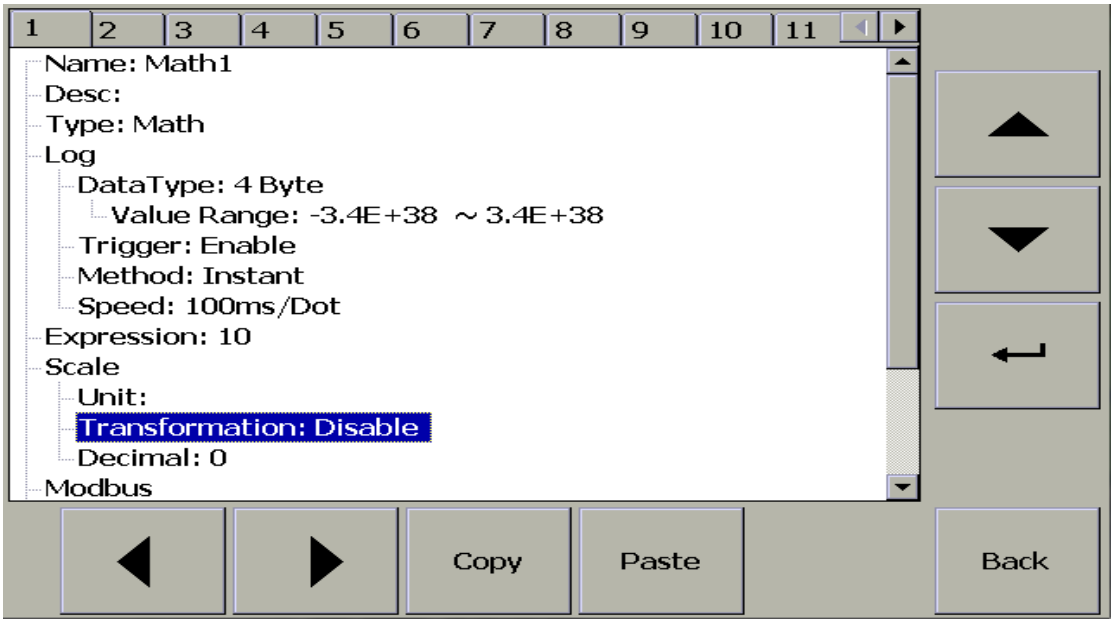


Fig. D-13

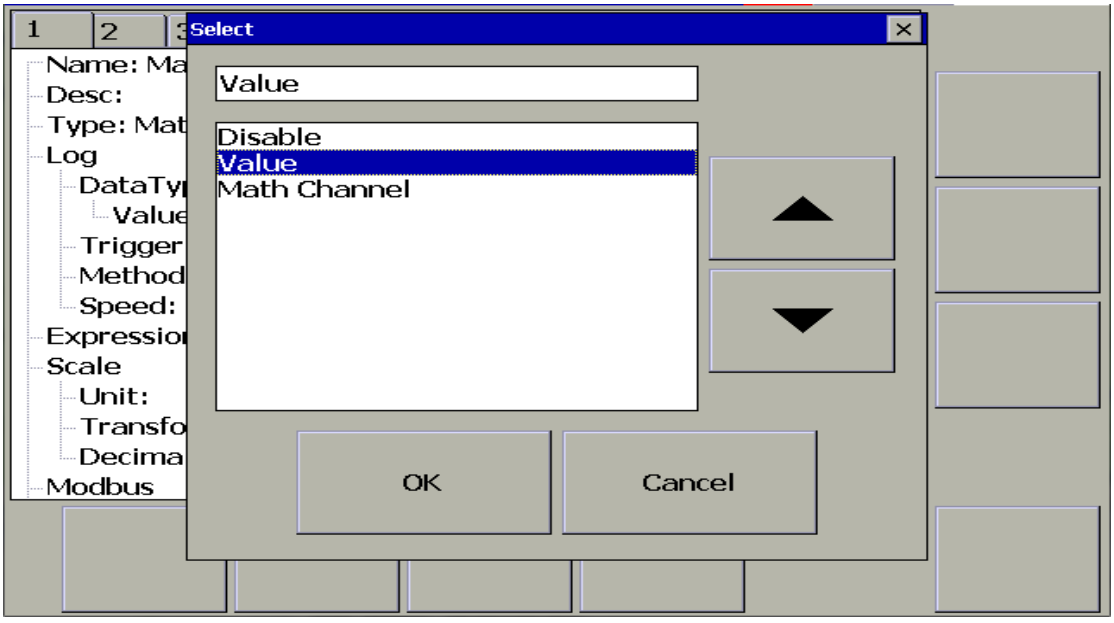


Fig. D-14

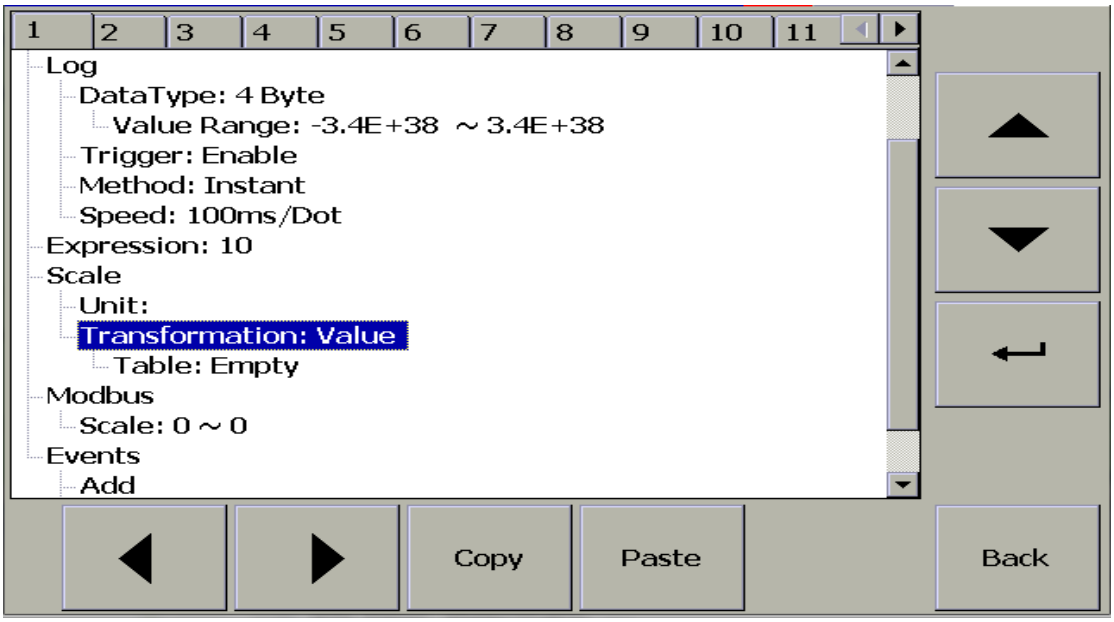


Fig. D-15

iii.2.2 Create table of scale range table for conversion in Math1

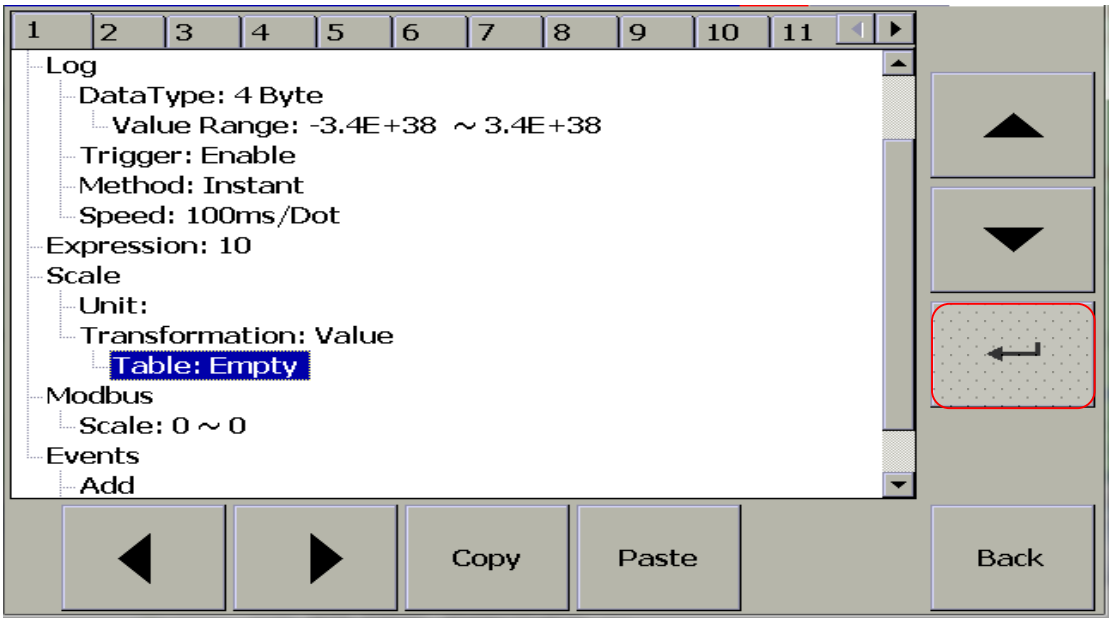


Fig. D-16

Press “Add” button to add scale range

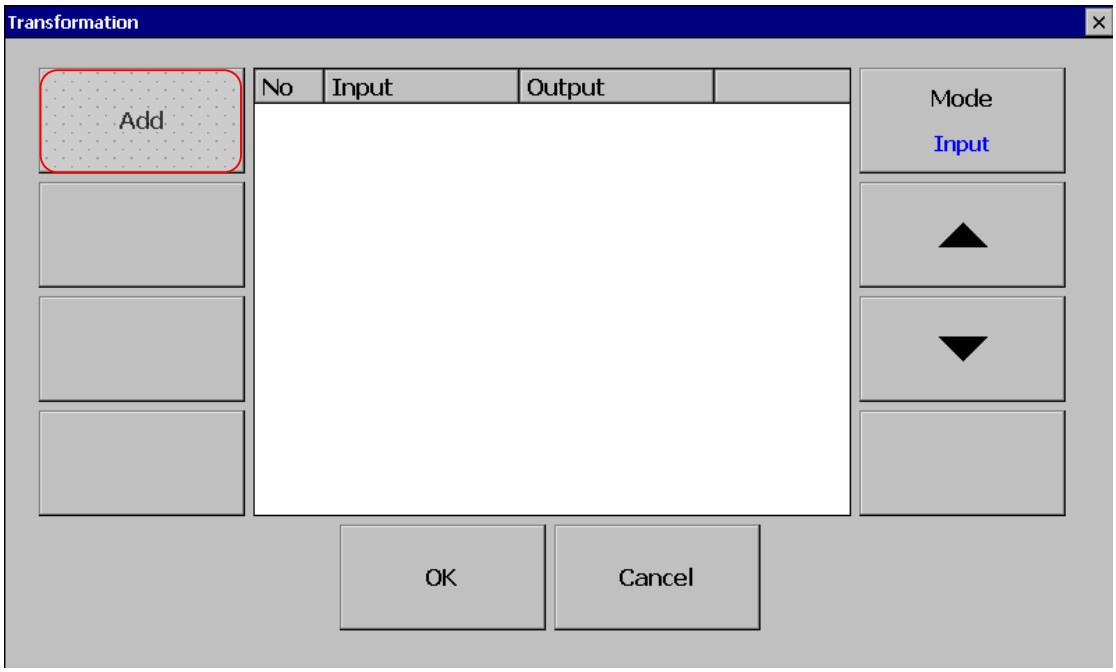


Fig. D-17

Press “Enter” button to modify “Input” value

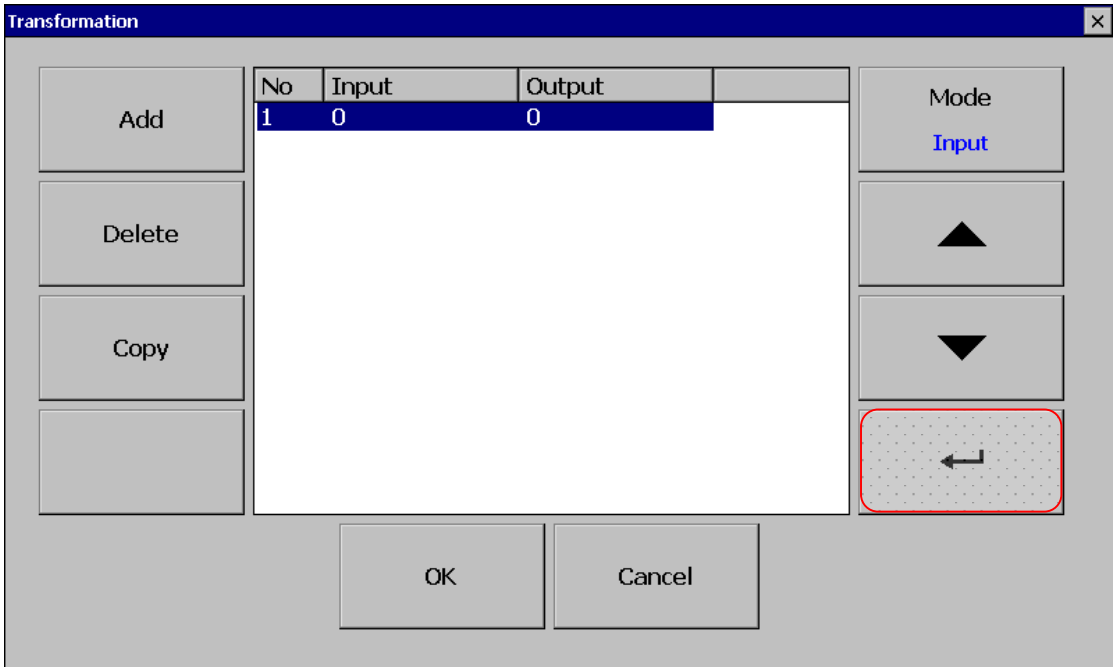


Fig. D-18

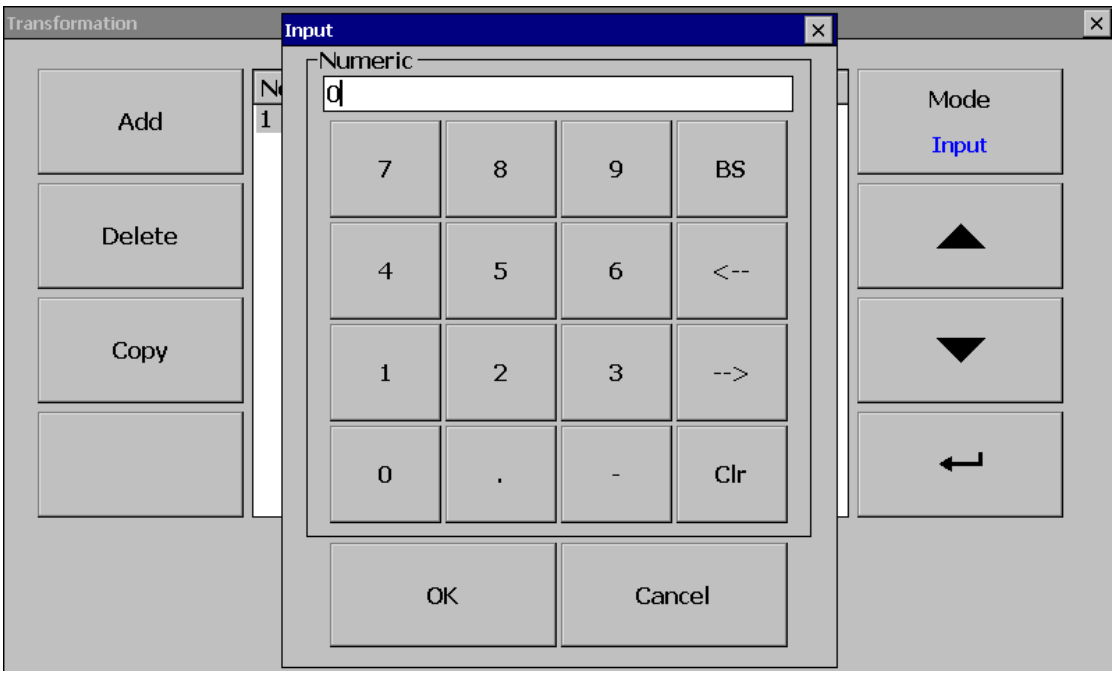


Fig. D-19

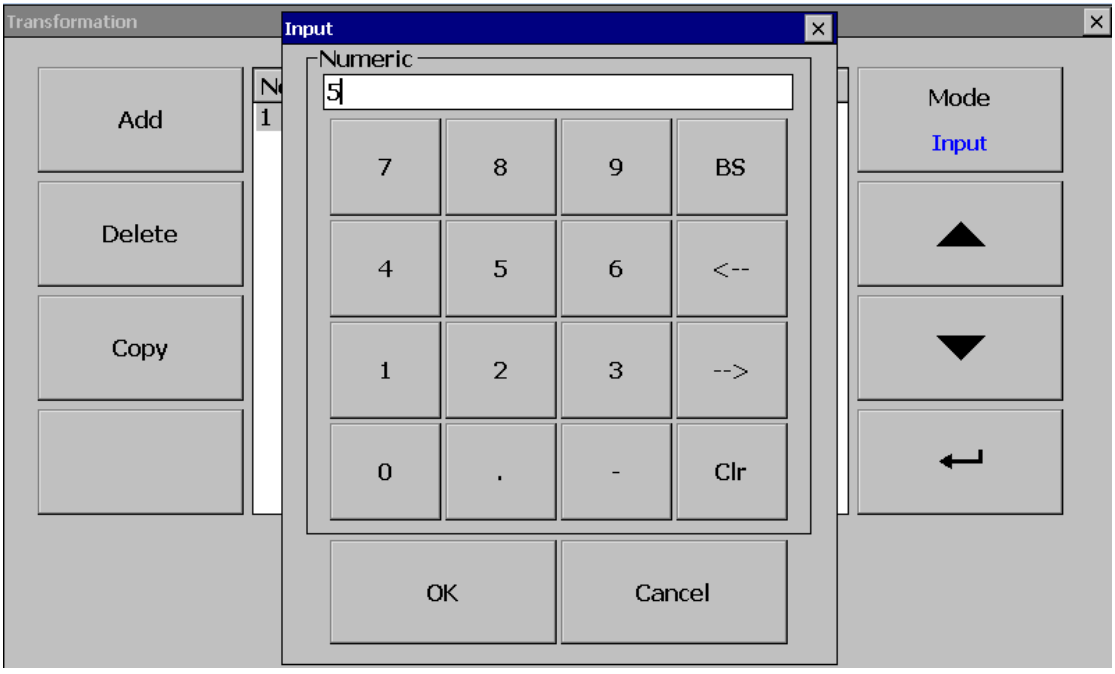


Fig. D-20

Press “Mode” button from “Input” to “Output”

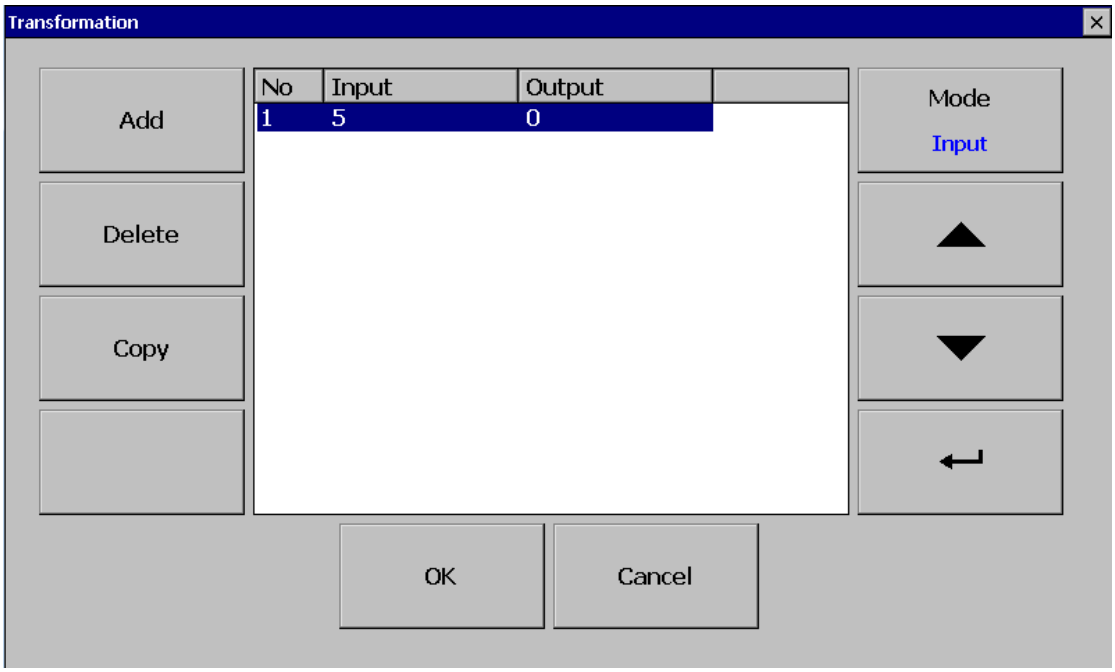


Fig. D-21

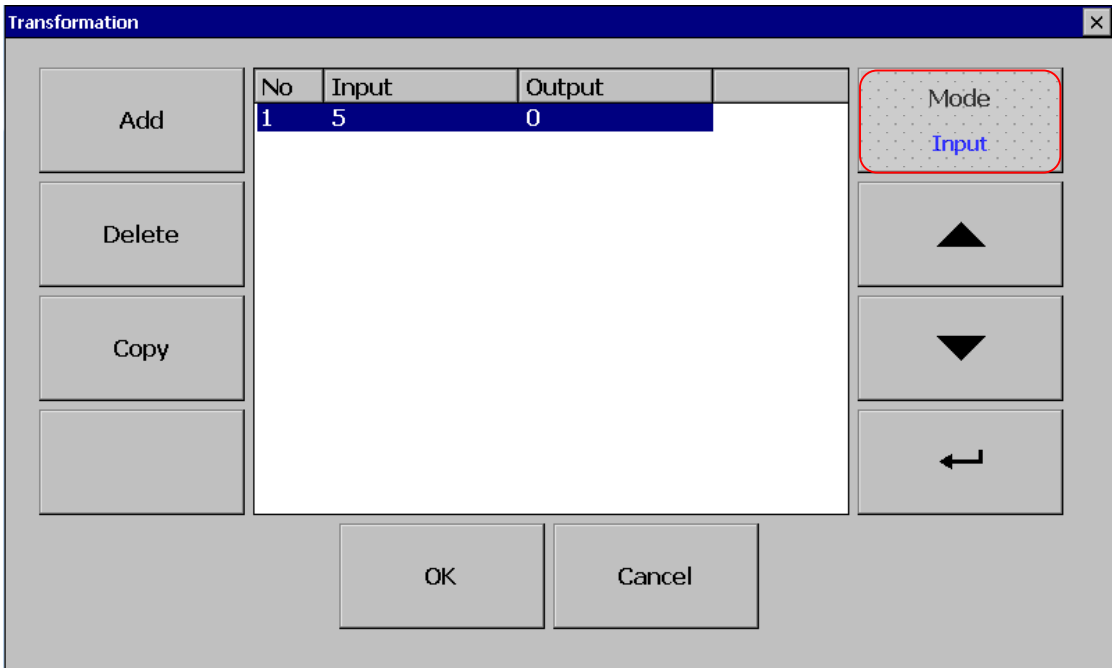


Fig. D-22

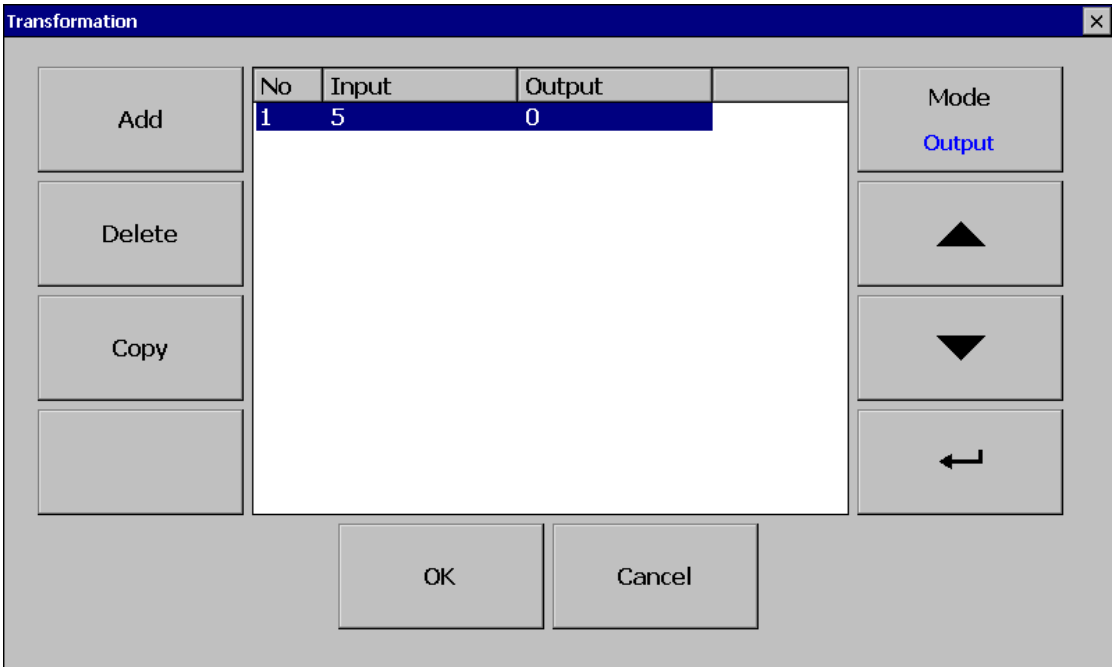


Fig. D-23

Press "Enter" button to modify "Output" value

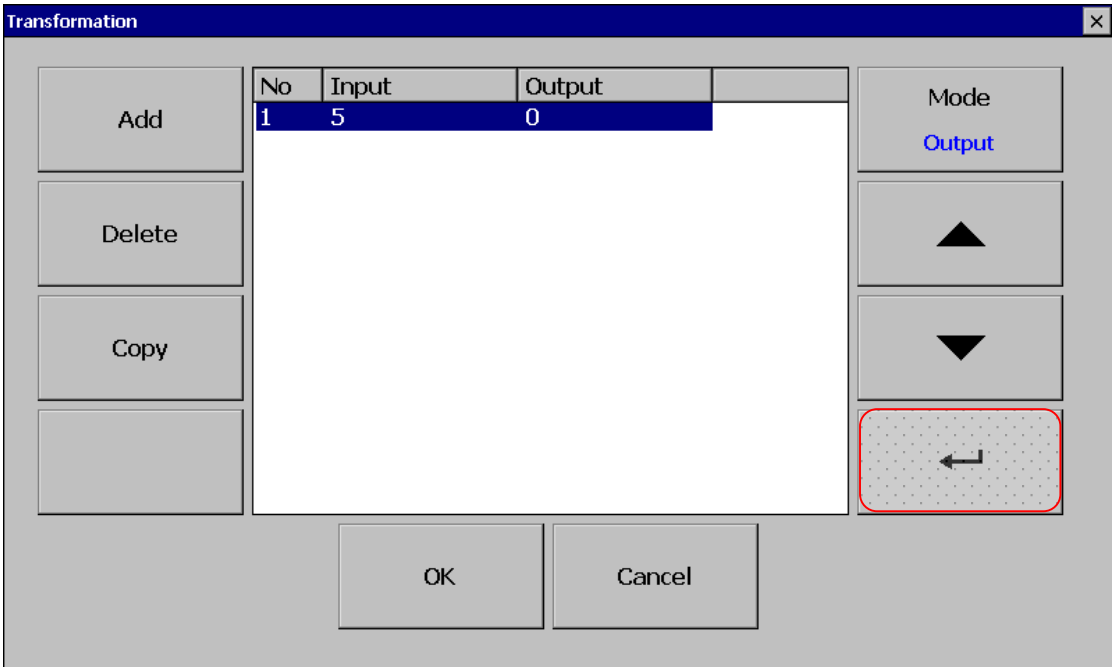


Fig. D-24

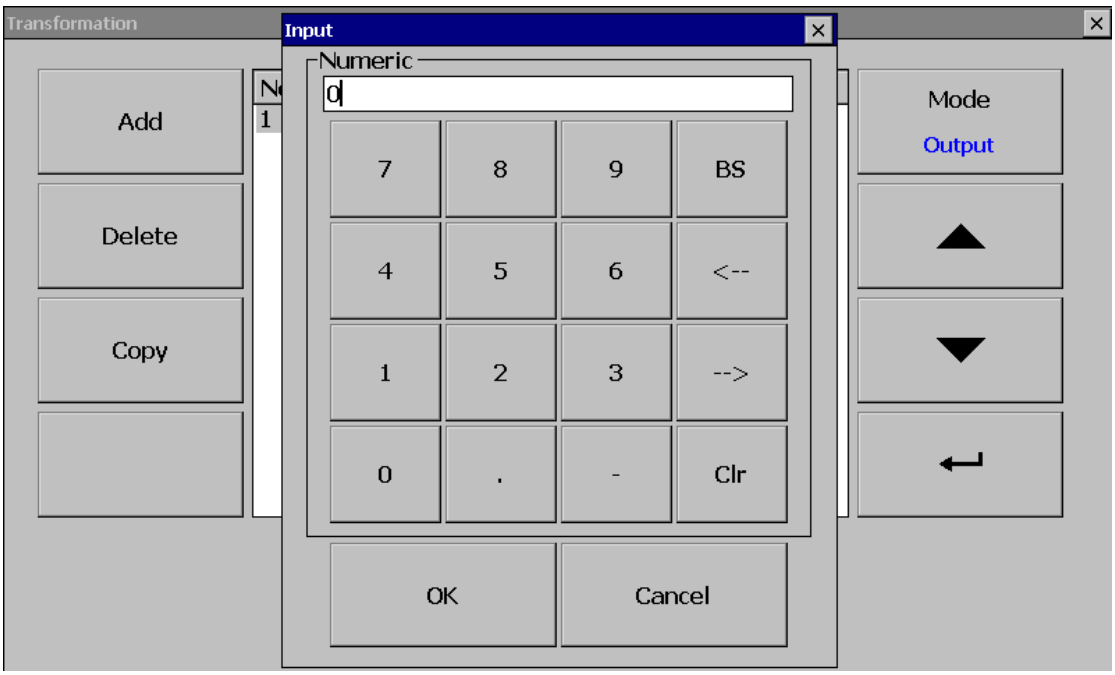


Fig. D-25

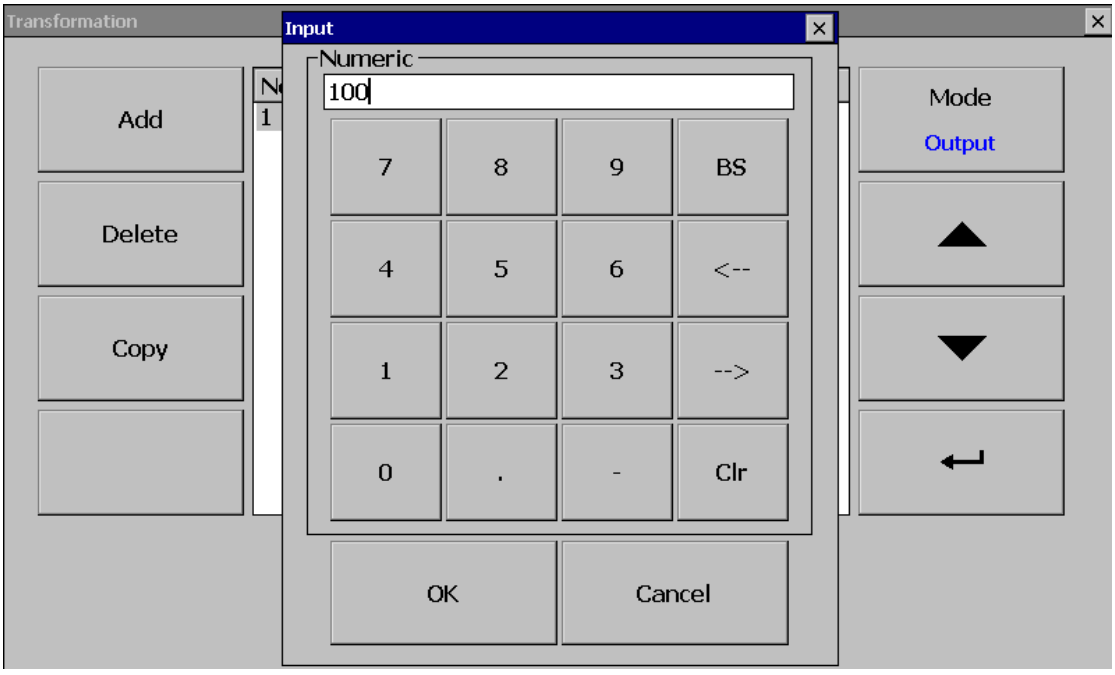


Fig. D-26

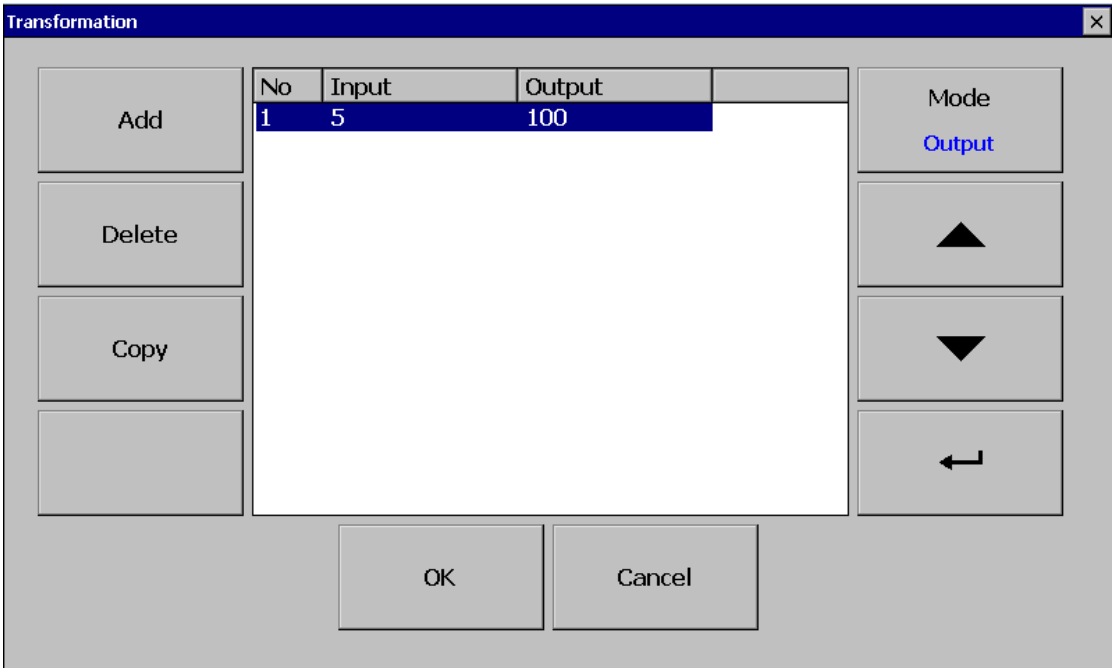


Fig. D-27

Please repeat ***Fig. D-17*** to ***Fig D-27*** step to add another scale range, and please notice the scale range need two points at least to convert value.
In here, we will create 3 points to do conversion for this sample.

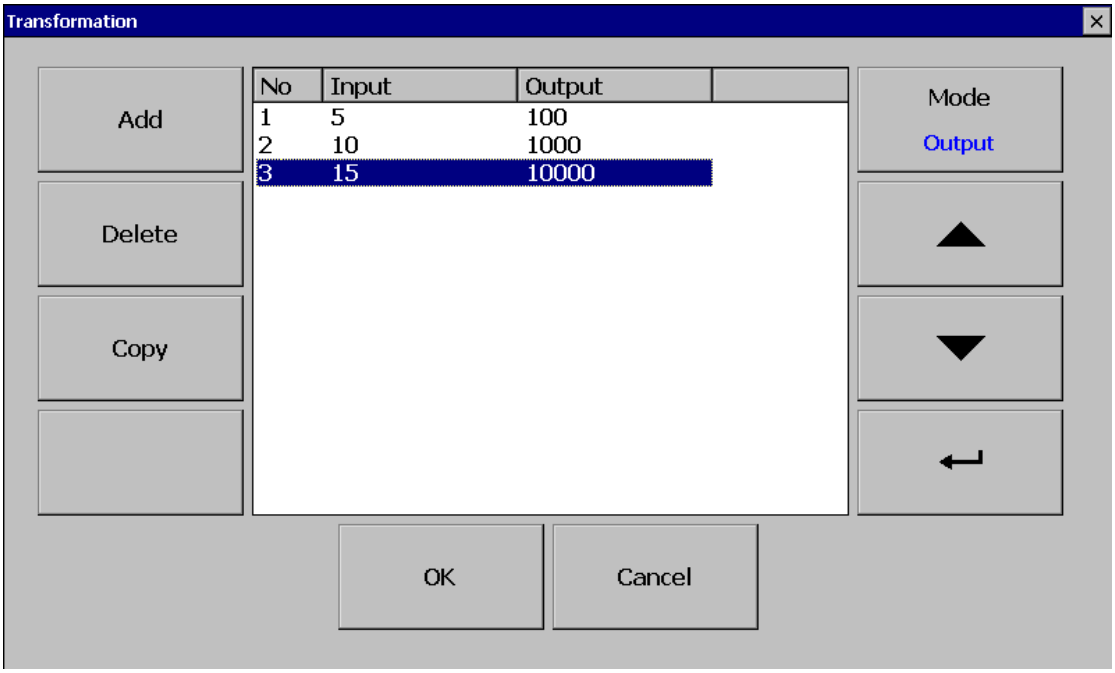


Fig. D-28

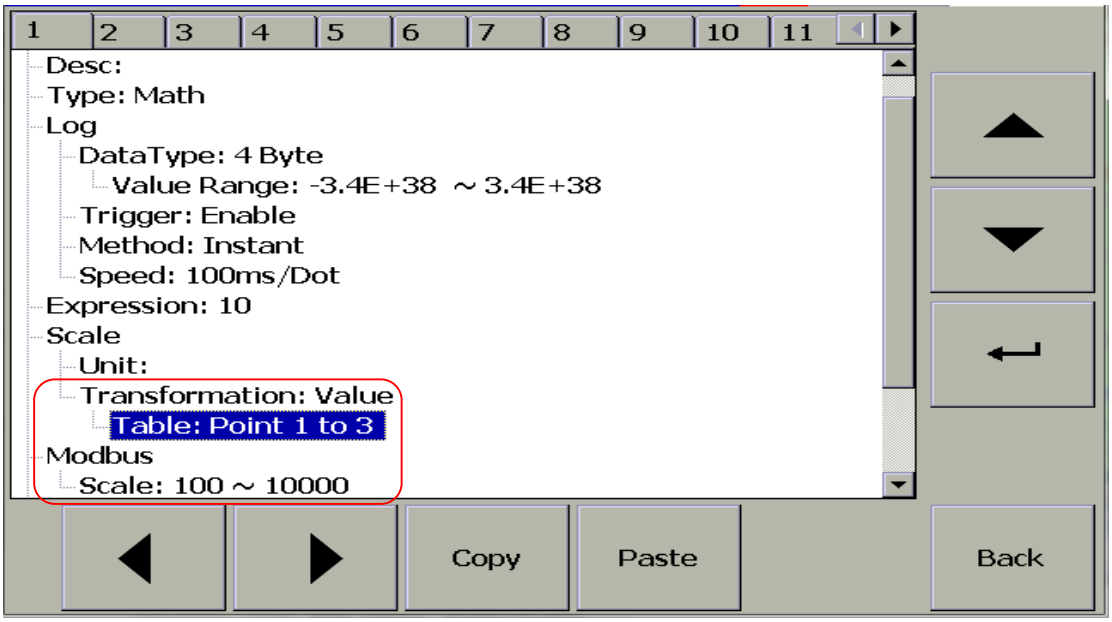


Fig. D-29

iii.2.3 Modify expression value to "5" and check the Math1 value in "Overview" page

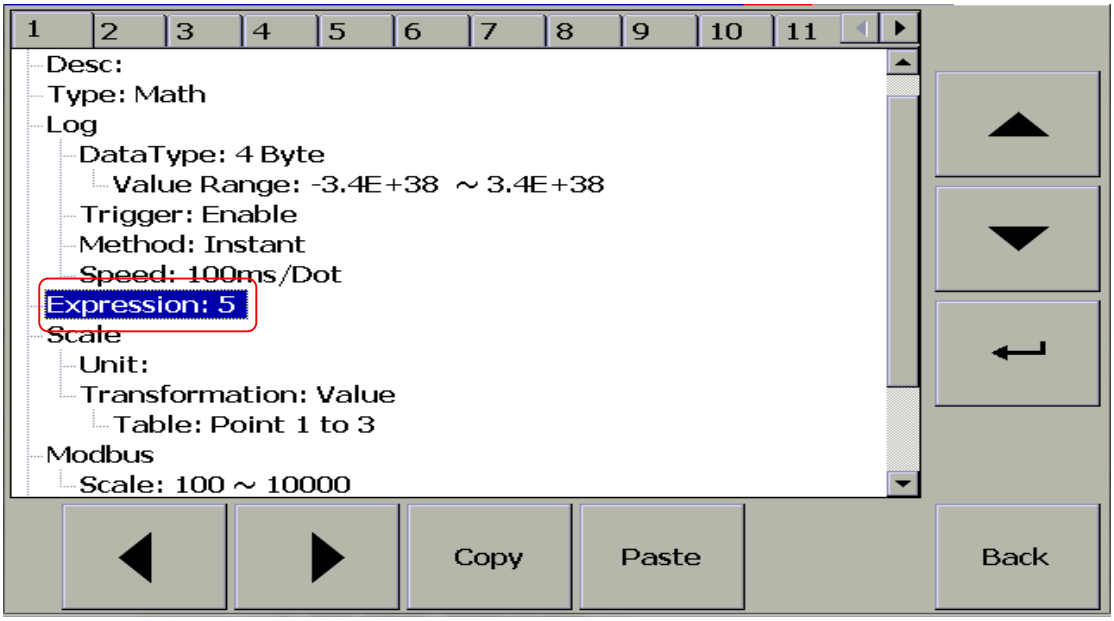


Fig. D-30

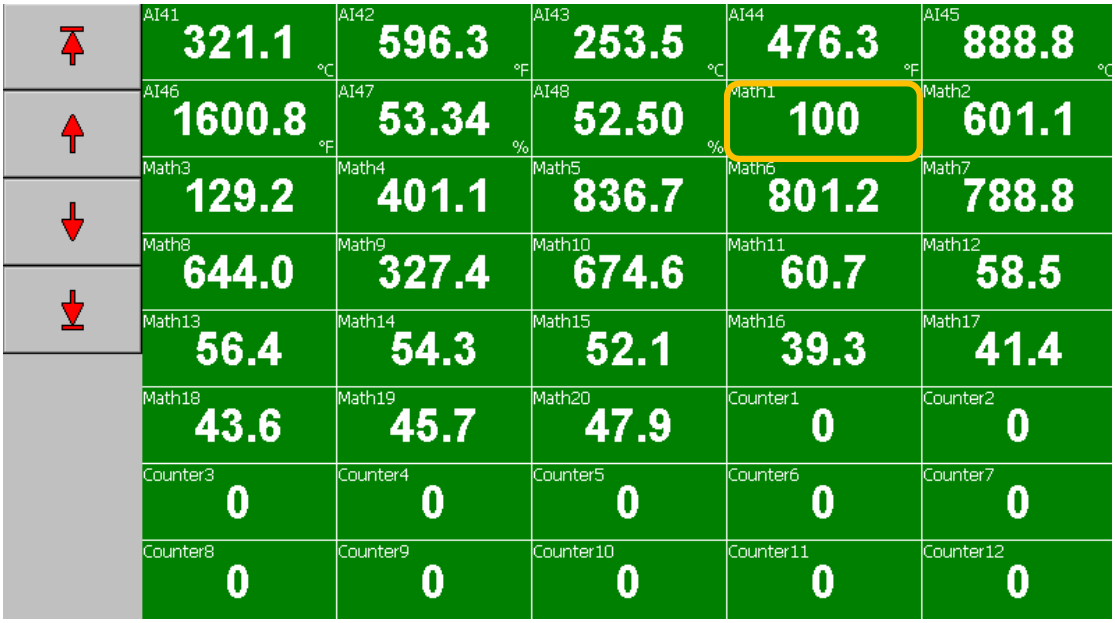


Fig. D-31

In order to make the value in the master site can match with the value of PG site, so we will get value from the master site to do conversion.

Math value = (((Register value * (ScaleHi - ScaleLo)) / 4294967295) + ScaleLo)

*In this sample, the ScaleLo value is set as "10", ScaleHi value is set as "30", please refer to ***Fig.D-28***.

Now we are aware the value of Math1 at the PG is showing "100" and the value of input register at address 50 is showing "0"
We will take the value "0" into the expression as following:

Math value = (((0 * (10000 - 100)) / 4294967295) + 100)
= ((0 / 4294967295) + 100)
= 100

We got the value" 0" from the input register at address 50 in master site via above formula, the value "0" has been converted as "100".

iii.2.4 Modify expression value to "10" and check the Math1 value in "Overview" page

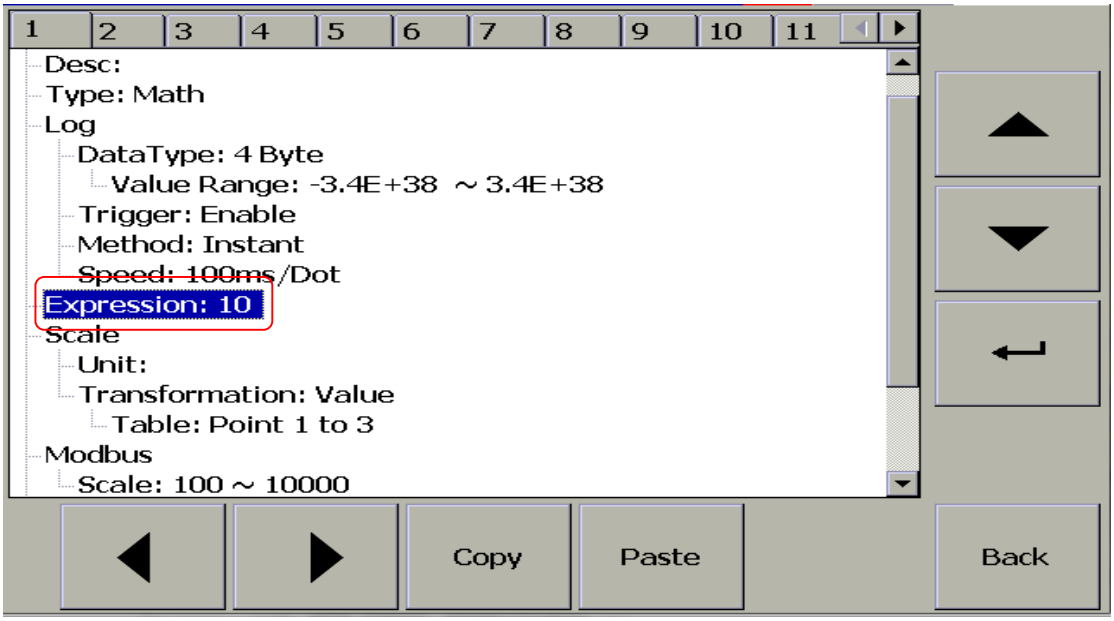


Fig. D-32

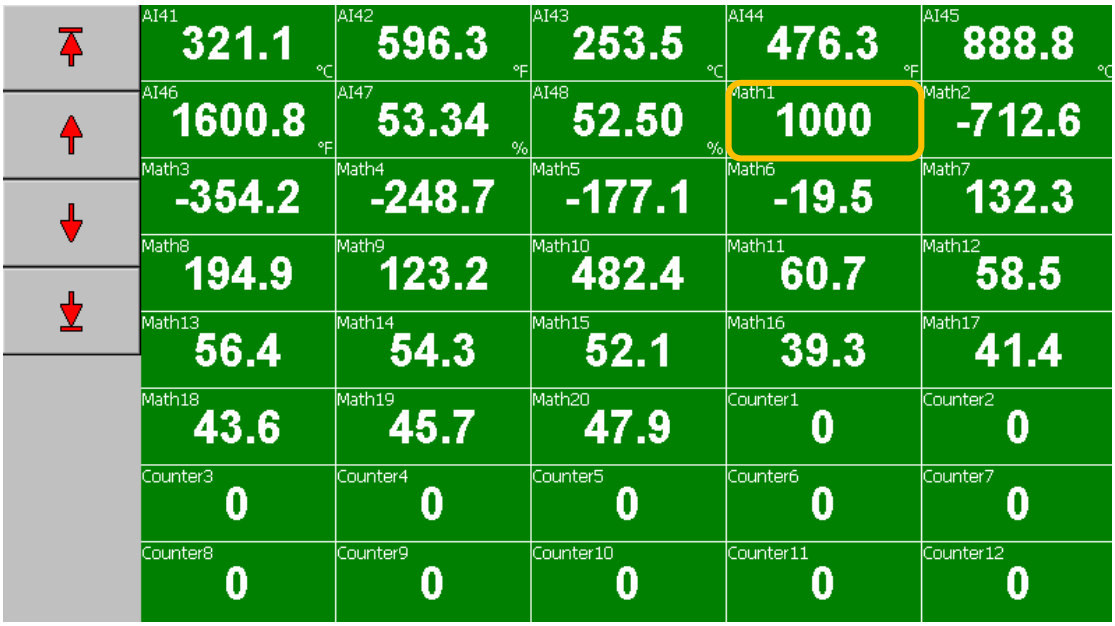


Fig. D-33

Now we are aware the value of Math1 at the PG is showing "1000" and the value of input register at address 50 is showing "390451572"

We will take the value "390451572" into the expression as following:

Math value = (((390451572* (10000 - 100)) / 4294967295) + 100)
= ((3865470562800/4294967295) + 100)
= 900 + 100
= 1000

We got the value "390451572" from the input register at address 50 in master site via above formula, the value "390451572" has been converted as "1000".

iii.2.5 Modify expression value to "15" and check the Math1 value in "Overview" page

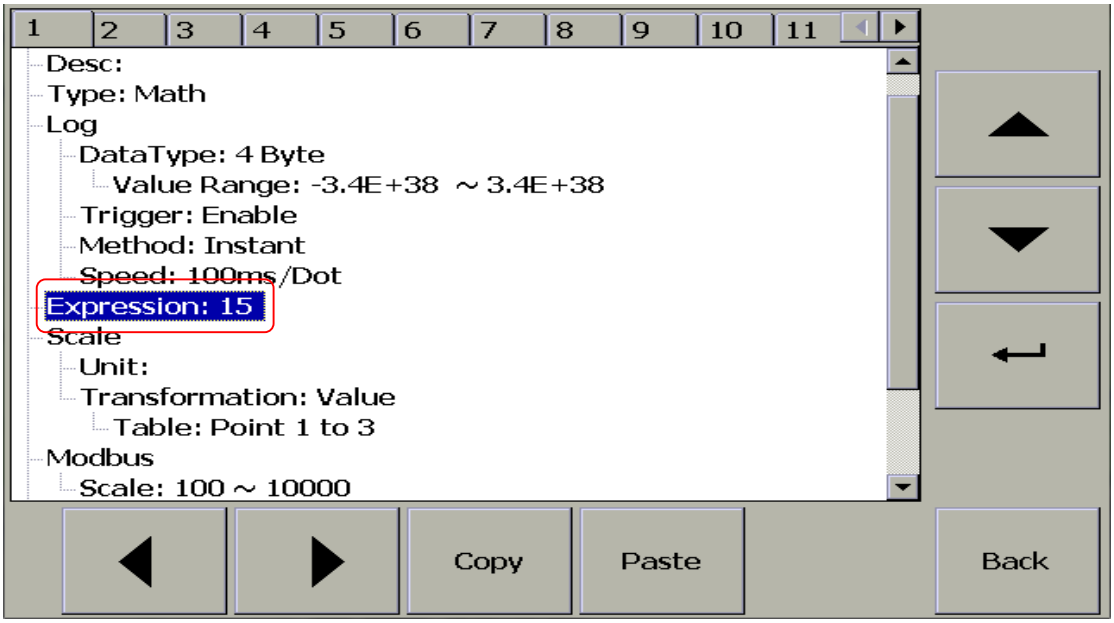


Fig. D-34

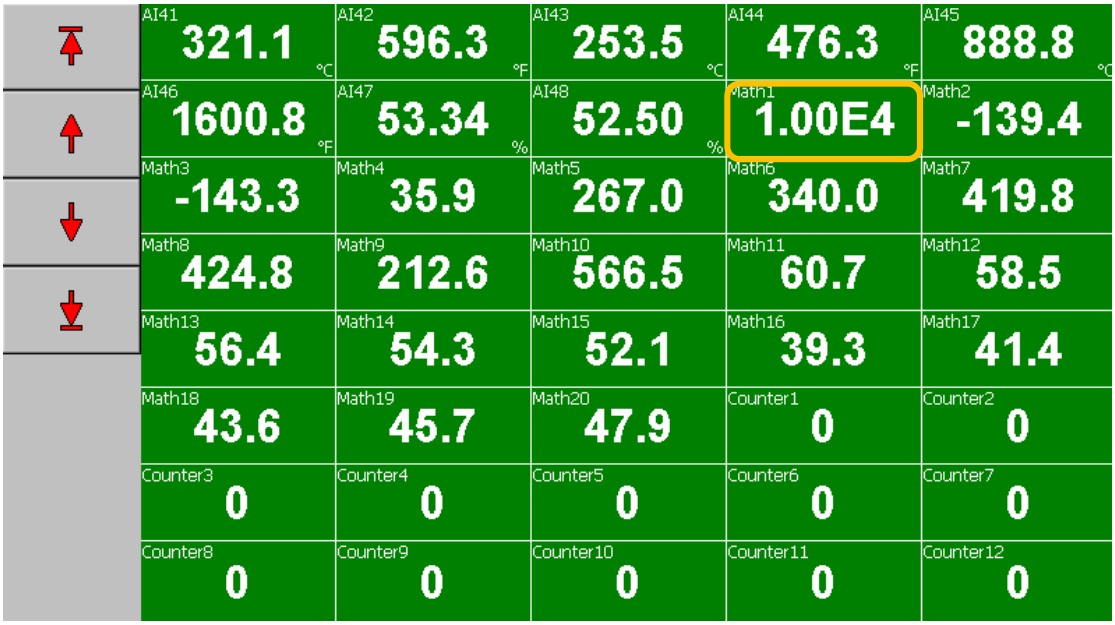


Fig. D-35

Now we are aware the value of Math1 at the PG is showing “10000” and the value of input register at address 50 is showing "4294967295"
We will take the value "4294967295" into the expression as following:

Math value = (((4294967295 * (10000 - 100)) / 4294967295) + 100)
= ((42520176220500/4294967295) + 9900)
= 9900 + 100
= 10000

We got the value “4294967295” from the input register at address 50 in master site via above formula the value “4294967295” has been converted as “10000”.

iii.3 Transformation : Math Channel

iii.3.1 Change the transformation type to "Math Channel"

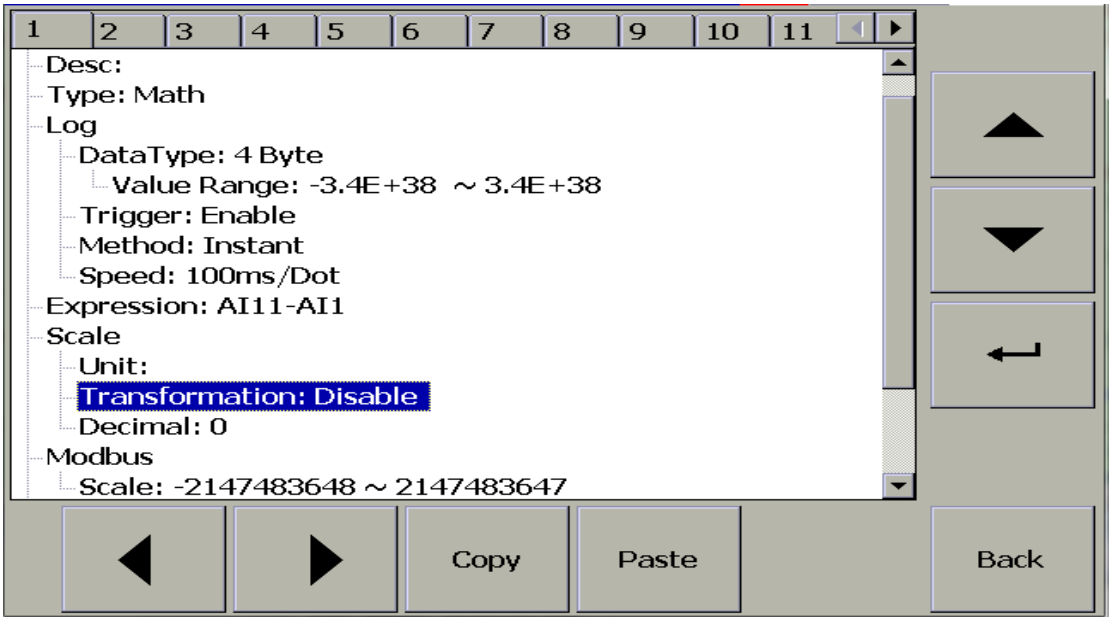


Fig. D-36

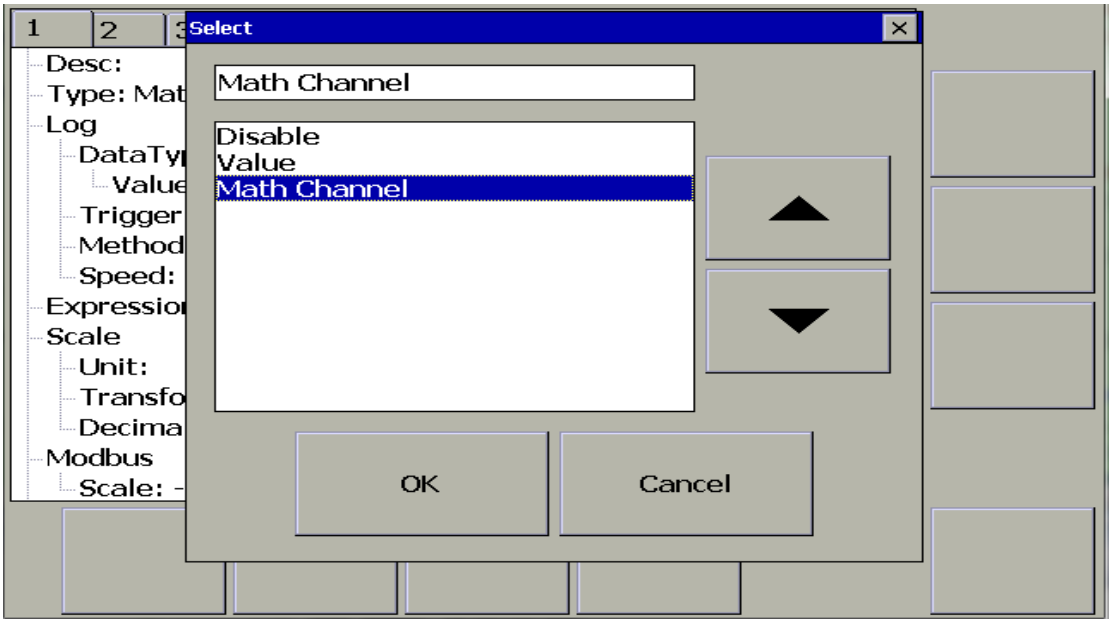


Fig. D-37

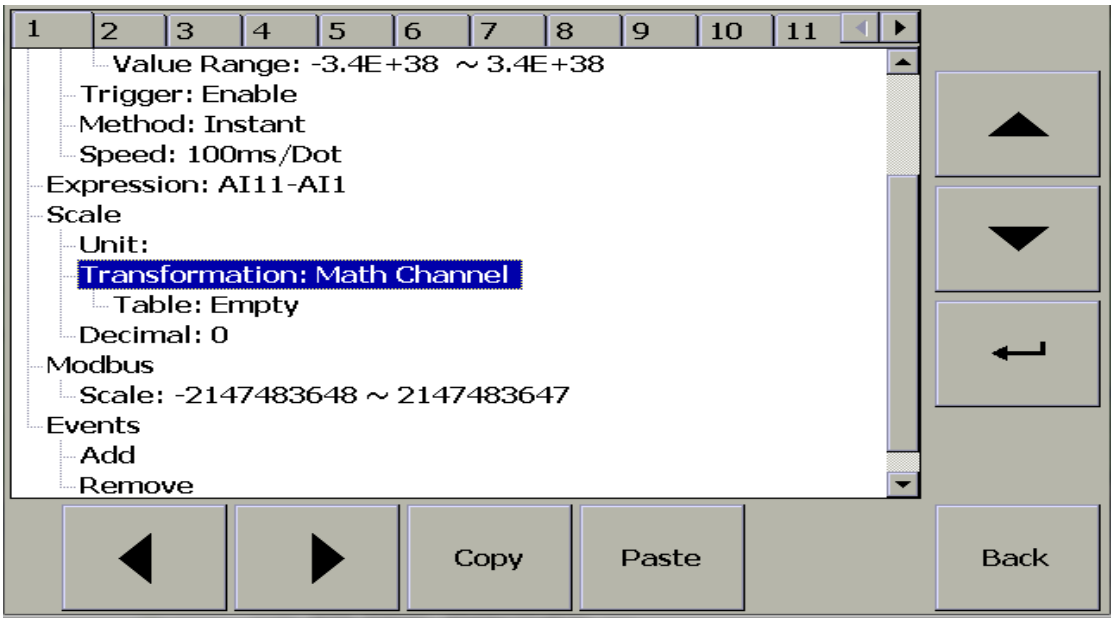


Fig. D-38

iii.3.2 Create scale range table for conversion

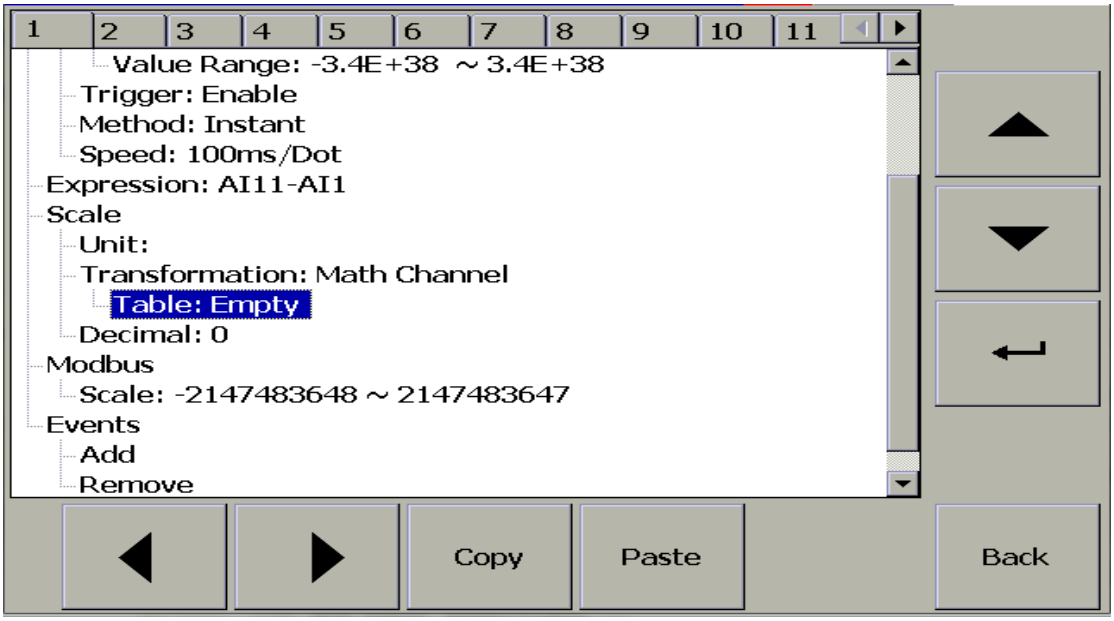


Fig. D-39

Press “Add” button to add scale range

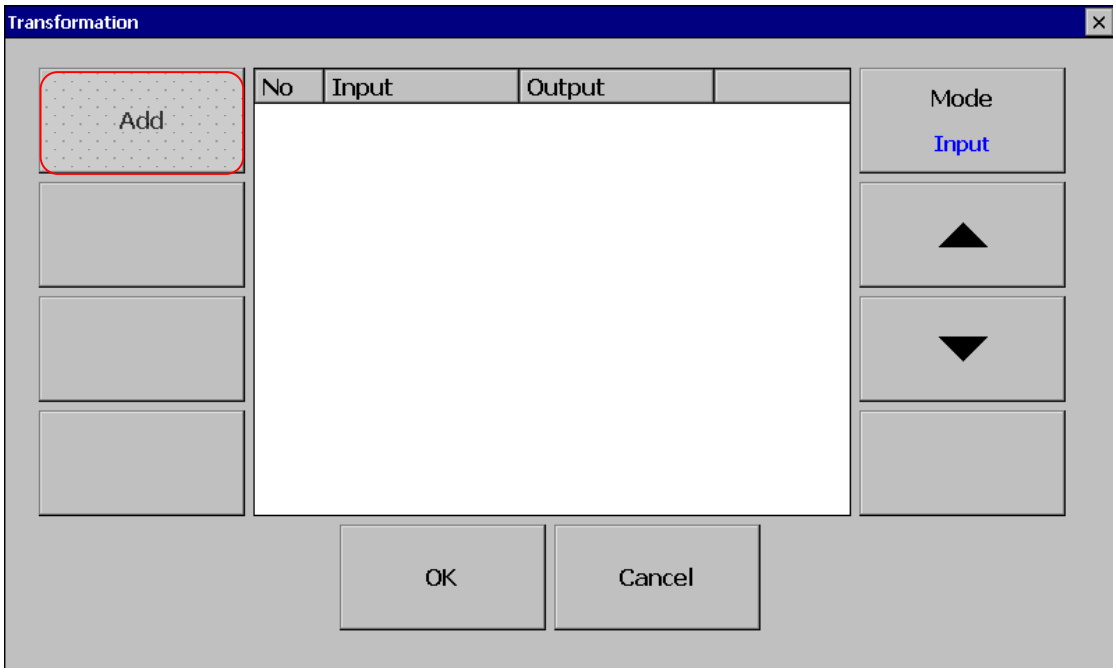


Fig. D-40

Press “Enter” button to modify “Input” value

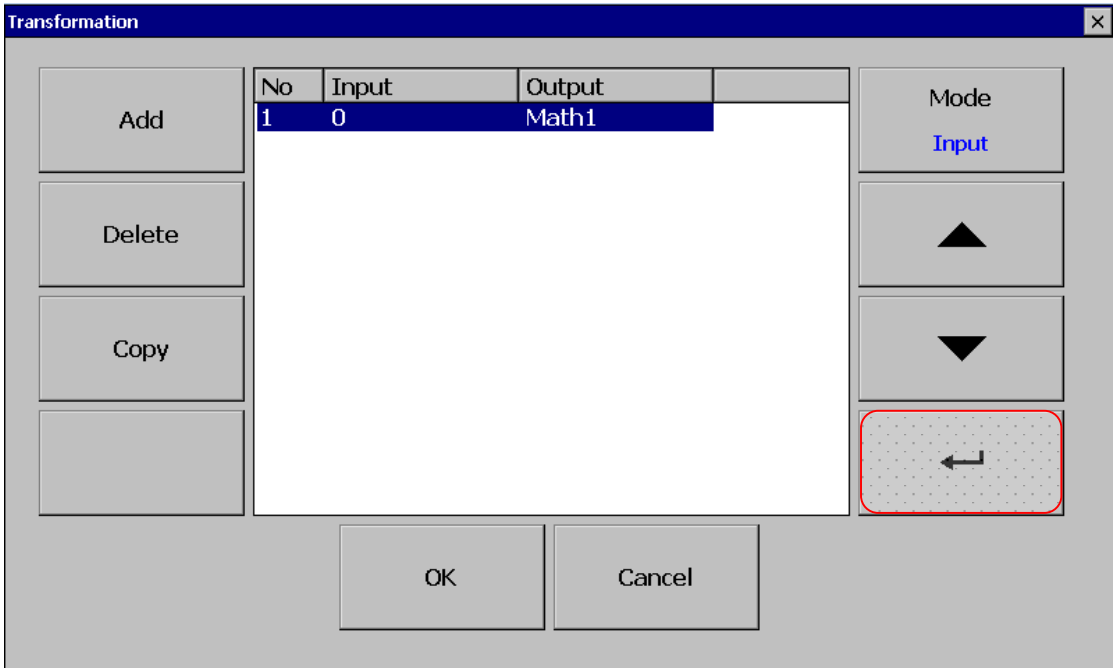


Fig. D-41

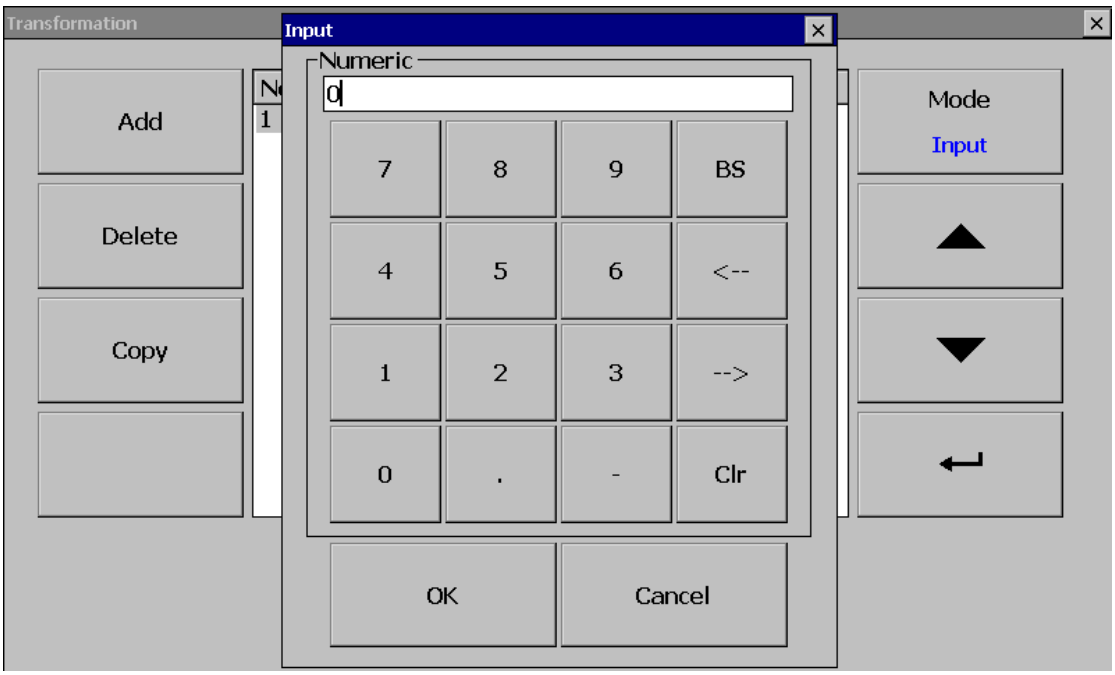


Fig. D-42

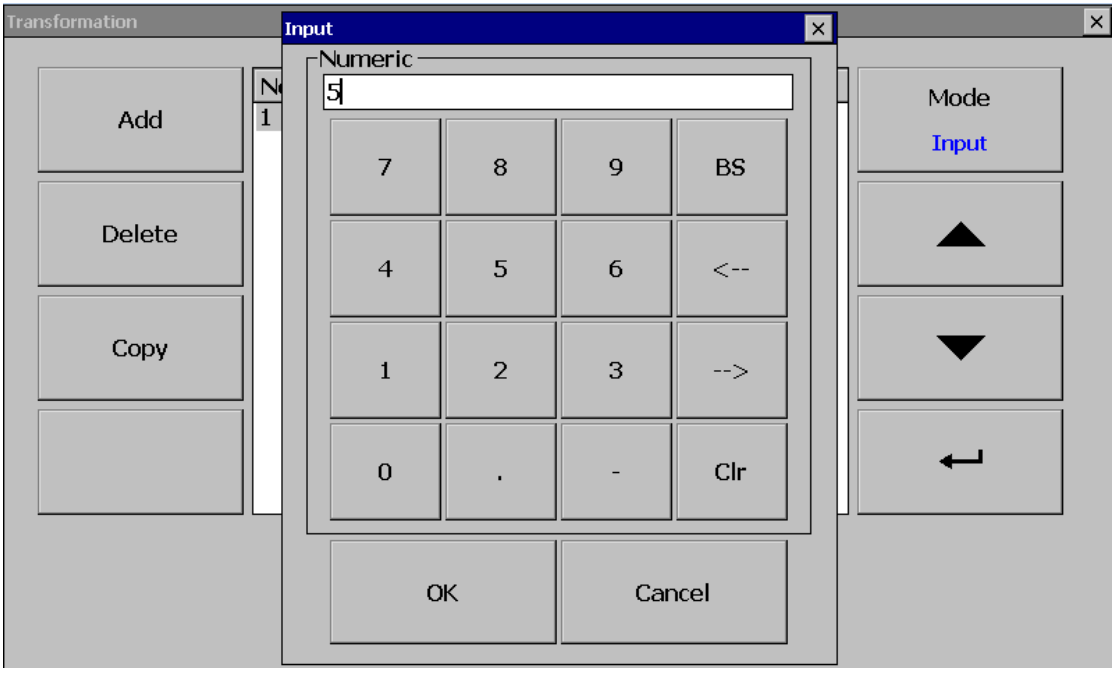


Fig. D-43

Press “Mode” button from “Input” to “Output”

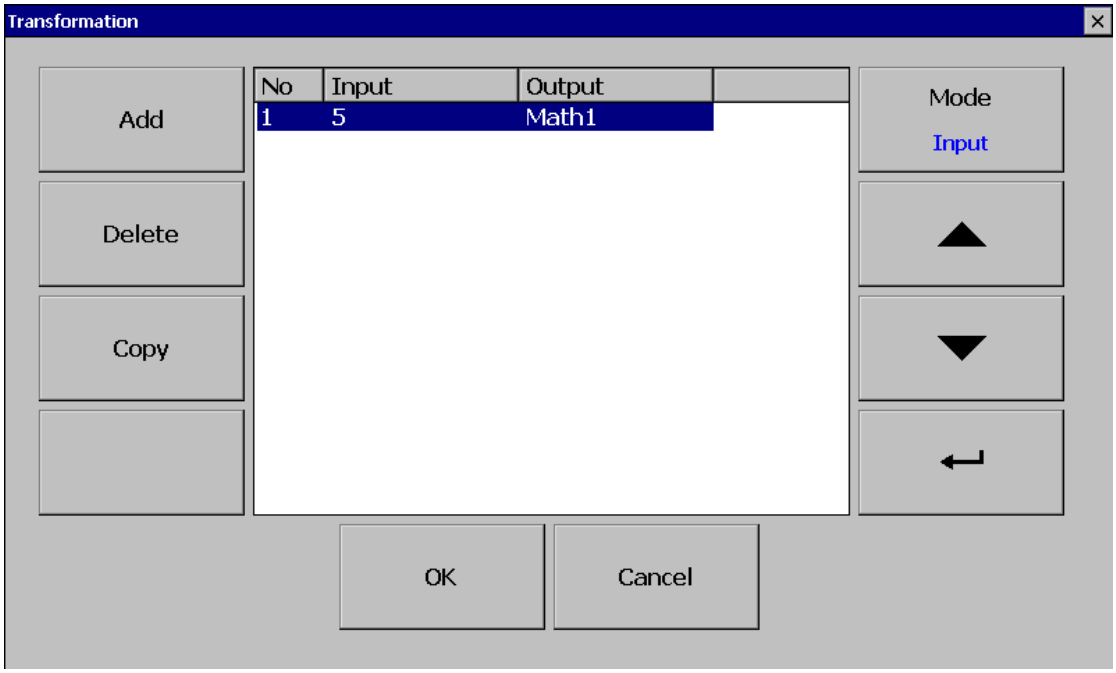


Fig. D-44

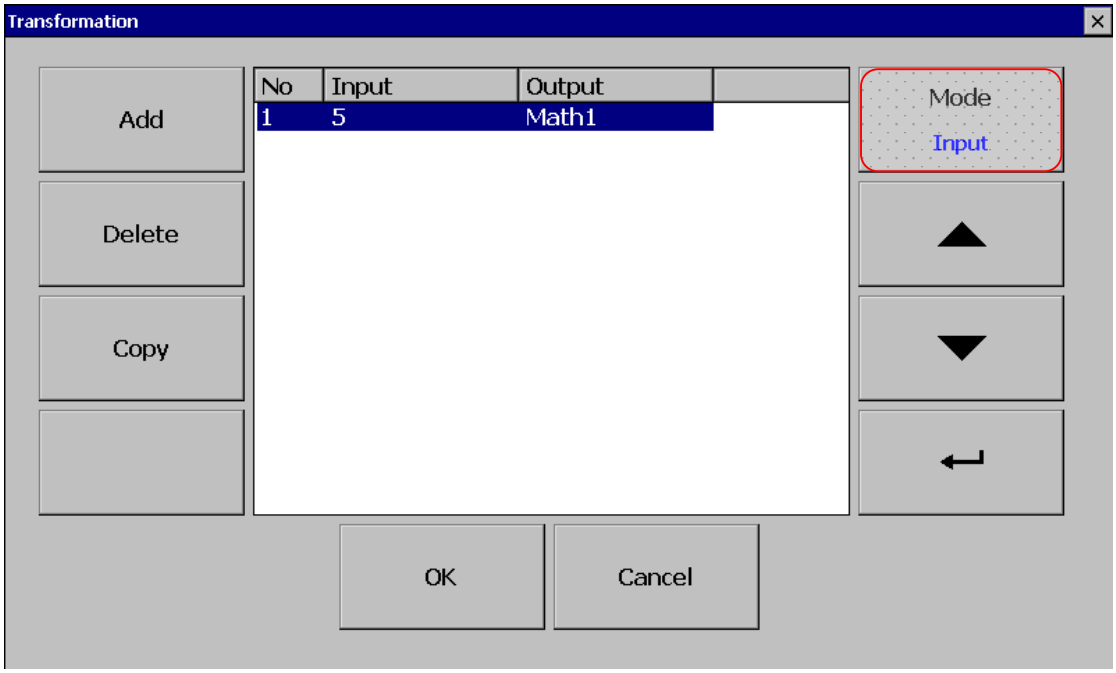


Fig. D-45

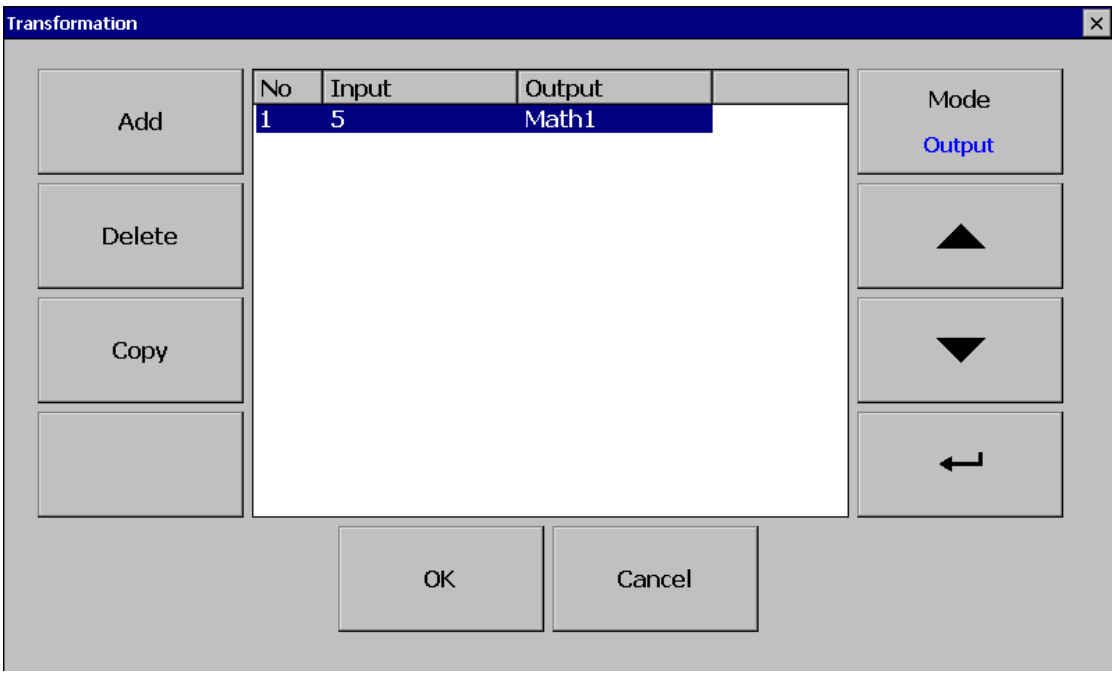


Fig. D-46

Press "Enter" button to modify "Output" value

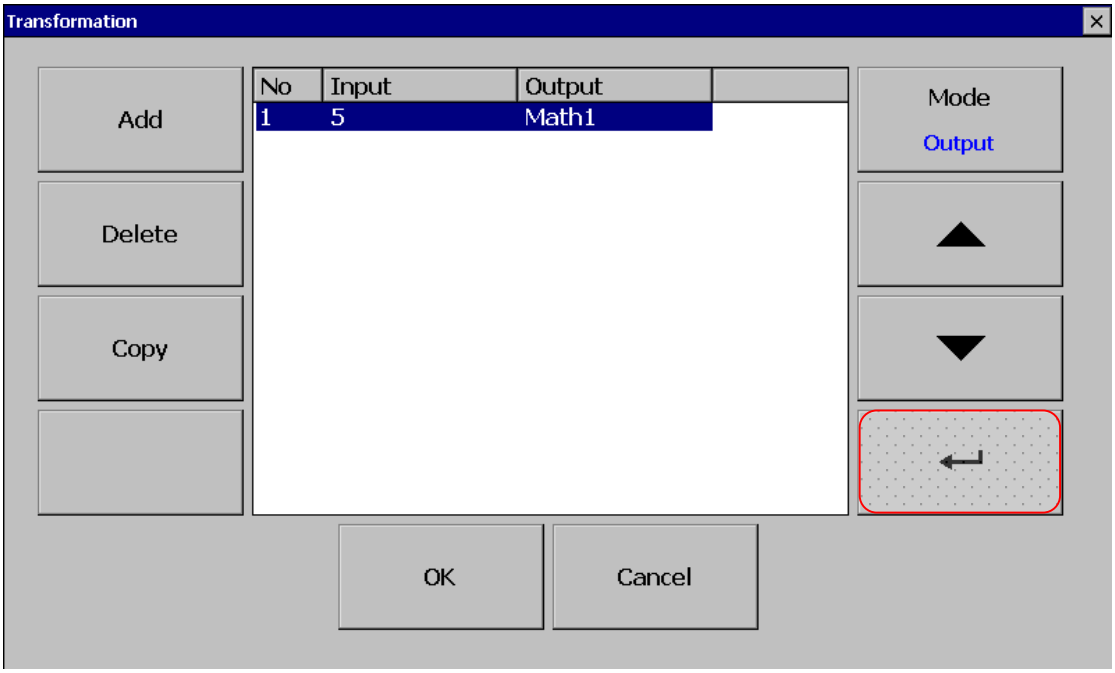


Fig. D-47

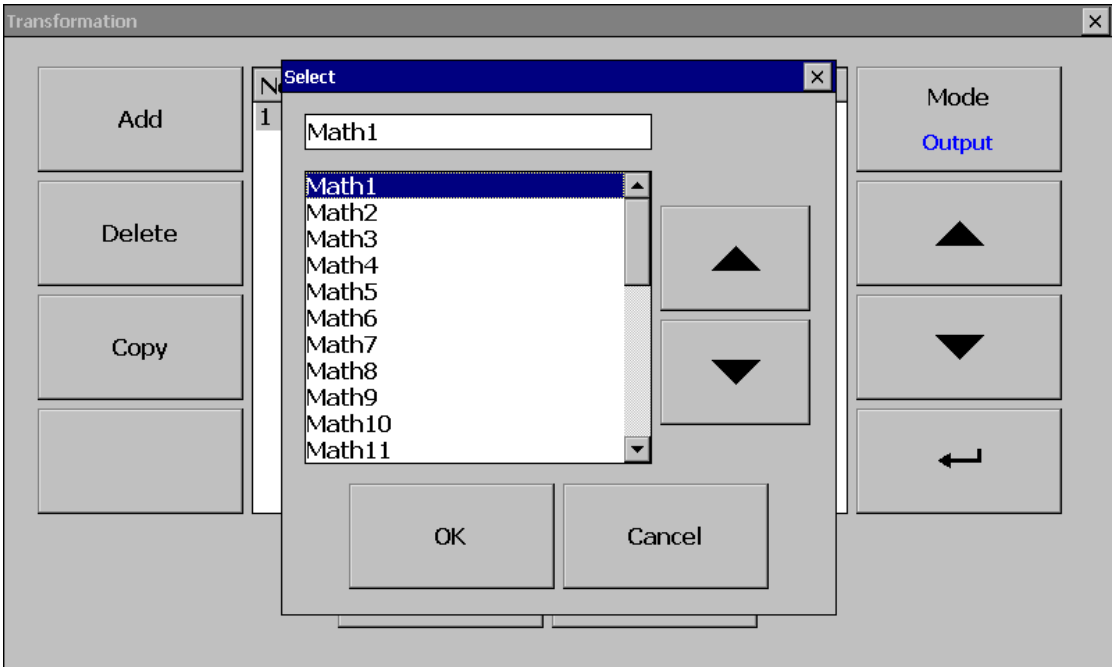


Fig. D-48

Press select output channel is "Math2"

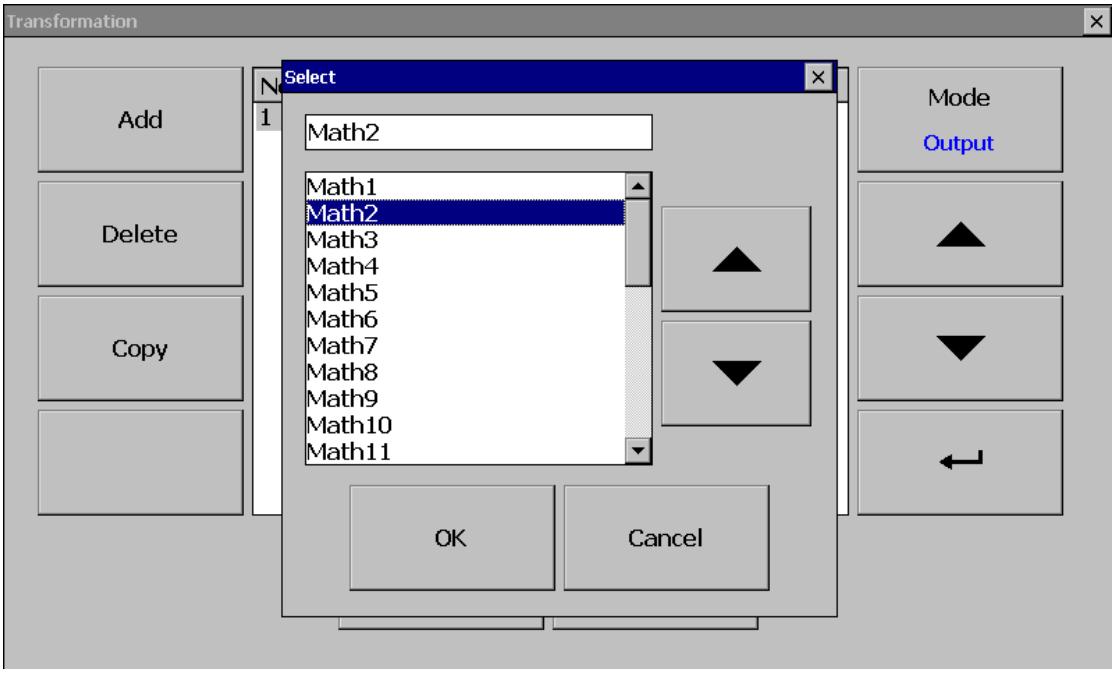


Fig. D-49

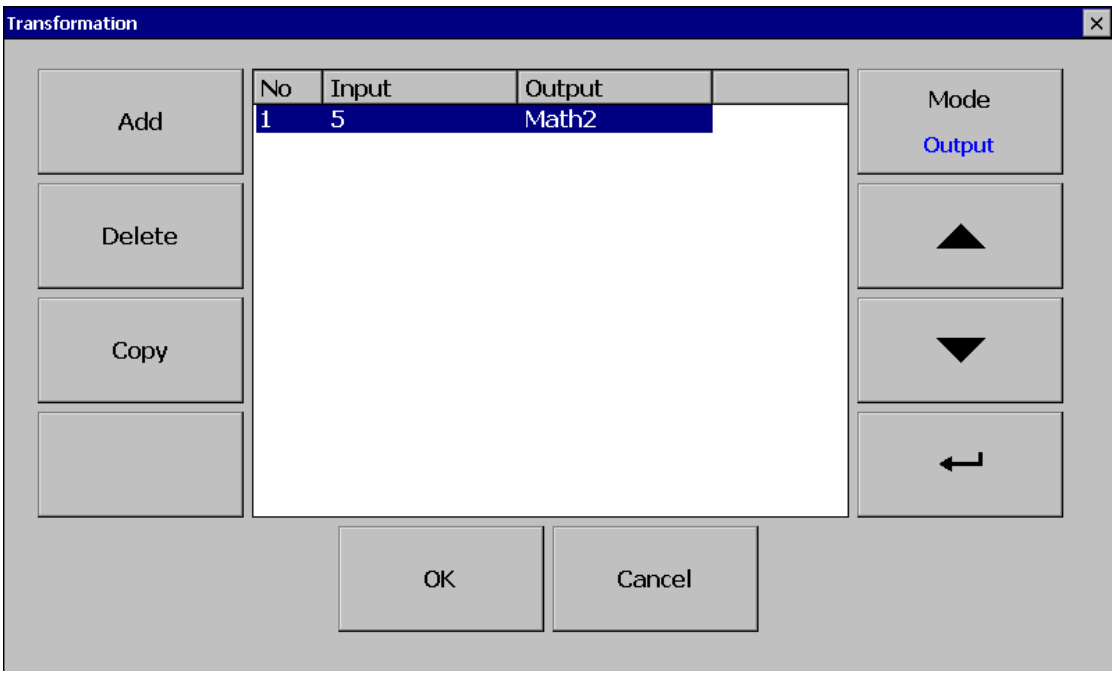


Fig. D-50

Please repeat ***Fig. D-40*** to ***Fig D-50*** to add another scale range.
In here, we use 3 points to do conversion for this sample, so please set output channel as "Math2", "Math3" and "Math4".

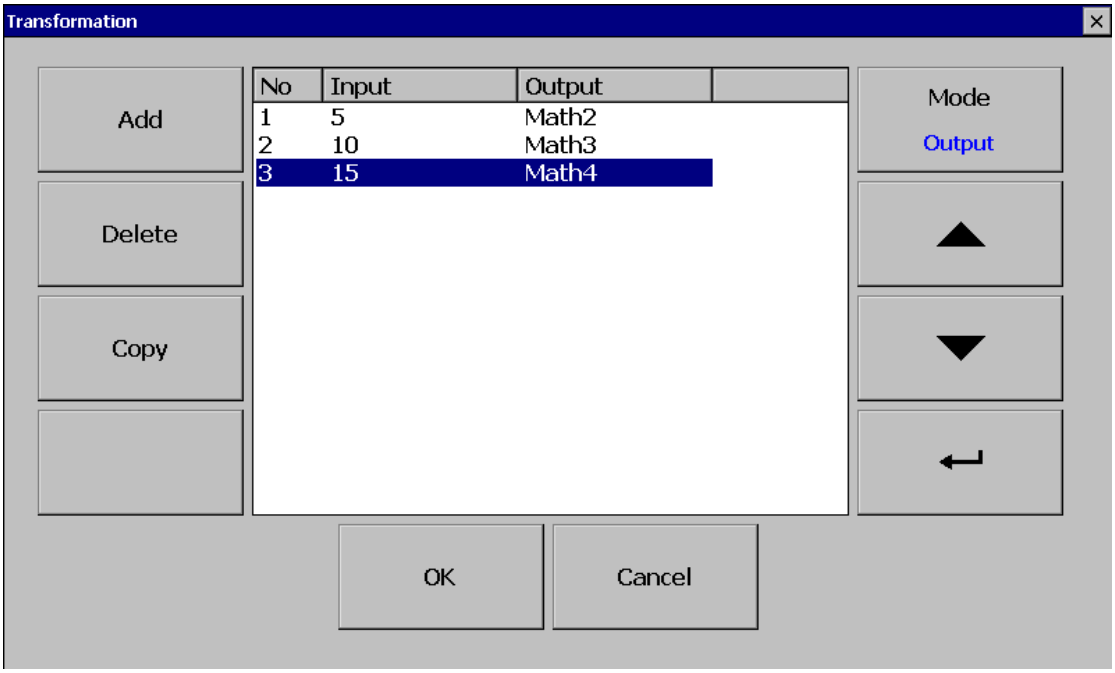


Fig. D-51

iii.3.3 Modify the content of expression in Math2 to "5"

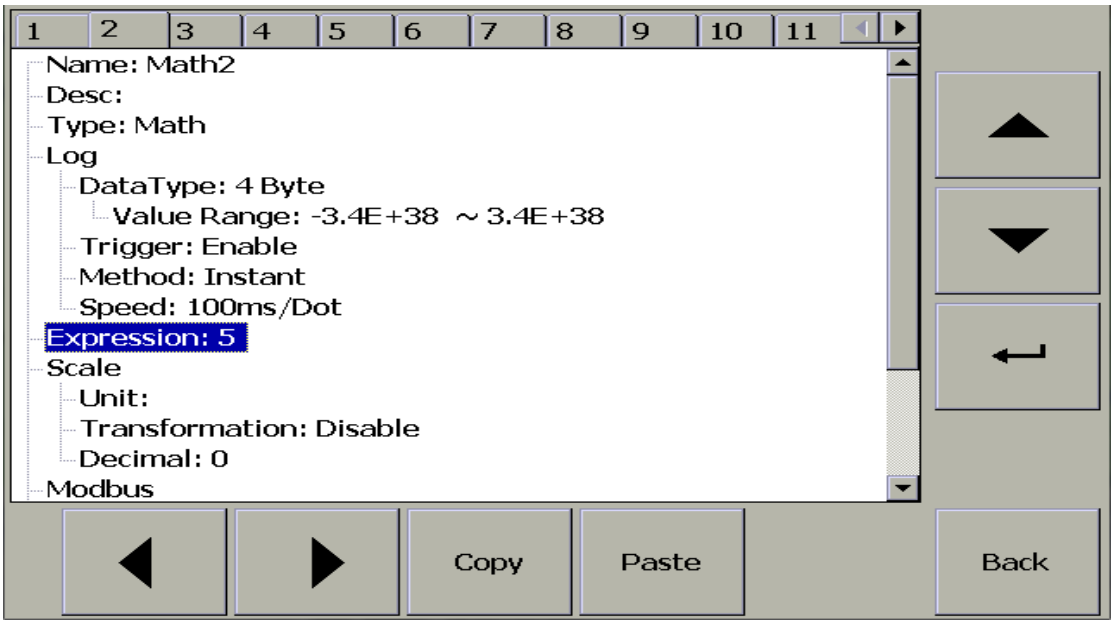


Fig. D-52

iii.3.4 Create the table of scale range in Math2

*Note: Create the table of scale range for step, please refer to ***Fig. D-17*** to ***Fig. D-28*** step.

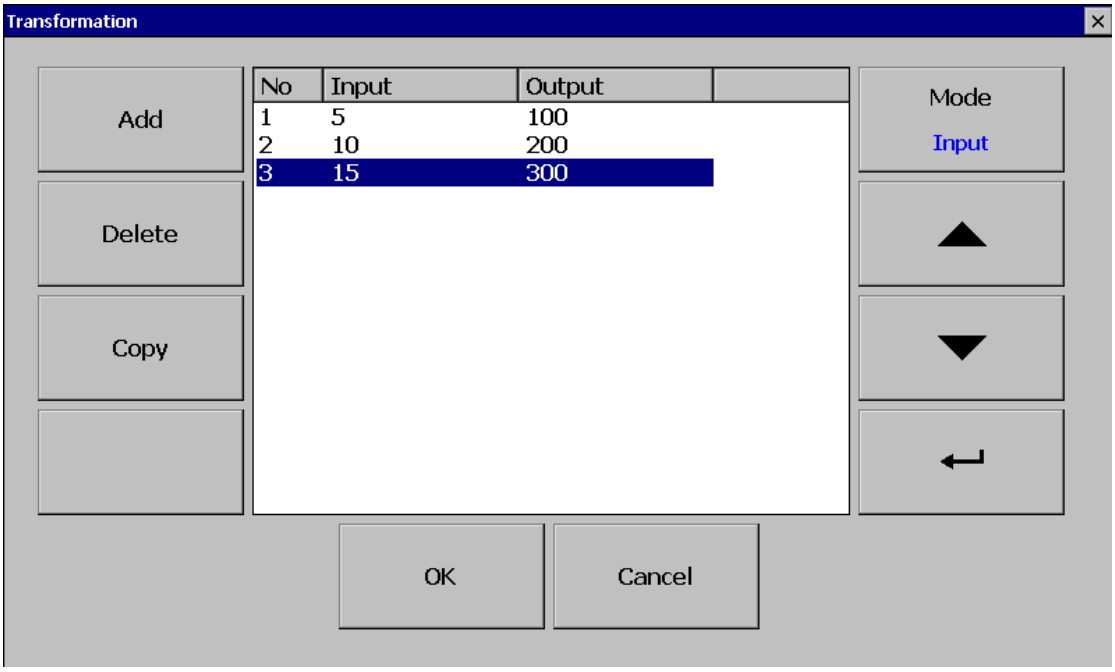


Fig. D-53

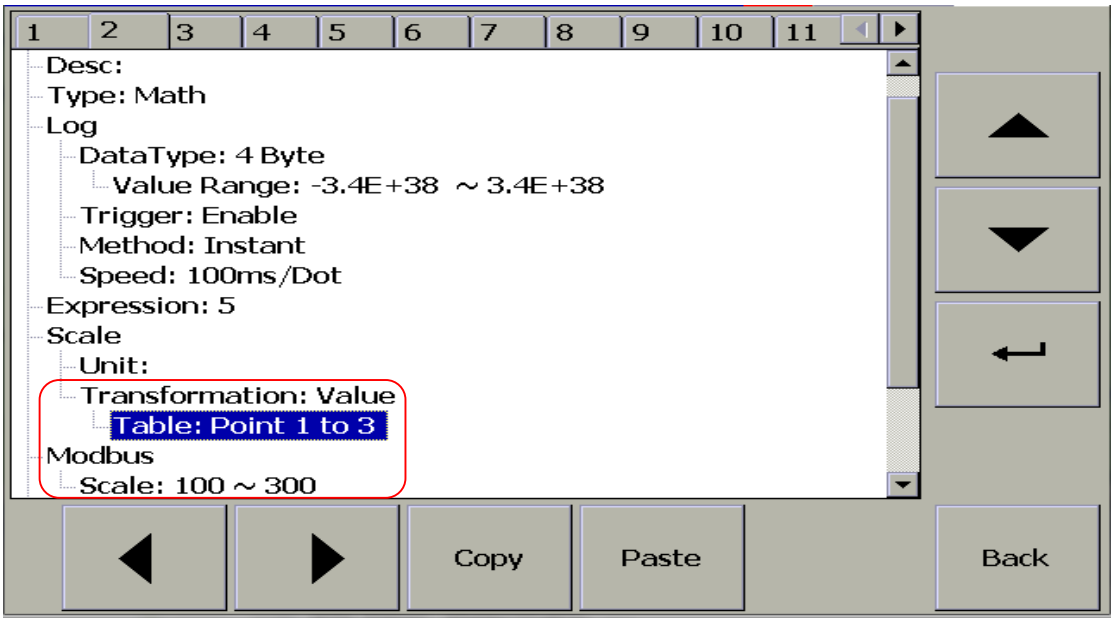


Fig. D-54

iii.3.5 Modify the content of expression in Math3 to "10"

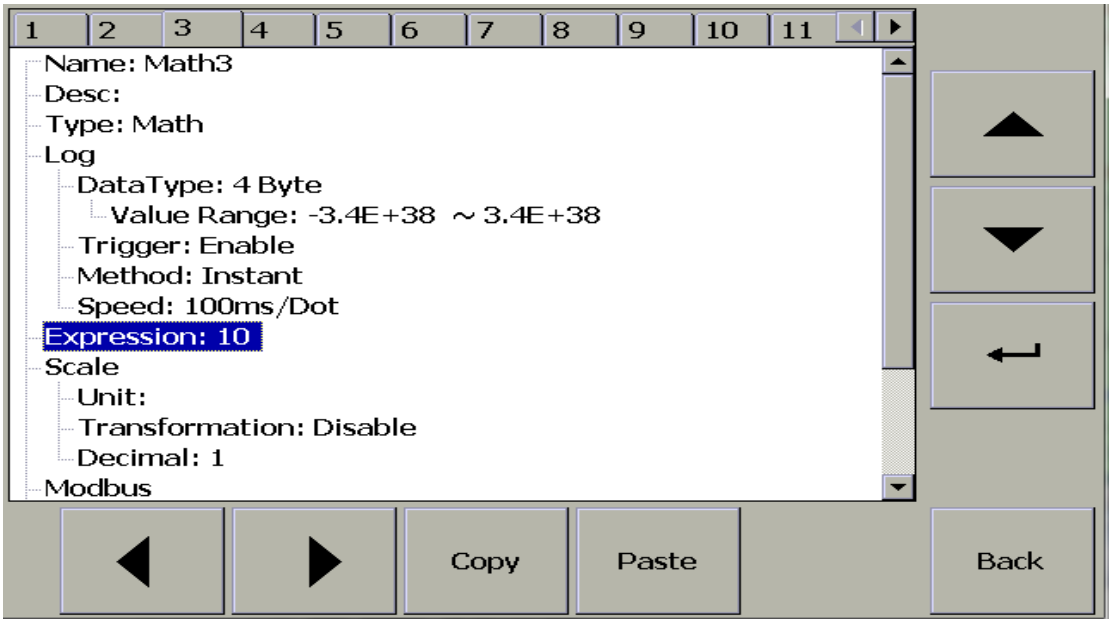


Fig. D-55

iii.3.6 Create table of scale range in Math3

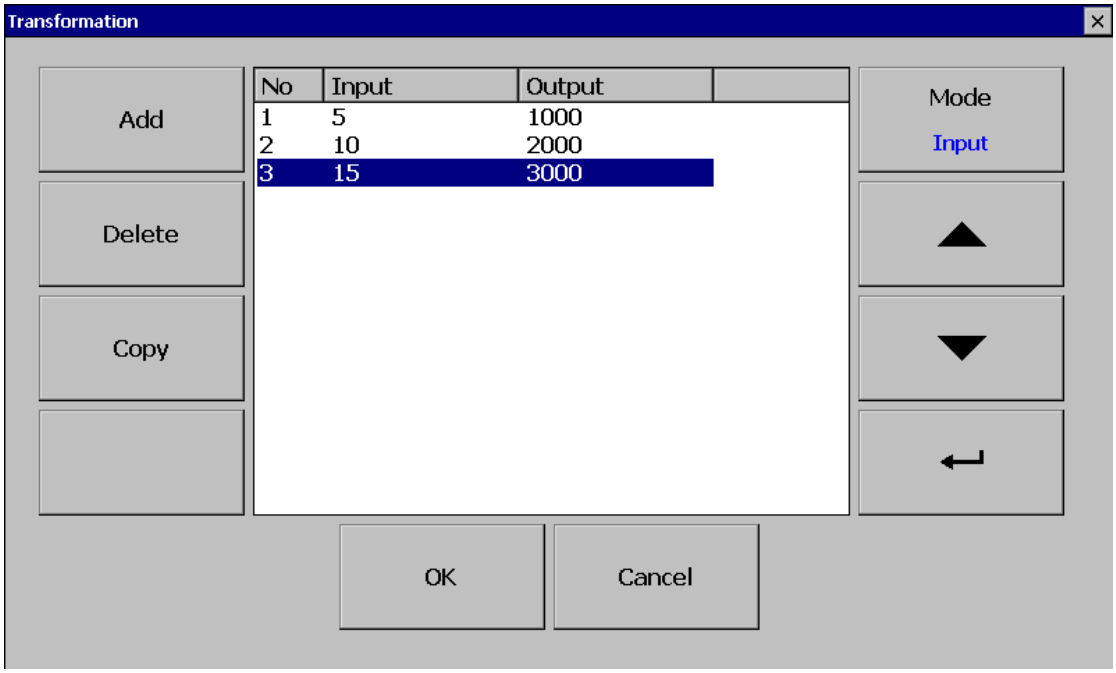


Fig. D-56

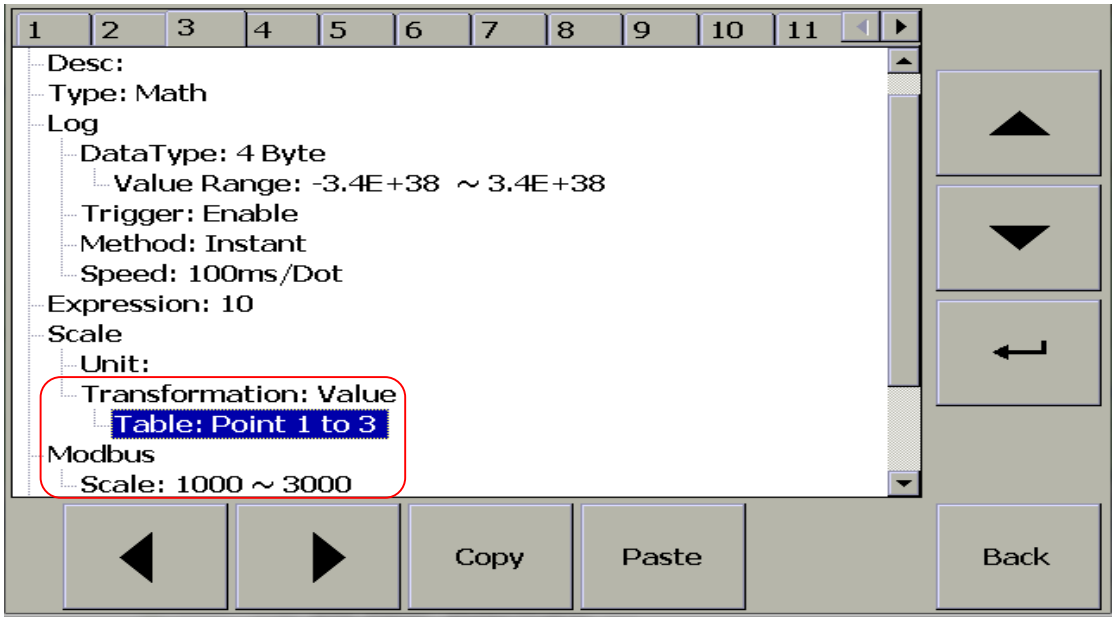


Fig. D-57

iii.3.7 Modify the content of expression in Math4 to "15"

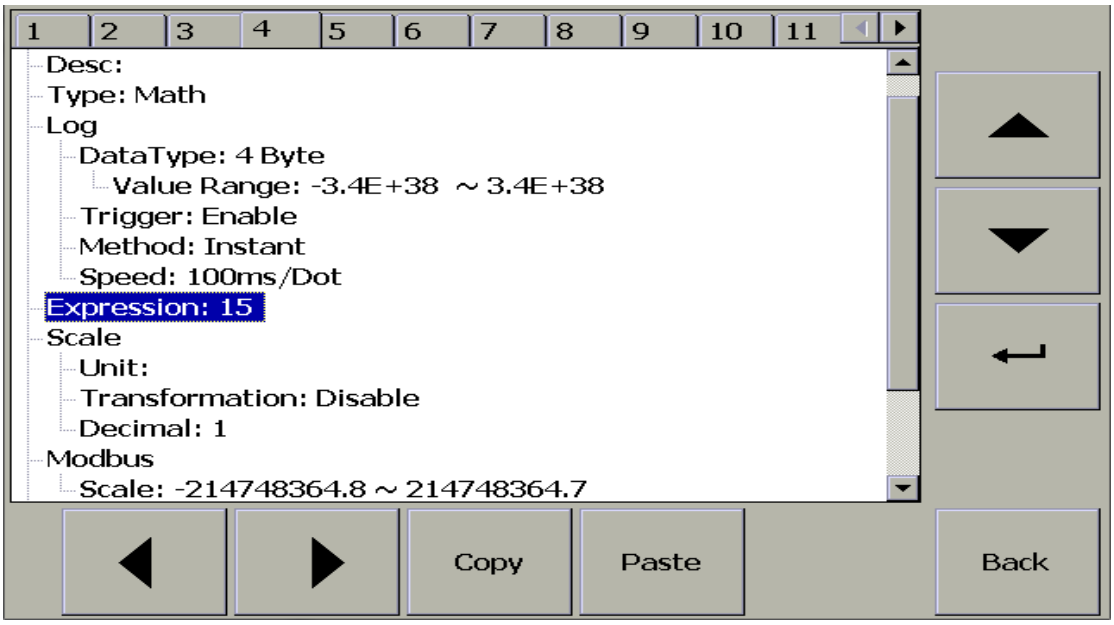


Fig. D-58

iii.3.8 Create table of scale range in Math4

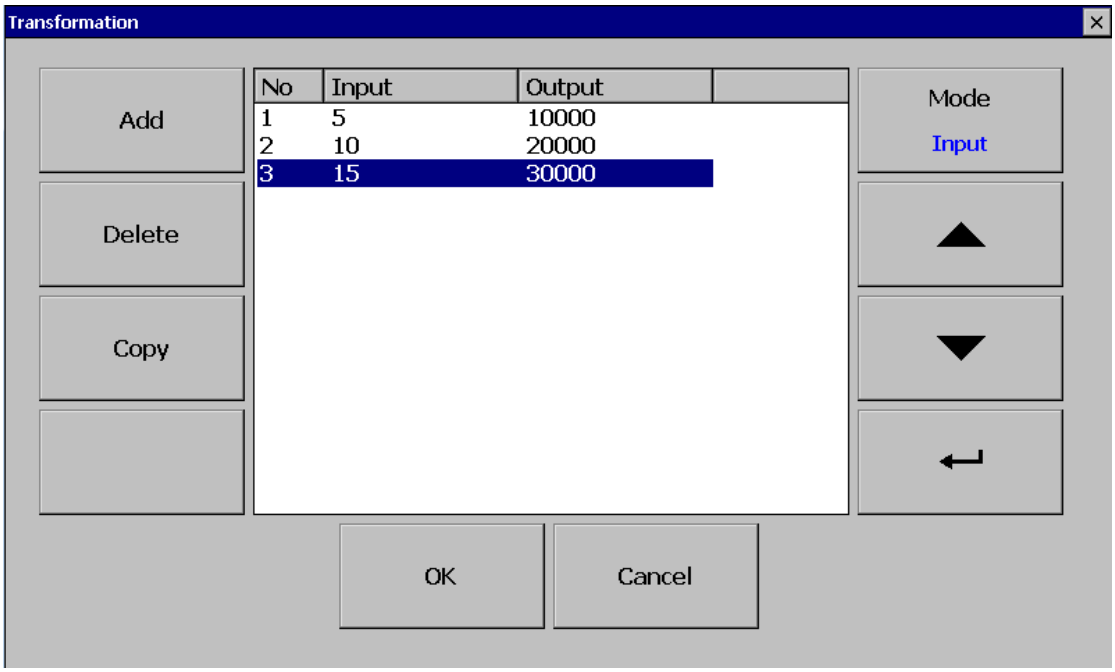


Fig. D-59

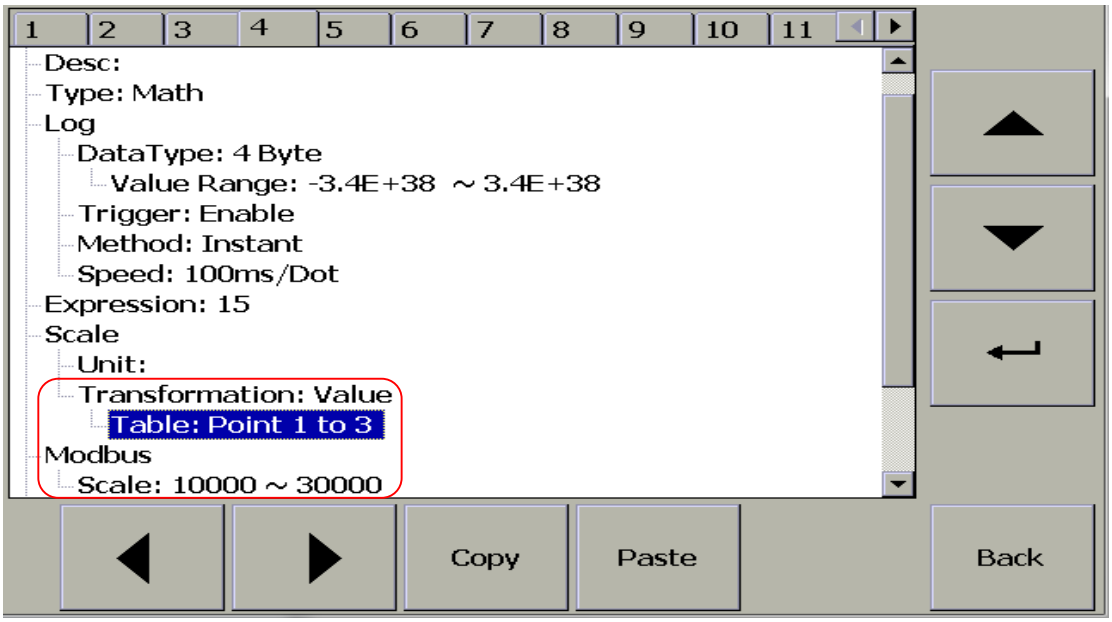


Fig. D-60

iii.3.9 Modify the content of expression in Math1 to "5"

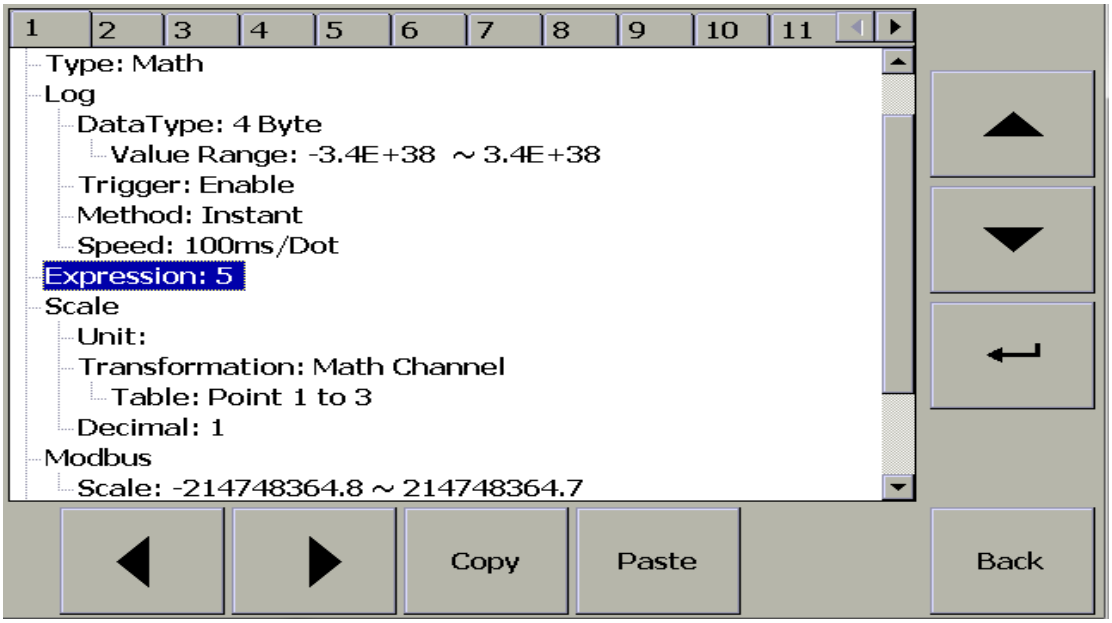


Fig. D-61

iii.3.10 Modify decimal value to "0"

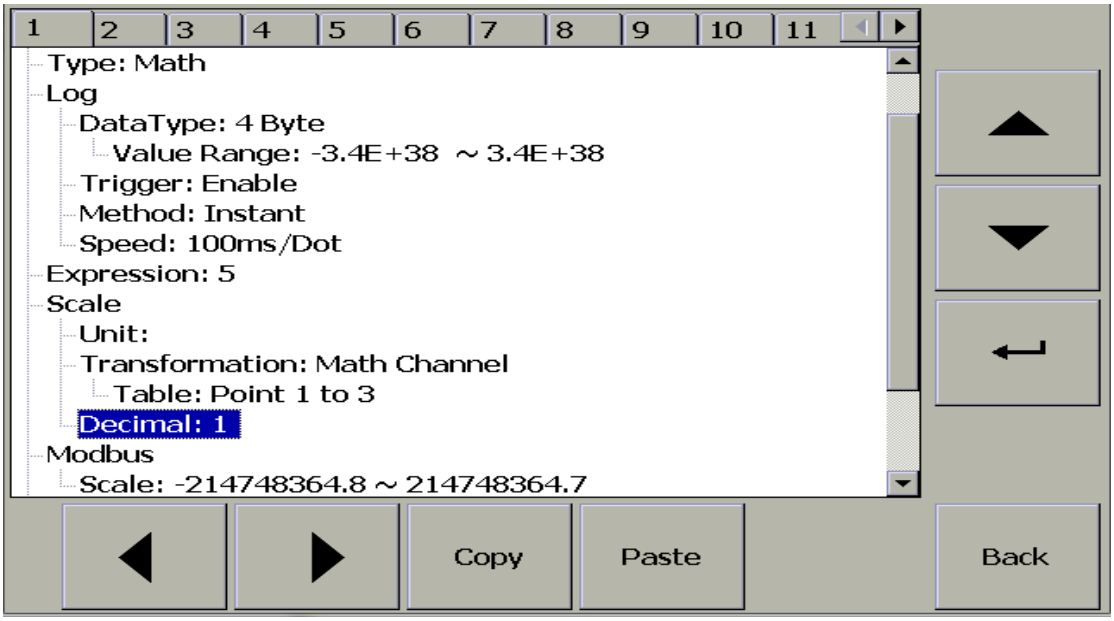


Fig. D-62

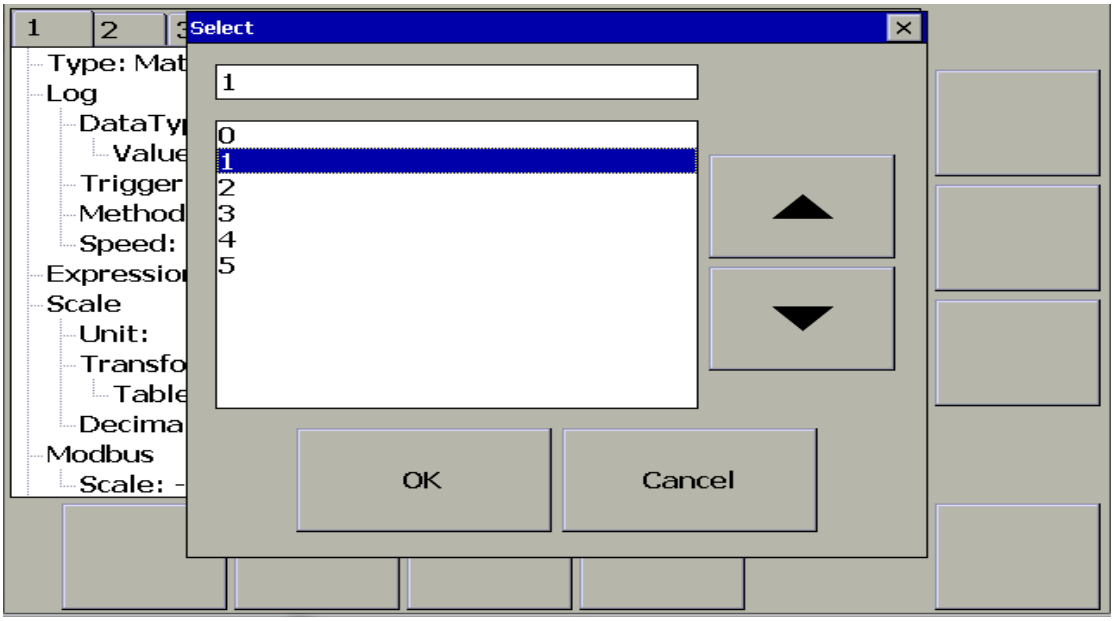


Fig. D-63

Please select “0”

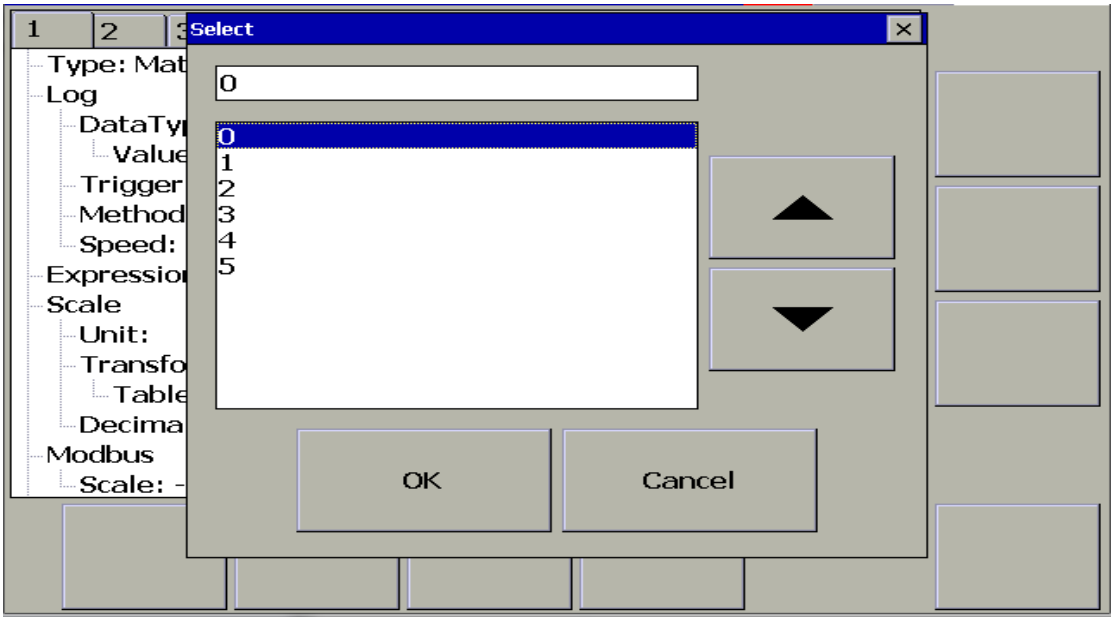


Fig. D-64

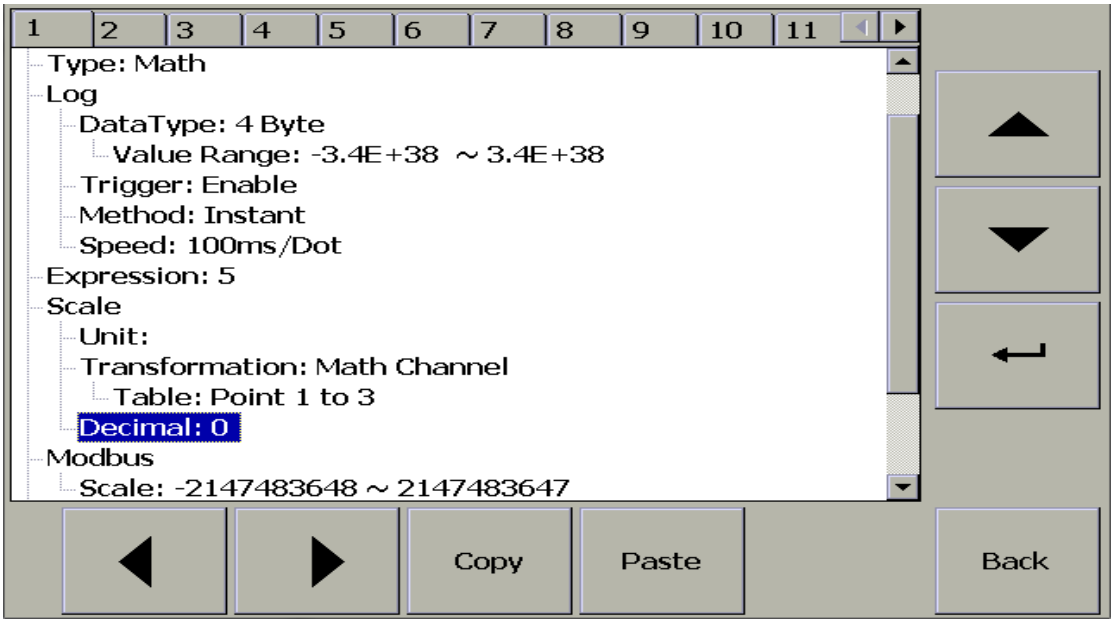


Fig. D-65

iii.3.11 Check the Math1 value in "Overview" page

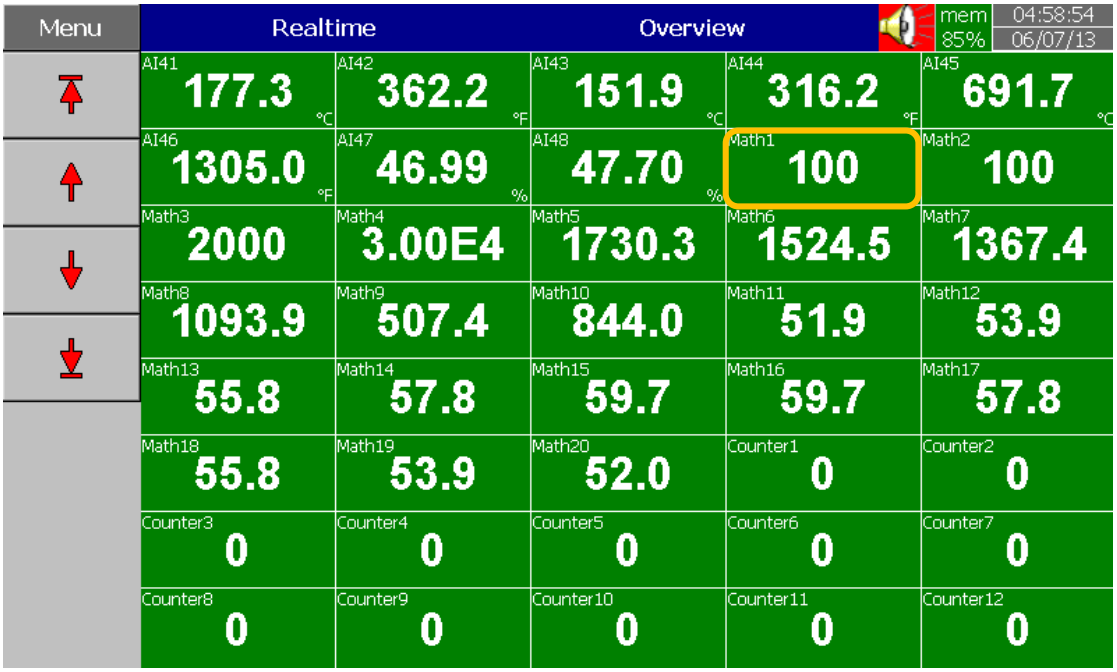


Fig. D-66

If the decimal value in Math1 is set as "0", we don't need to do conversion. Because the value of PG site in Math1 is the same as the value at input register address 50 in master site.

If the decimal value of Math1 is not set as "0", please refer to Page 30 Step2 to do conversion.

Base on the table of conversion in Math1, the input value "5" is converted to output "Math2", so the result of output value in Math1 will refer to Math2's operation result.

Now we are aware Math2's input value "5" is converted output "100", so Math2's output value "100" will be taked into the Math1 as Math1's output result.

In above "Overview" page, we can see the Math1 value is showing "100".

iii.3.12 Modify content of expression in Math1 to "10" and check the Math1 value in "Overview" page

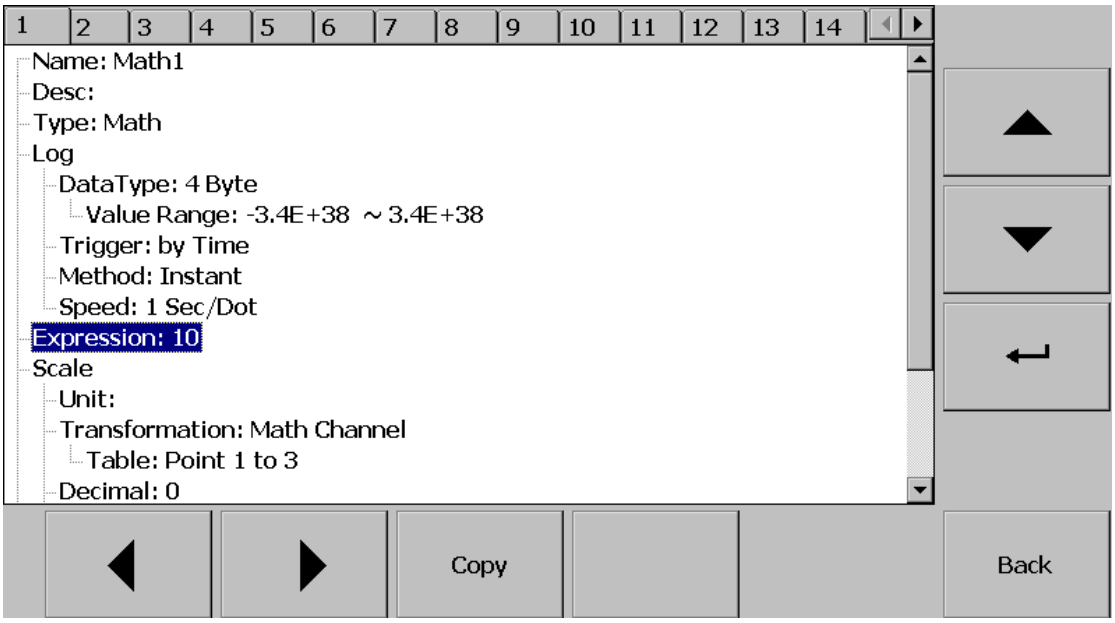


Fig. D-67

Fig. D-68

Base on the table of conversion in Math1, the input value "10" is converted to output "Math3", so the result of output value in Math1 will refer to Math3's operation result.

Now we are aware Math3's input value "10" is converted output "2000", so

Math3's output value "2000" will be taked into the Math1 as Math1's output result.

In above "Overview" page, we can see the Math1 value is showing "2000".

iii.3.13 Modify the content of expression in Math1 to "15" and check the Math1 value in "Overview" page

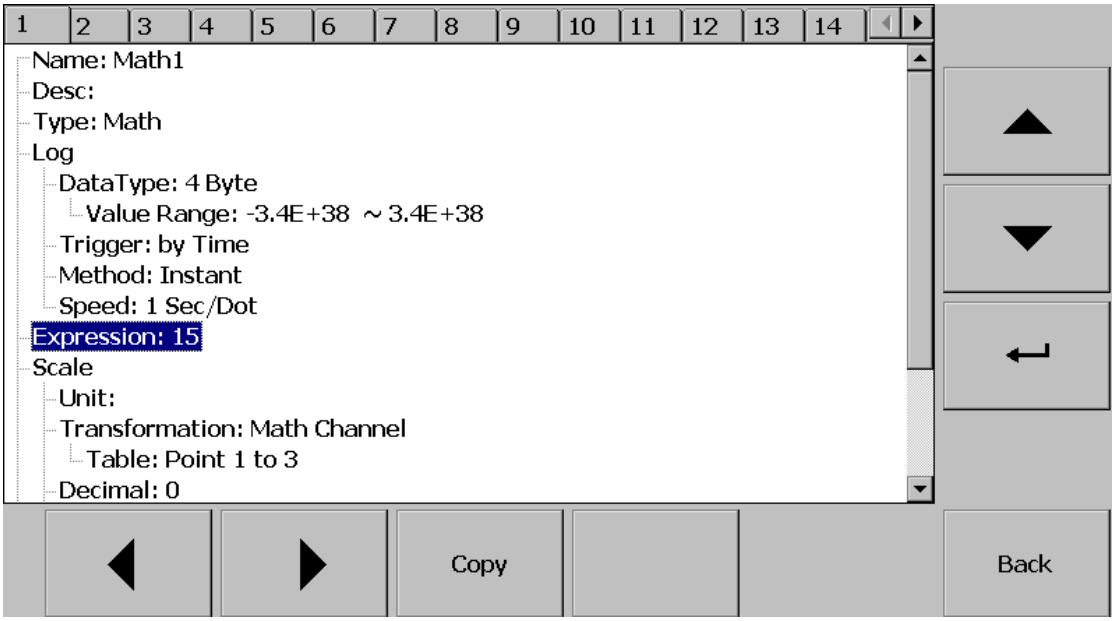


Fig. D-69

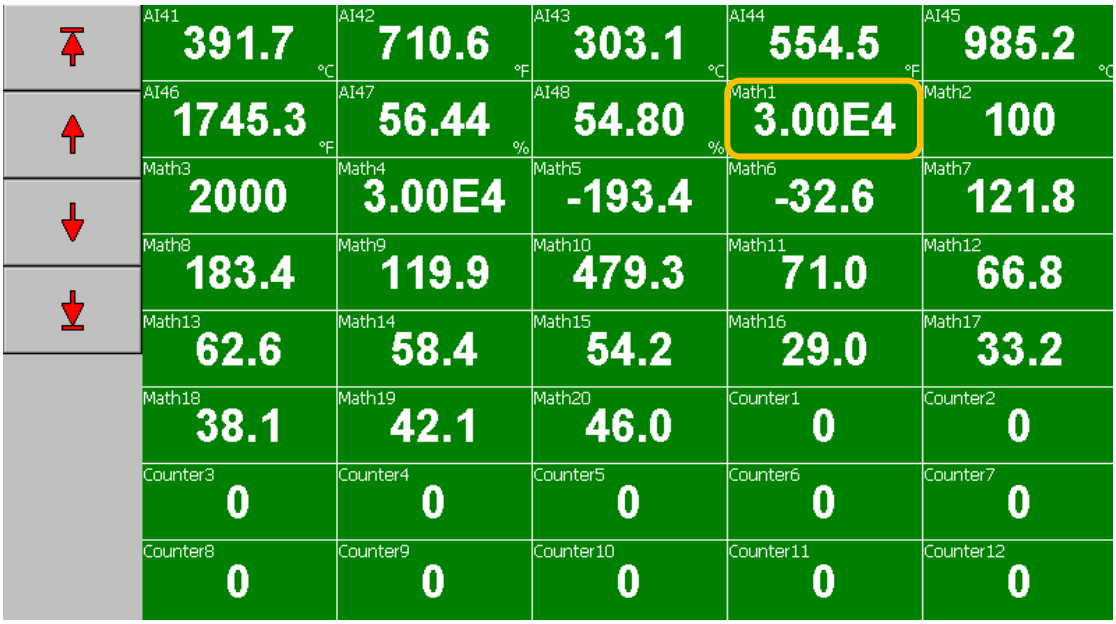


Fig. D-70

Base on the table of conversion in Math1, the input value "15" is converted to

output “Math4”, so the result of output value in Math1 will refer to Math4’s operation result.

Now we are aware Math4’s input value “15” is converted output “30000”, so Math4’s output value “30000” will be taked into the Math1 as Math1’s output result.

In above “Overview” page, we can see the Math1 value is showing “30000”.

Appendix E

AO Convert Example

i. Press 『Menu』-> 『More』-> 『Config』

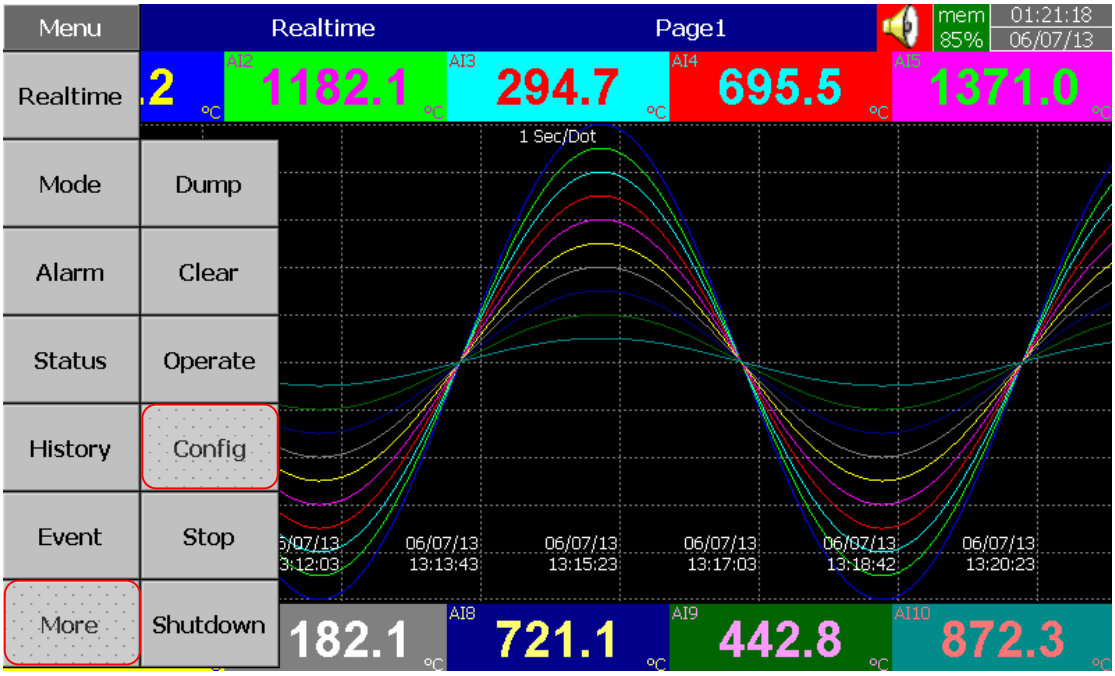


Fig. E-1

ii. Please select 『AO』

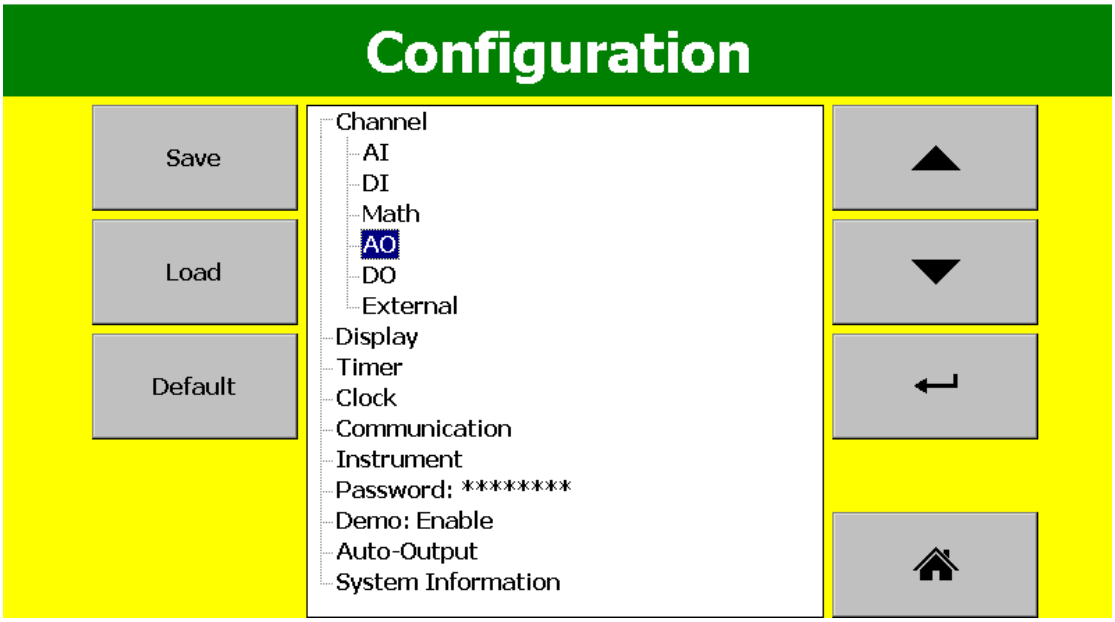


Fig. E-2

iii. We can see the expression of AO in following screen

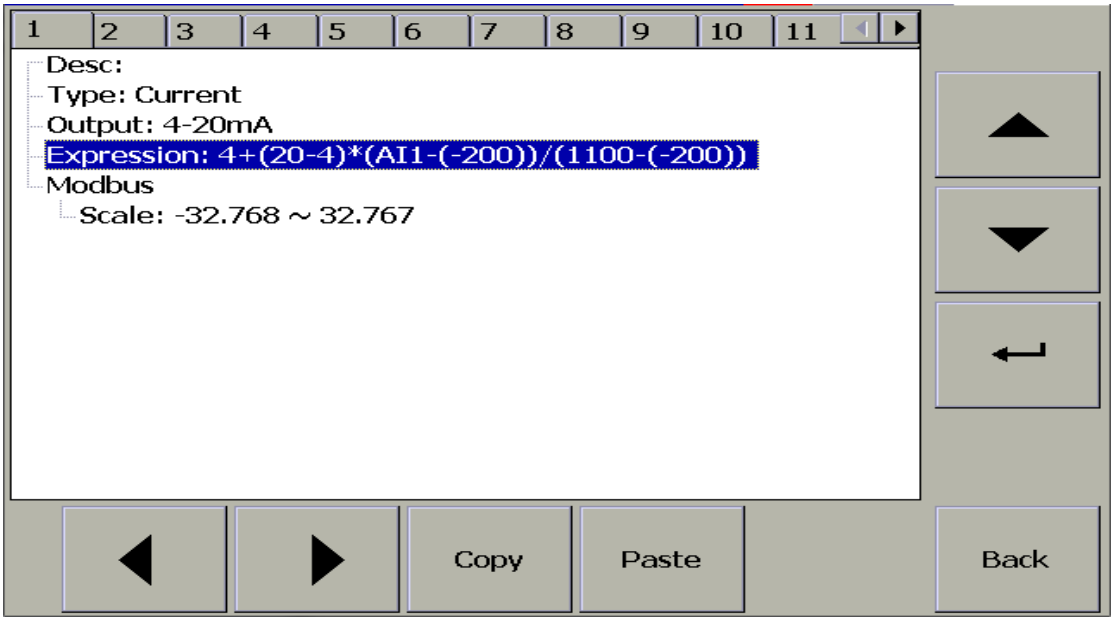


Fig. E-3

Please change the content of expression from AI1 to 10 as following showing

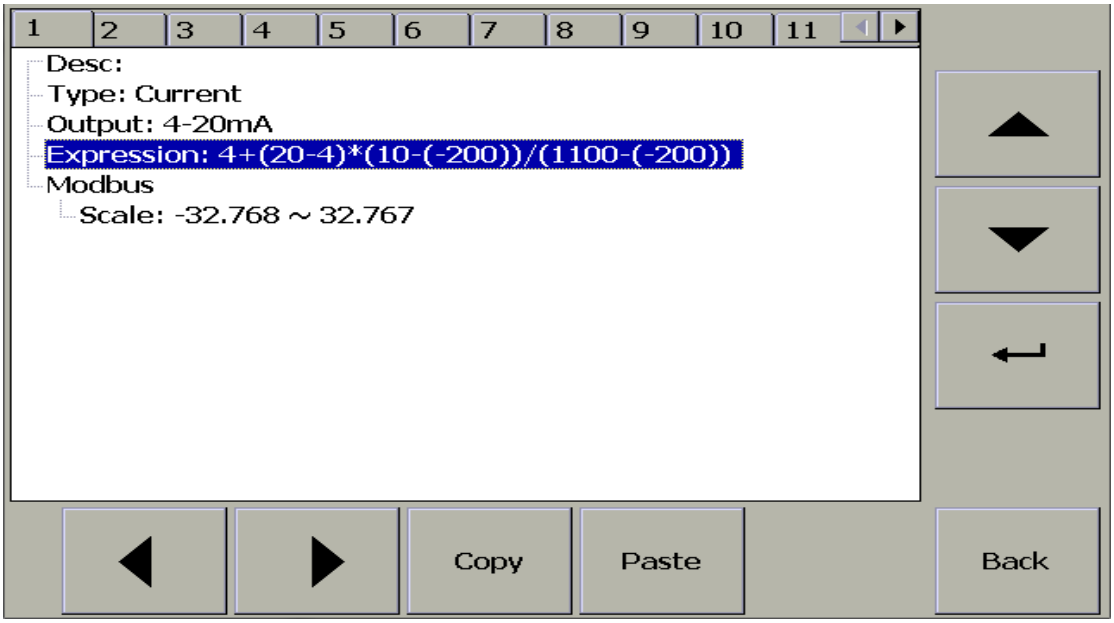


Fig. E-4

iv. Please come back to the main screen and press『Menu』-> 『Status』

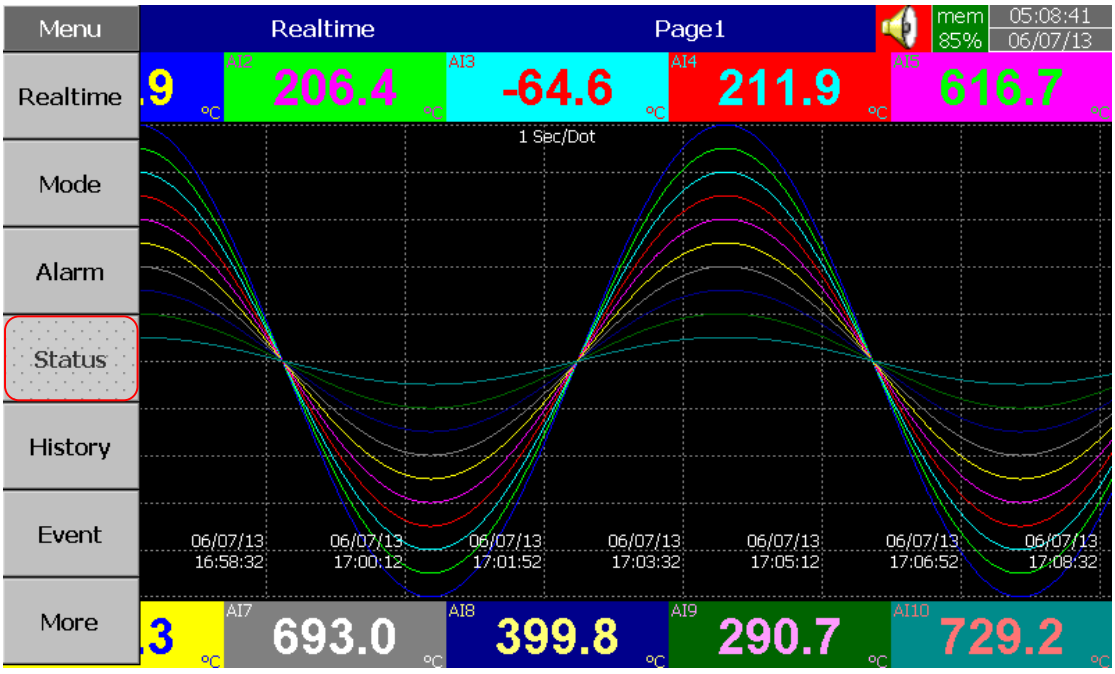


Fig. E-5

v. Press『AO』page as following showing

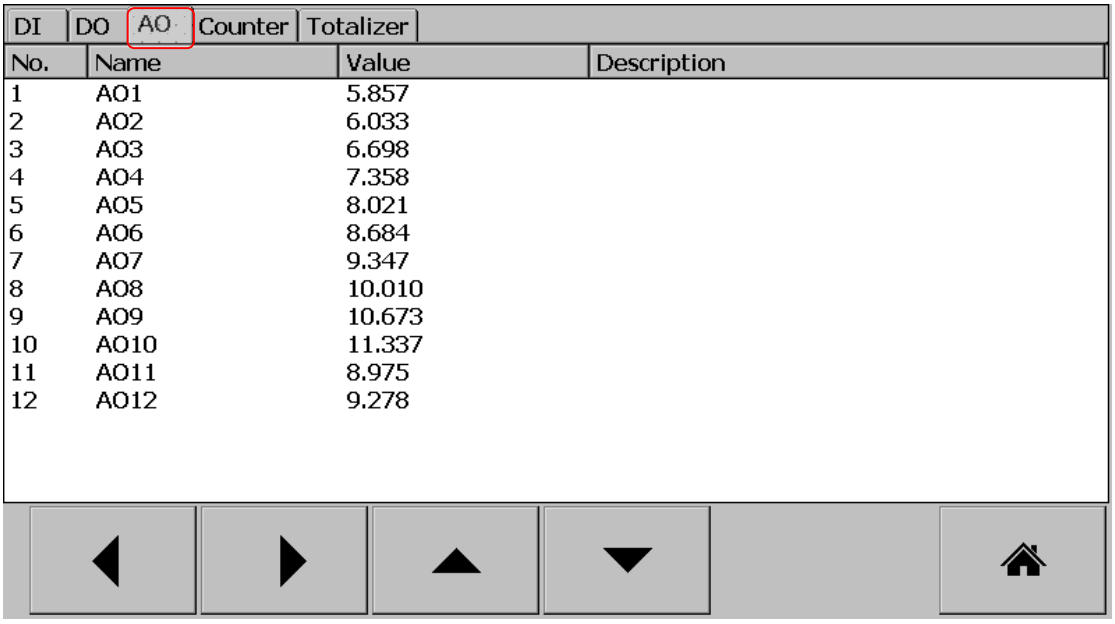


Fig. E-6

In here we can see the value is showing “5.857”, but at the Input Register address 601 is showing “38625”, so we need using specific expression to convert the value as following:

AO value = (((Register value * 65.535) / 65535) - 32.768)

Now the Register value is “38625”, please take the value “38625” into the expression as following:

AO value = (((38625 * 65.535)/65535) - 32.768)
= ((2531289.375/65535) - 32.768)
= 38.625-32.768
= 5.857

Appendix F

Ext Convert Example for AI

i. Press 『Menu』-> 『More』-> 『Config』

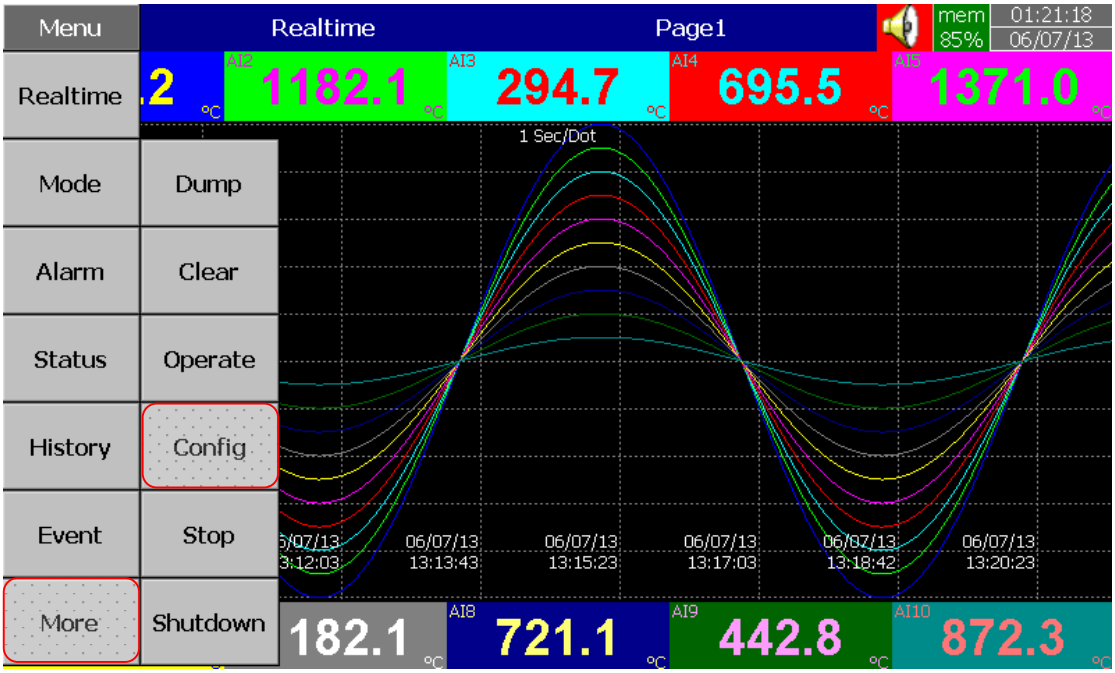


Fig. F-1

ii. Please select 『External』

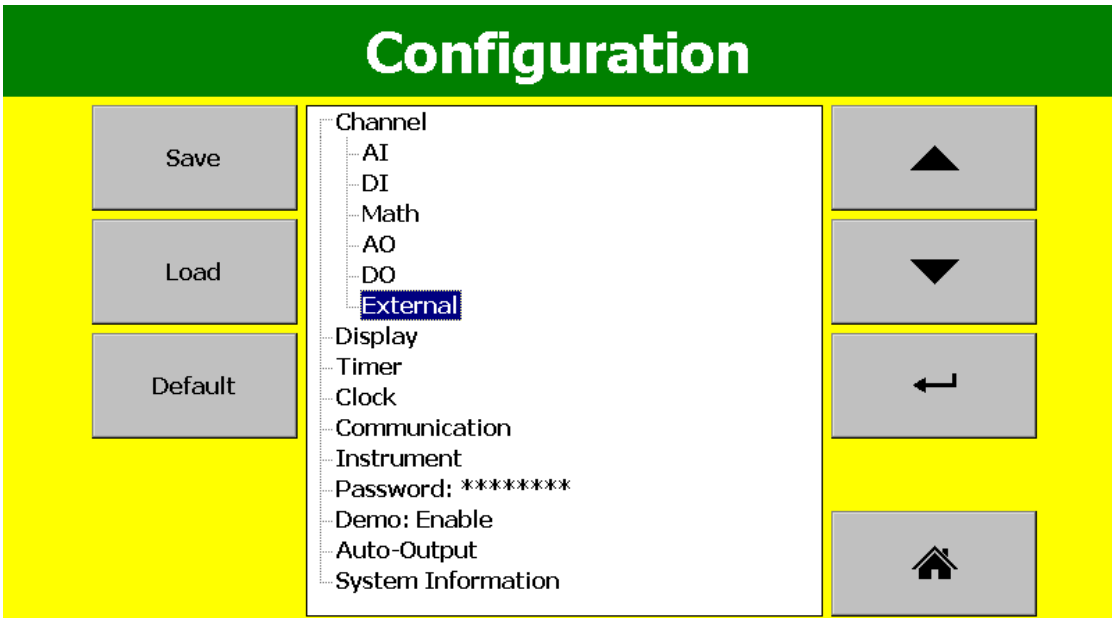


Fig. F-2

iii. Please modify the『DataType』from『4 Byte』to『2 Byte』

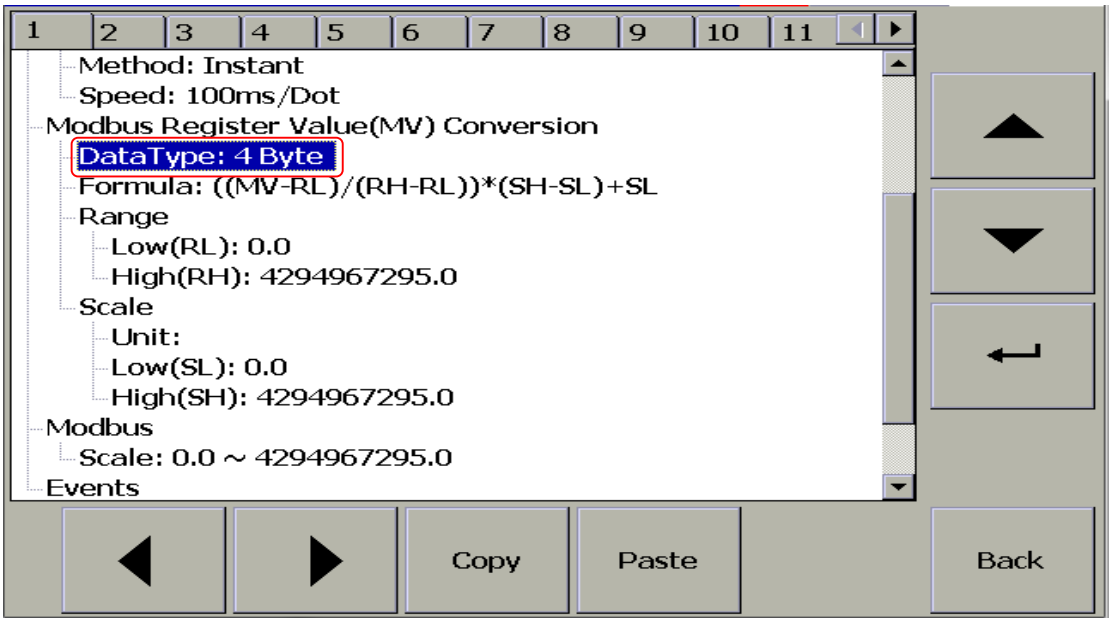


Fig. F-3

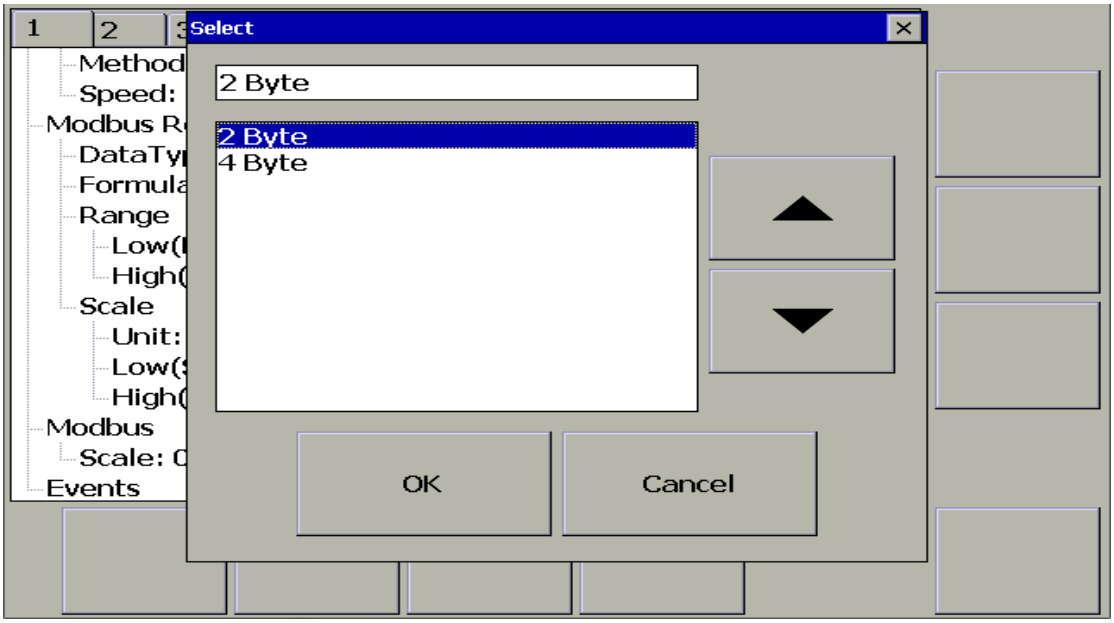


Fig. F-4

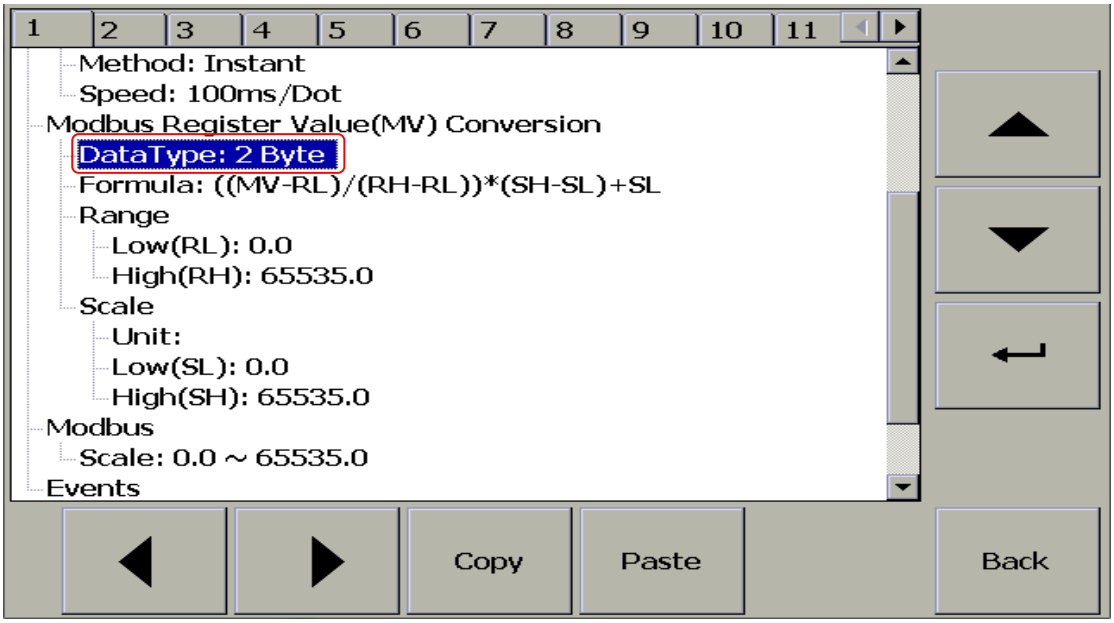
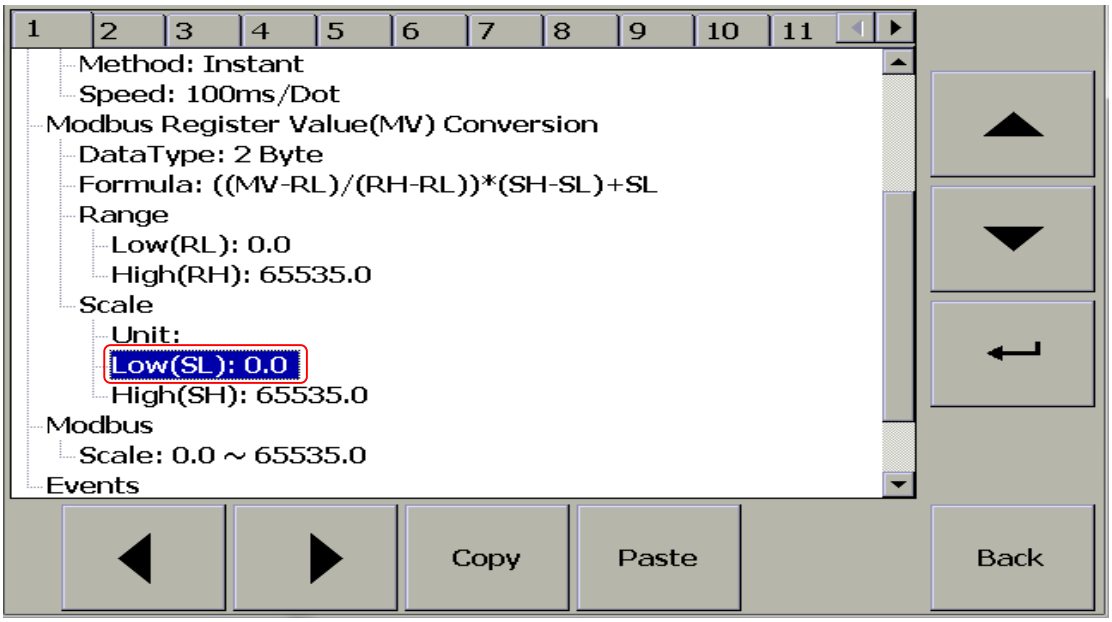


Fig. F-5

iv. Please modify the『Scale』range

Because the AI1 sensor range is -120.0 ~ 1000.0, so please modify Ext Scale Low(SL) from 0.0 to -120.0 and Scale High(SH) from 65535.0 to 1000.0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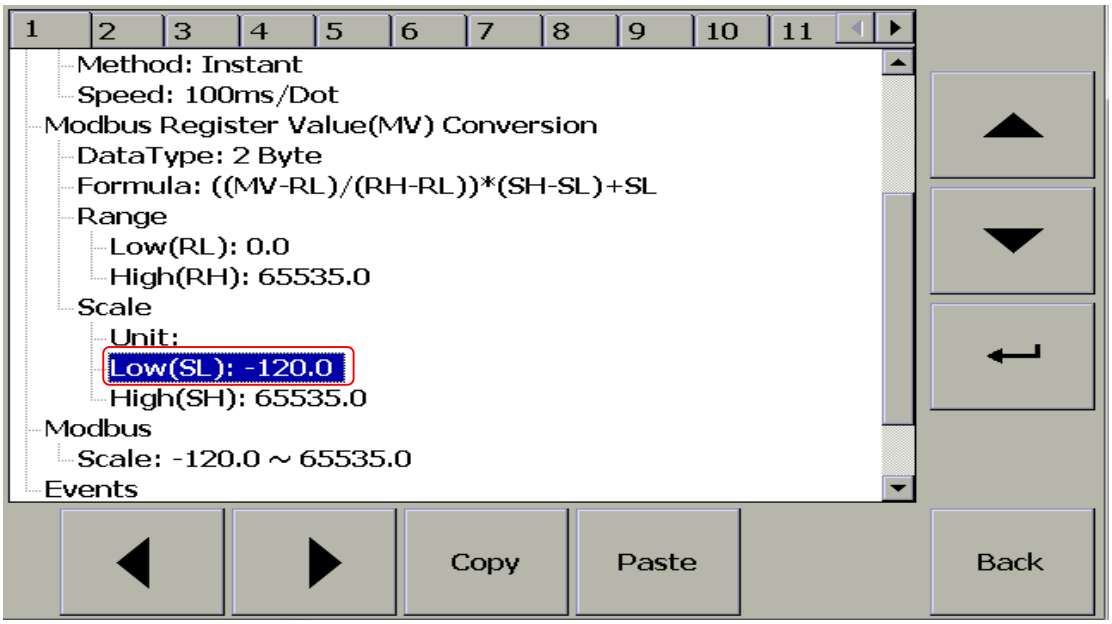
10
11
Method: Instant
Speed: 100ms/Dot
Modbus Register Value(MV) Conversion
DataType: 2 Byte
Formula: ((MV-RL)/(RH-RL))*(SH-SL)+SL
Range
Low(RL): 0.0
High(RH): 65535.0
Scale
Unit:
Low(SL): 0.0
High(SH): 65535.0
Modbus
Scale: 0.0 ~ 65535.0
Events
Copy
Paste
Back

Fig. F-6


1
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11
Method: Instant
Speed: 100ms/Dot
Modbus Register Value(MV) Conversion
DataType: 2 Byte
Formula: ((MV-RL)/(RH-RL))*(SH-SL)+SL
Range
Low(RL): 0.0
High(RH): 65535.0
Scale
Unit:
Low(SL): -120.0
High(SH): 65535.0
Modbus
Scale: -120.0 ~ 65535.0
Events
Copy
Paste
Back

Fig. F-7

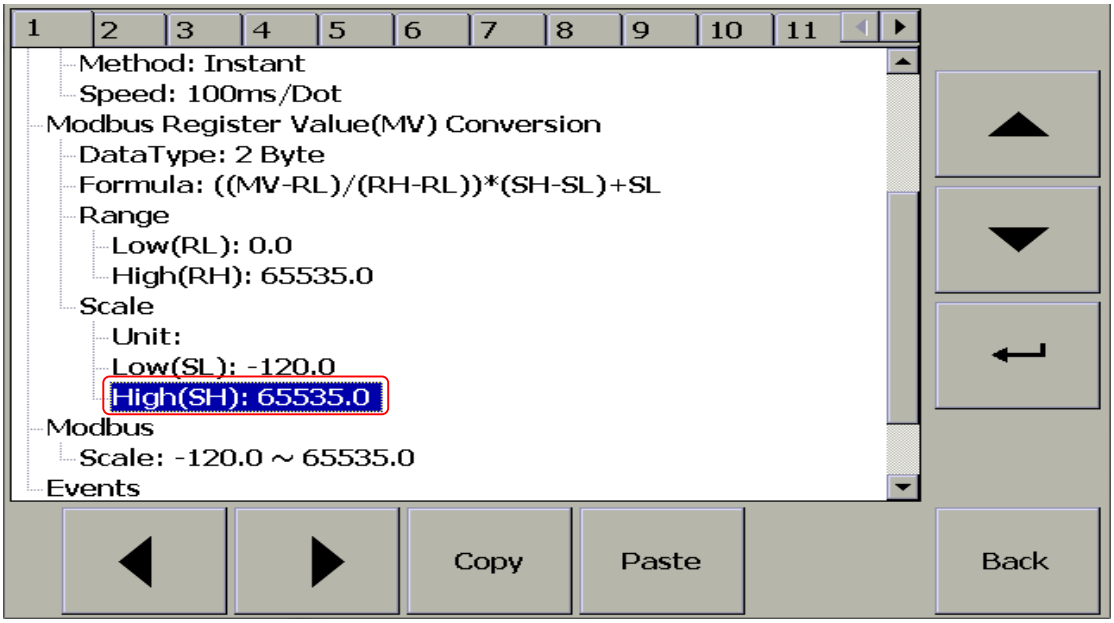


Fig. F-8

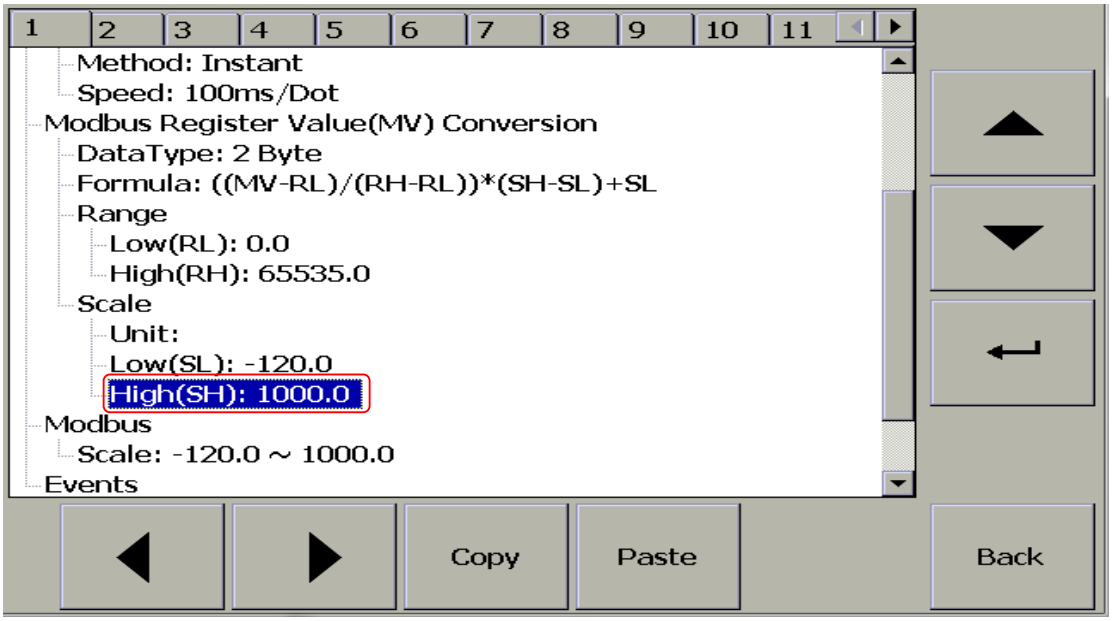


Fig. F-9

v. Repeat Step **iii** to Step **iv** for convert another AI value.

Appendix G

Ext Convert Example for DO and DO

i. Press 『Menu』-> 『More』-> 『Config』

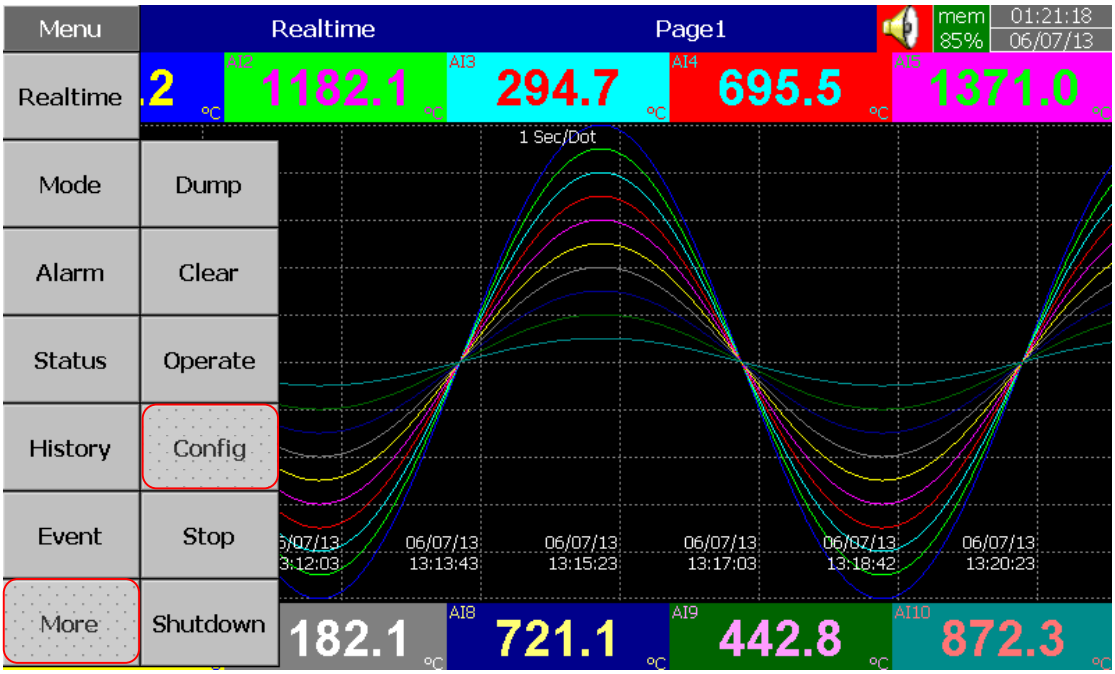


Fig. G-1

ii. Please select 『External』

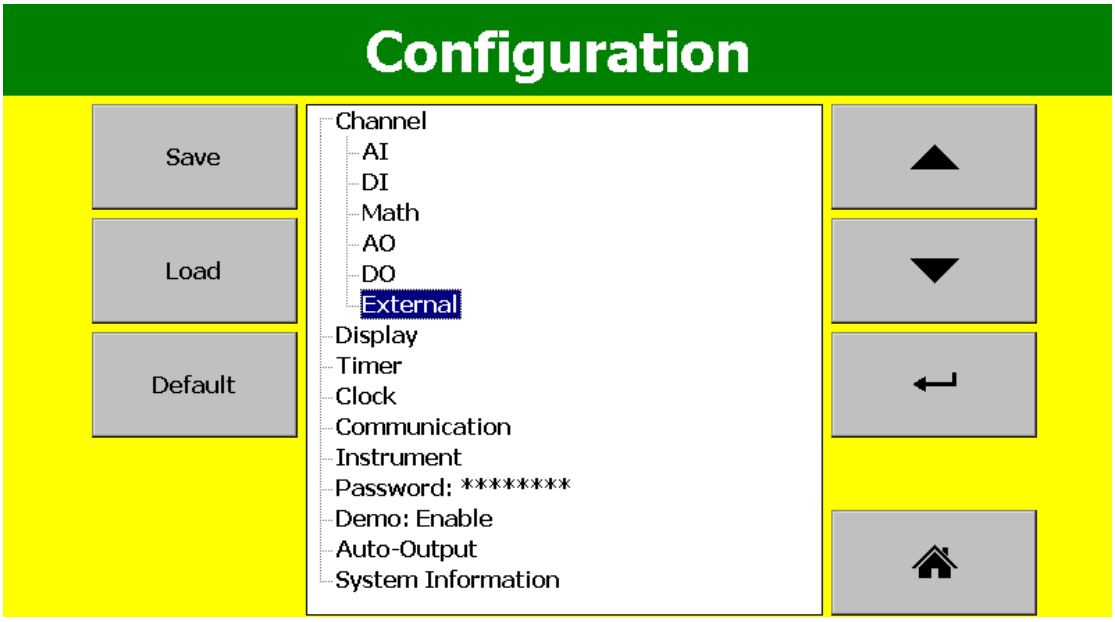


Fig. G-2

iii. Please modify the『DataType』from『4 Byte』to『2 Byte』

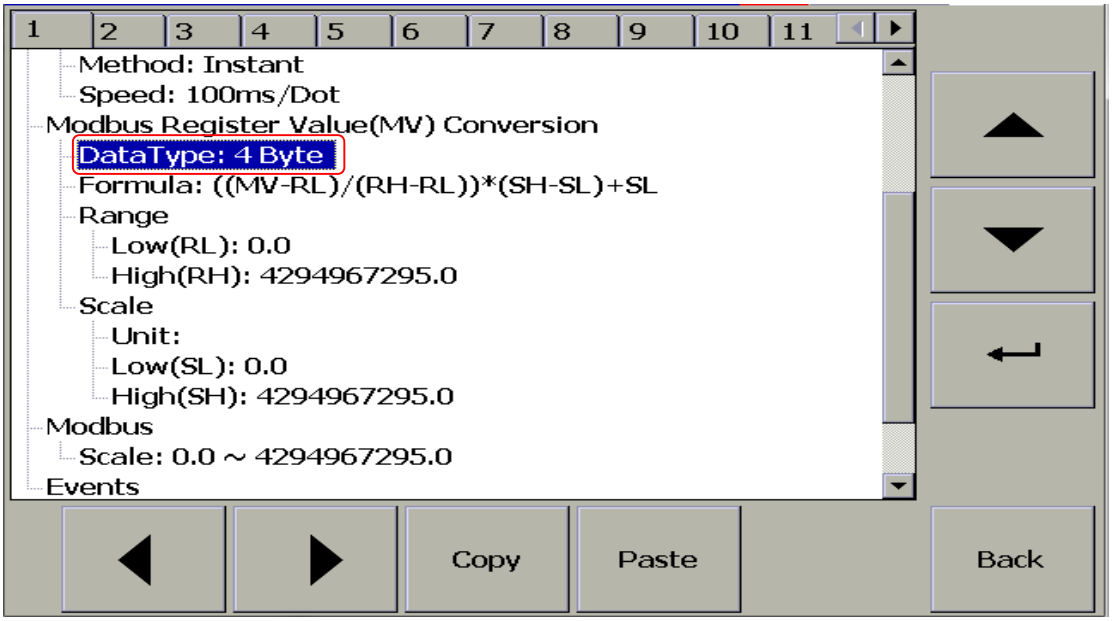


Fig. F-3

Fig. G-3

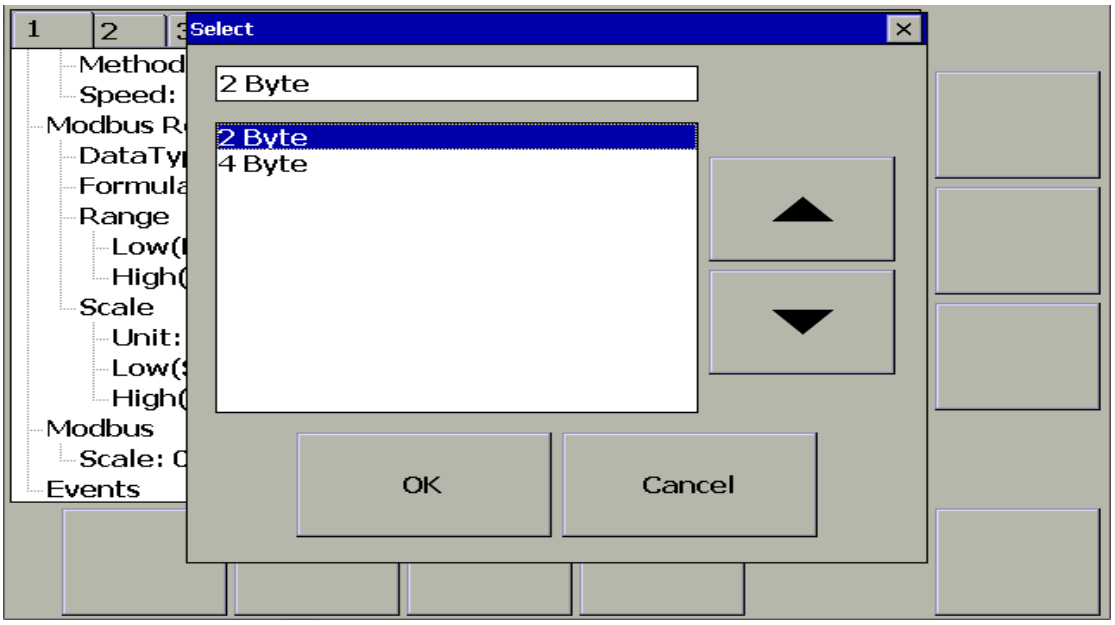


Fig. G-4

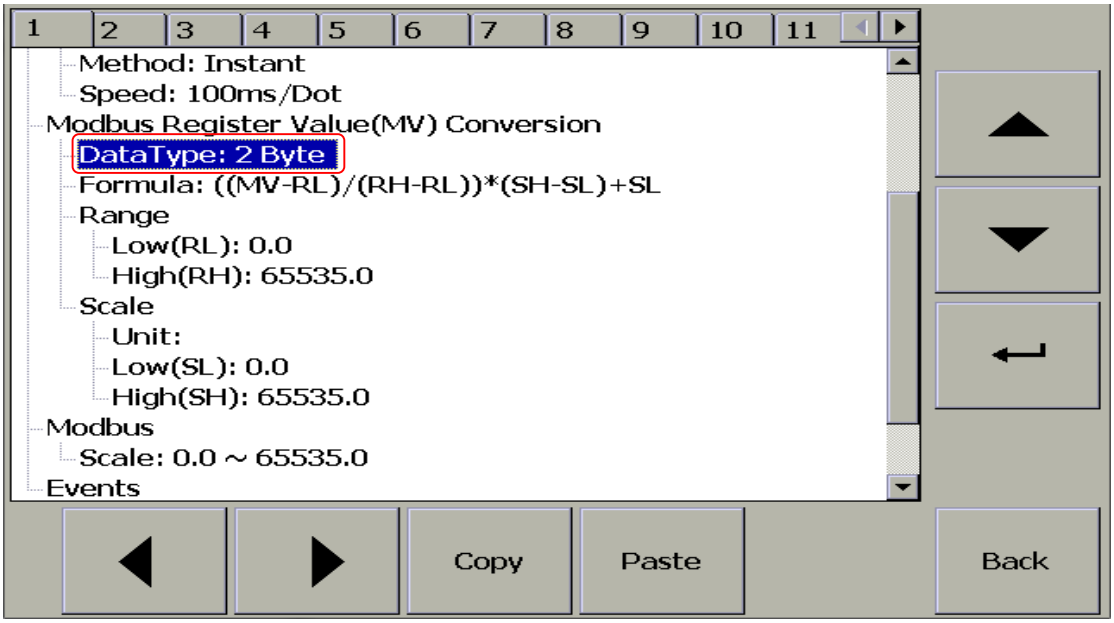


Fig. G-5

iv. Please modify the『Scale』range

Because the DI and DO data not need to do convert, so please make sure Range Low(RL) and Scale Low(SL) is same and Range High(RH) and Scale High(SH) is same

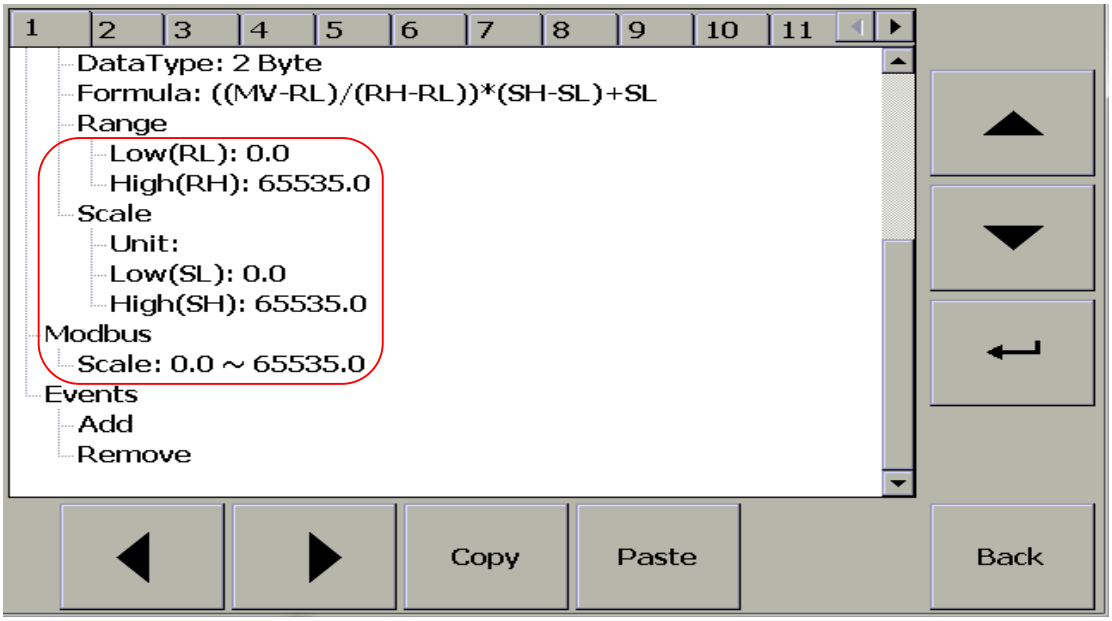


Fig. G-6

Appendix H

Ext Convert Example for AO

i. Press 『Menu』-> 『More』-> 『Config』

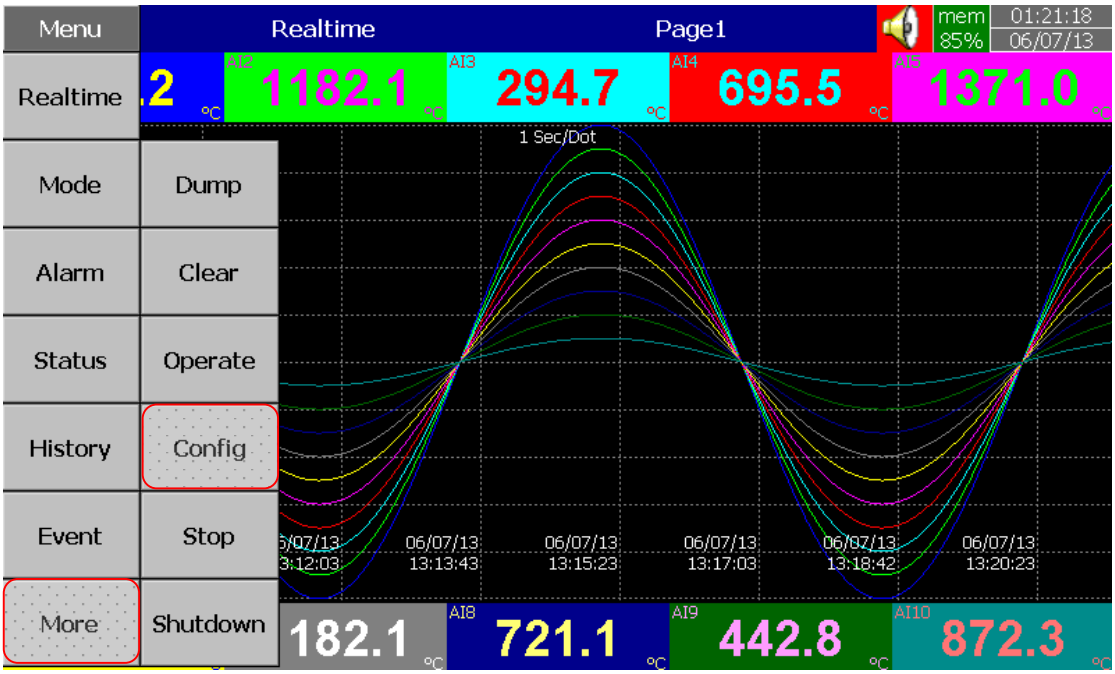


Fig. H-1

ii. Please select 『External』

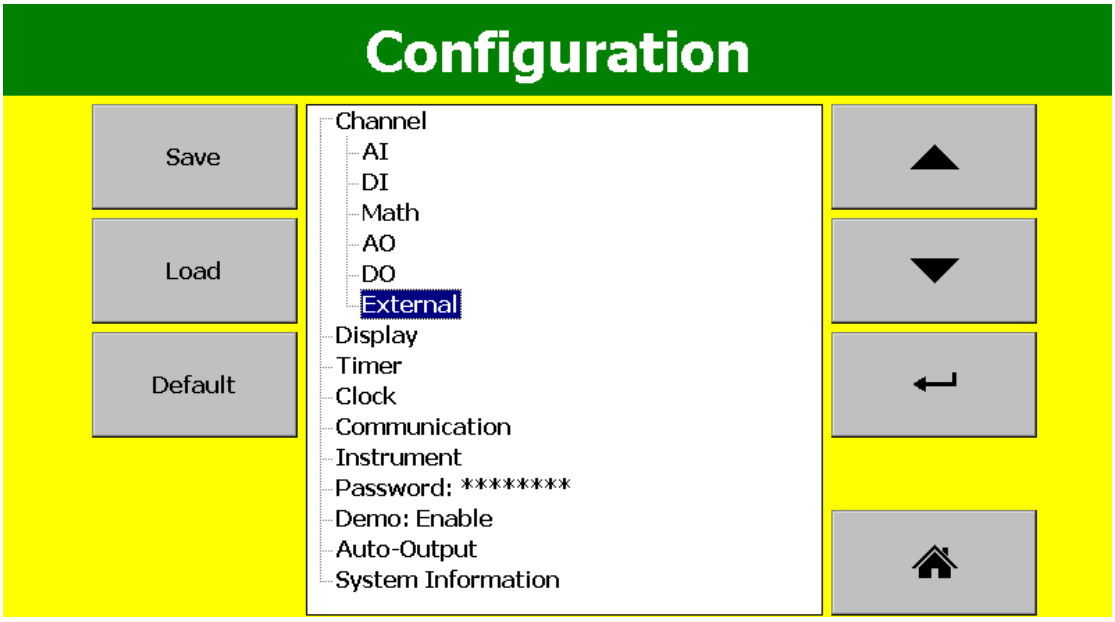


Fig. H-2

iii. Please modify the『DataType』from『4 Byte』to『2 Byte』

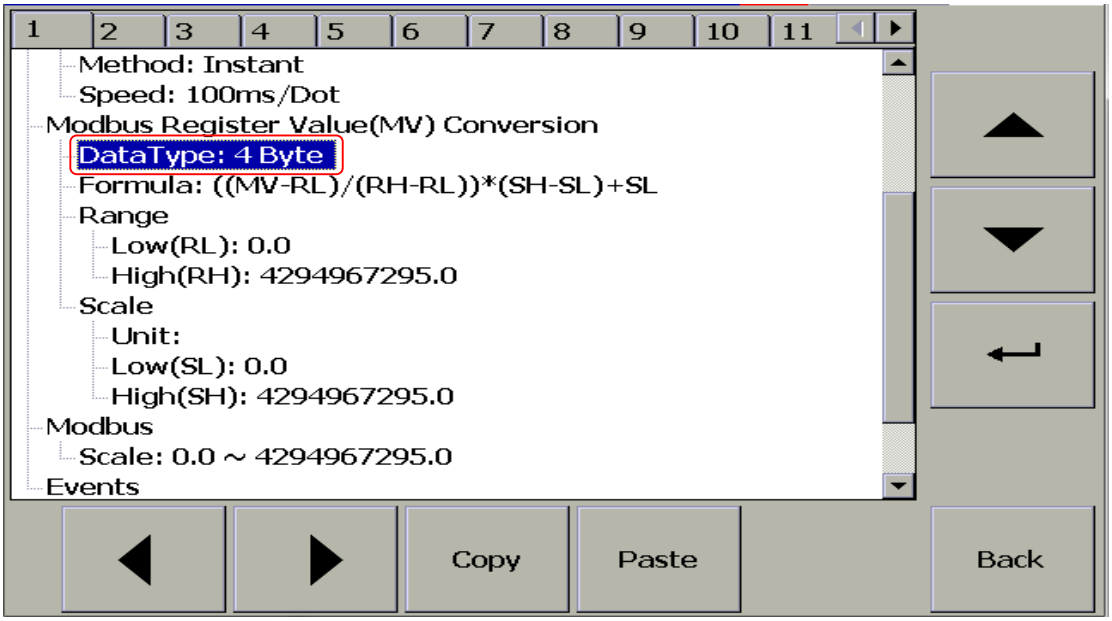


Fig. H-3

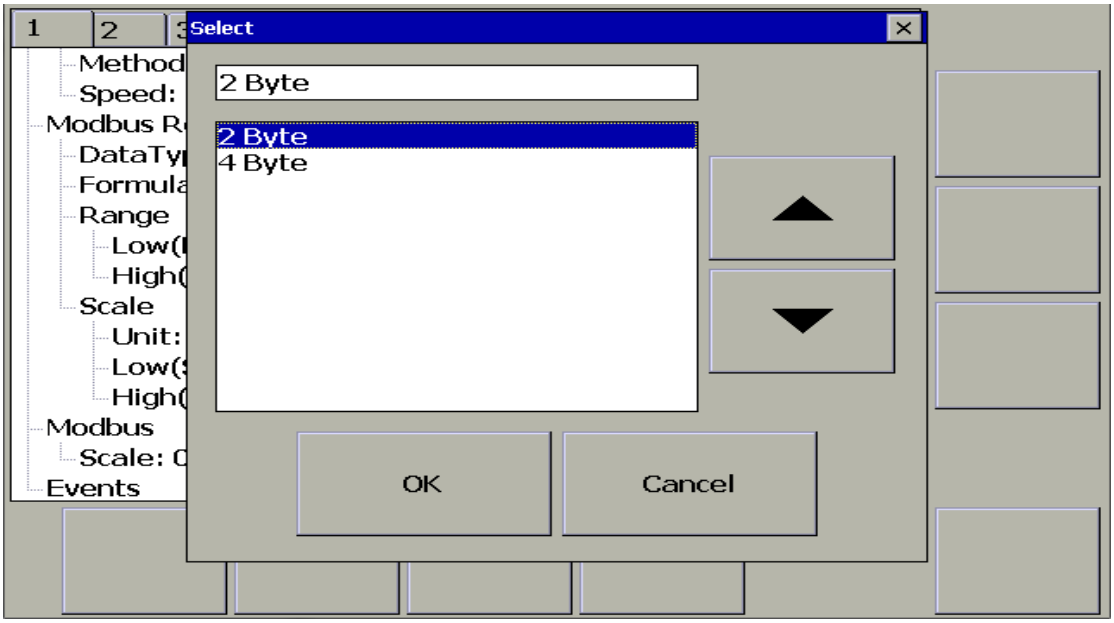


Fig. H-4

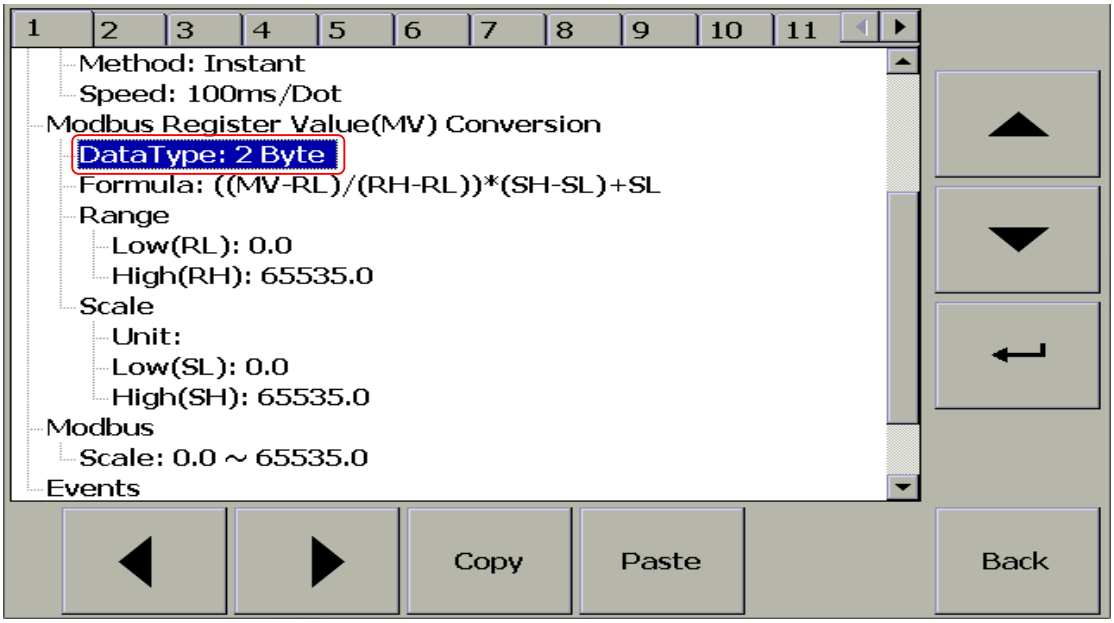


Fig. H-5

iv. Please modify the『Scale』range

Please modify Ext Scale Low(SL) from 0.0 to -32.768 and Scale High(SH) from 65535.0 to 32.767

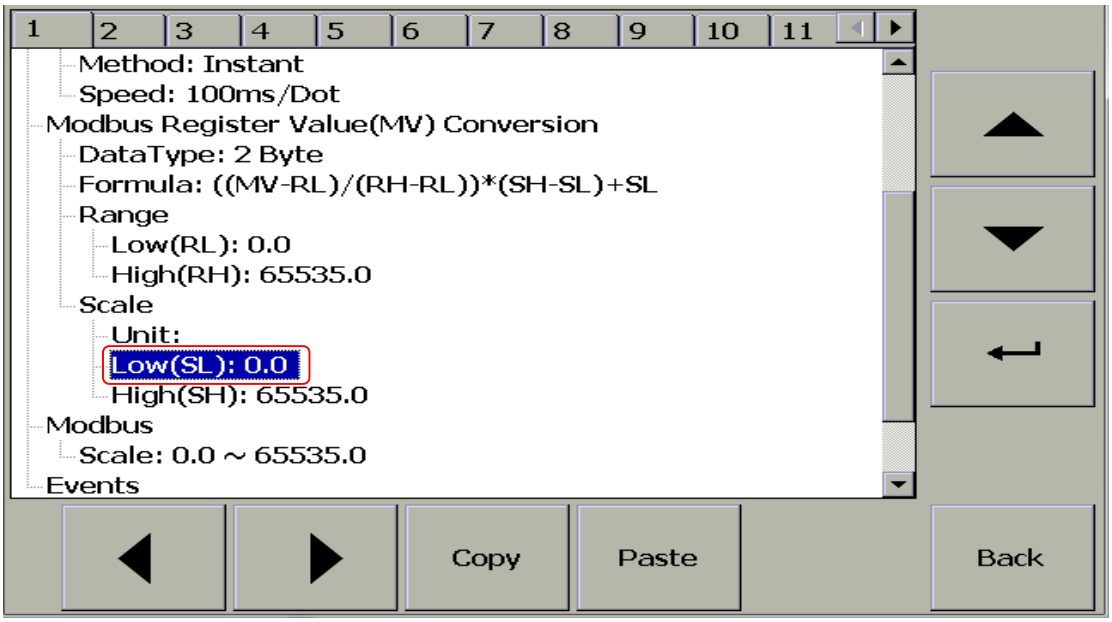
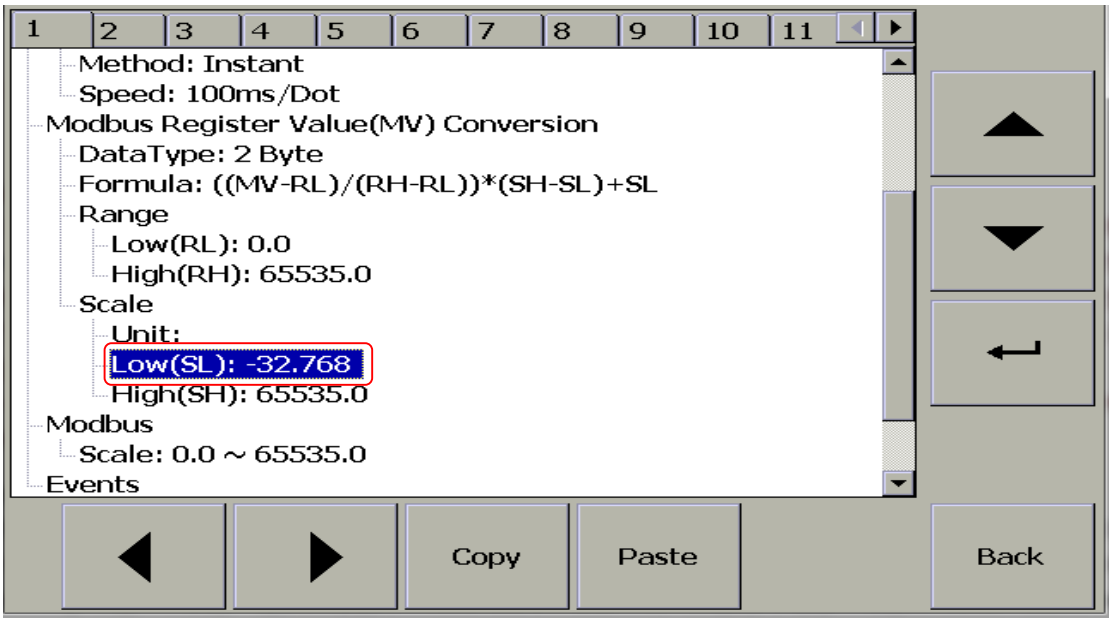


Fig. H-6


1
2
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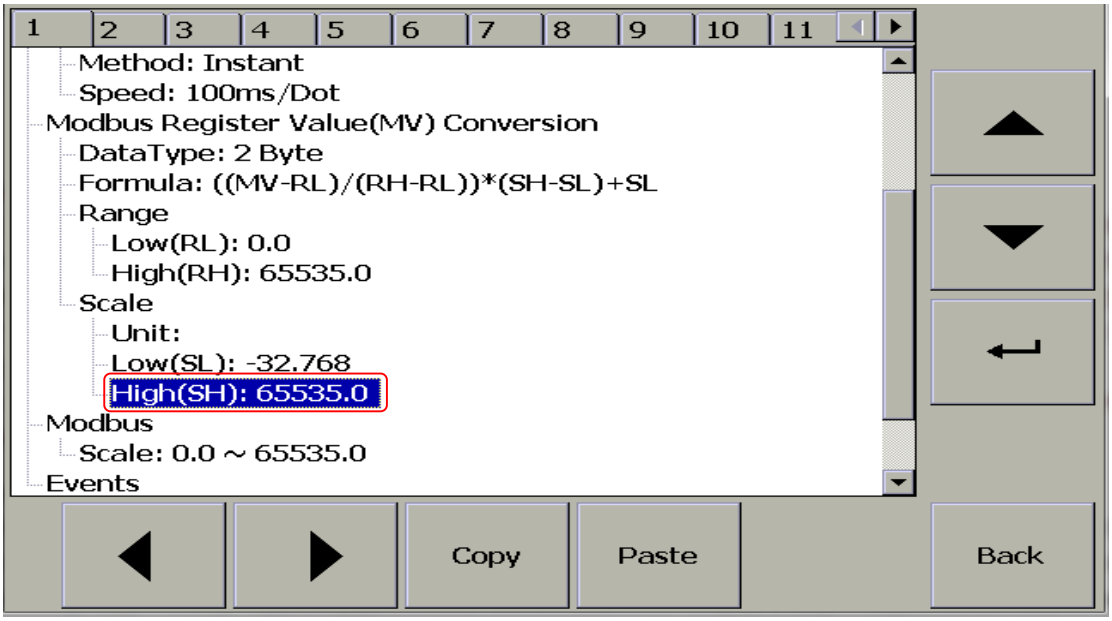
7
8
9
10
11
Method: Instant
Speed: 100ms/Dot
Modbus Register Value(MV) Conversion
DataType: 2 Byte
Formula: ((MV-RL)/(RH-RL))*(SH-SL)+SL
Range
Low(RL): 0.0
High(RH): 65535.0
Scale
Unit:
Low(SL): -32.768
High(SH): 65535.0
Modbus
Scale: 0.0 ~ 65535.0
Events
Copy
Paste
Back

Fig. H-7


1
2
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4
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7
8
9
10
11
Method: Instant
Speed: 100ms/Dot
Modbus Register Value(MV) Conversion
DataType: 2 Byte
Formula: ((MV-RL)/(RH-RL))*(SH-SL)+SL
Range
Low(RL): 0.0
High(RH): 65535.0
Scale
Unit:
Low(SL): -32.768
High(SH): 65535.0
Modbus
Scale: 0.0 ~ 65535.0
Events
Copy
Paste
Back

Fig. H-8

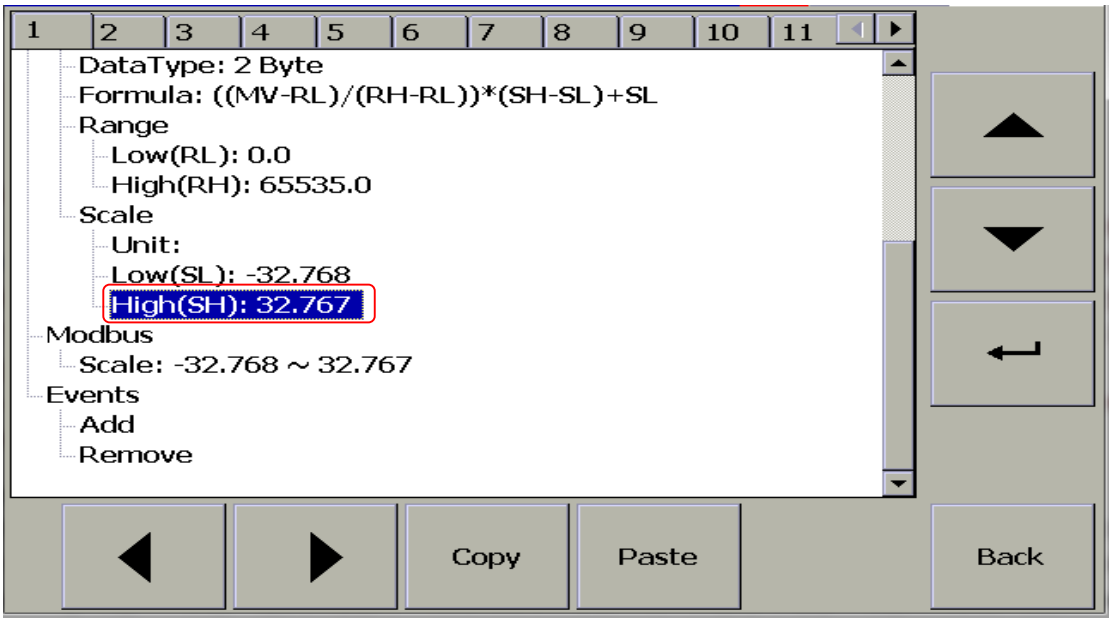

1
2
3
4
5
6
7
8
9
10
11
DataType: 2 Byte
Formula: ((MV-RL)/(RH-RL))*(SH-SL)+SL
Range
Low(RL): 0.0
High(RH): 65535.0
Scale
Unit:
Low(SL): -32.768
High(SH): 32.767
Modbus
Scale: -32.768 ~ 32.767
Events
Add
Remove
Copy
Paste
Back

Fig. H-9

Appendix I

Ext Convert Example for Math

i. Press 『Menu』-> 『More』-> 『Config』

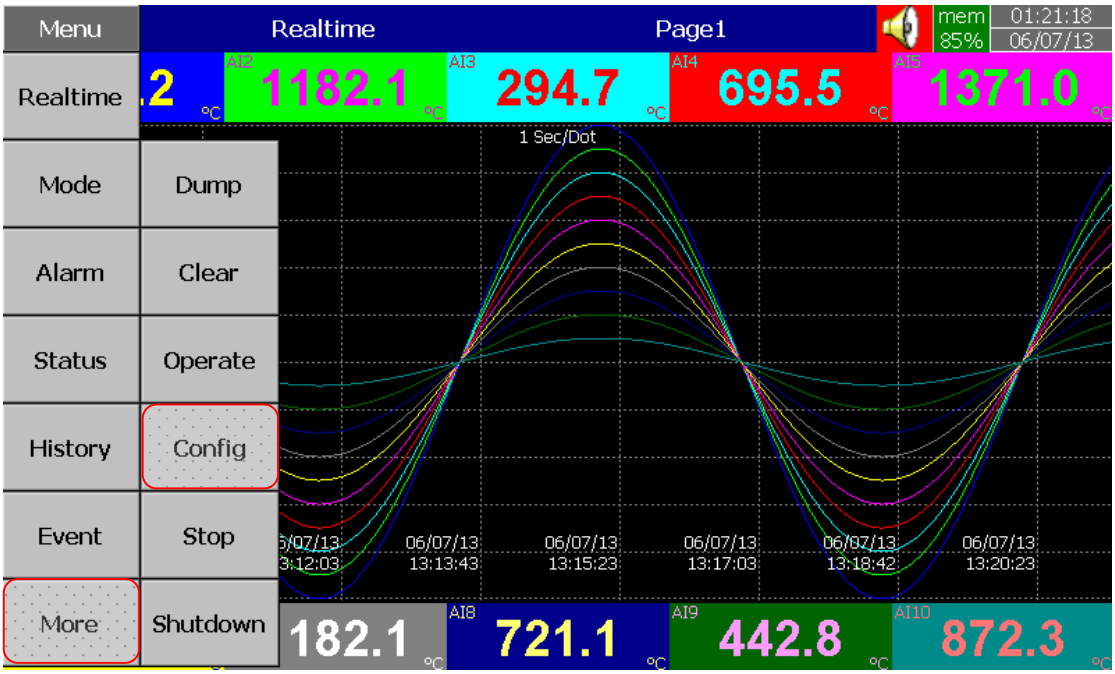


Fig. I-1

ii. Please select 『External』

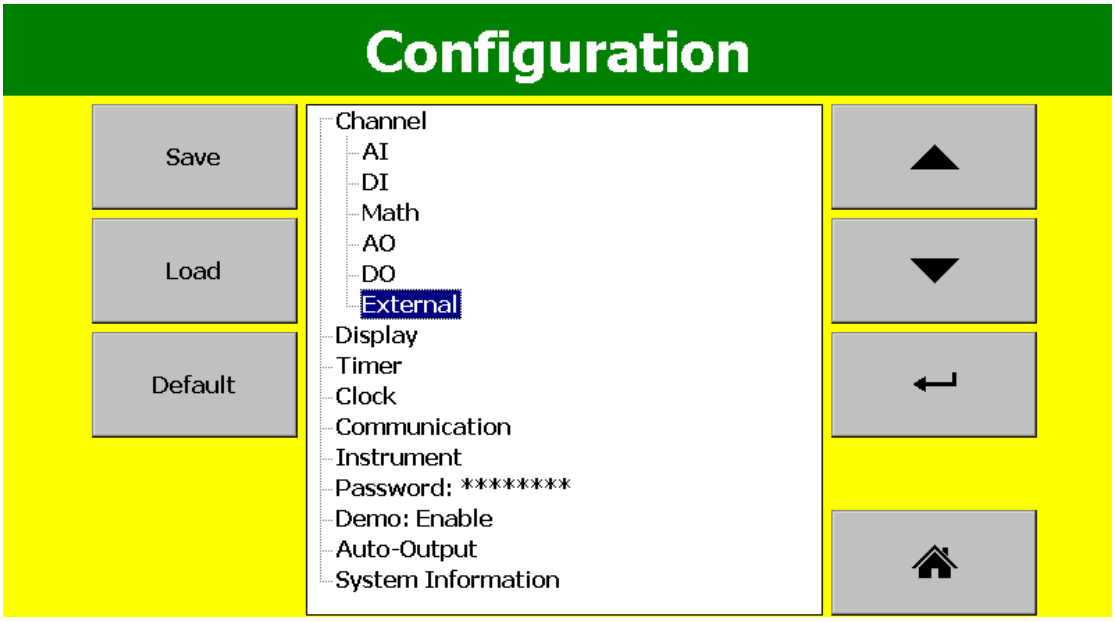


Fig. I-2

iii. Please set the『DataType』is『4 Byte』

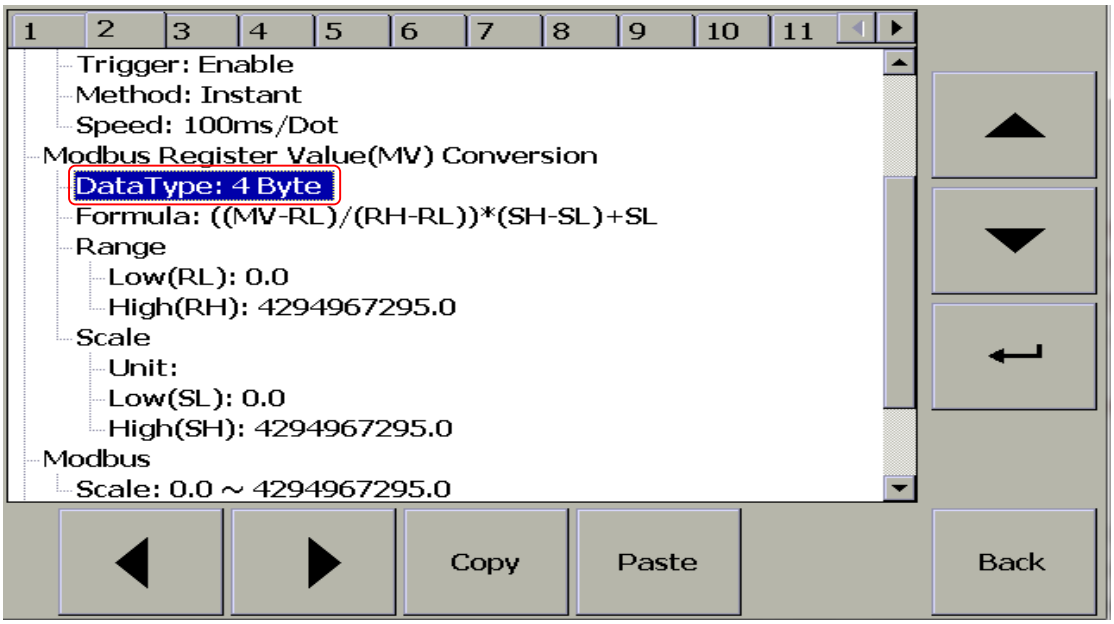
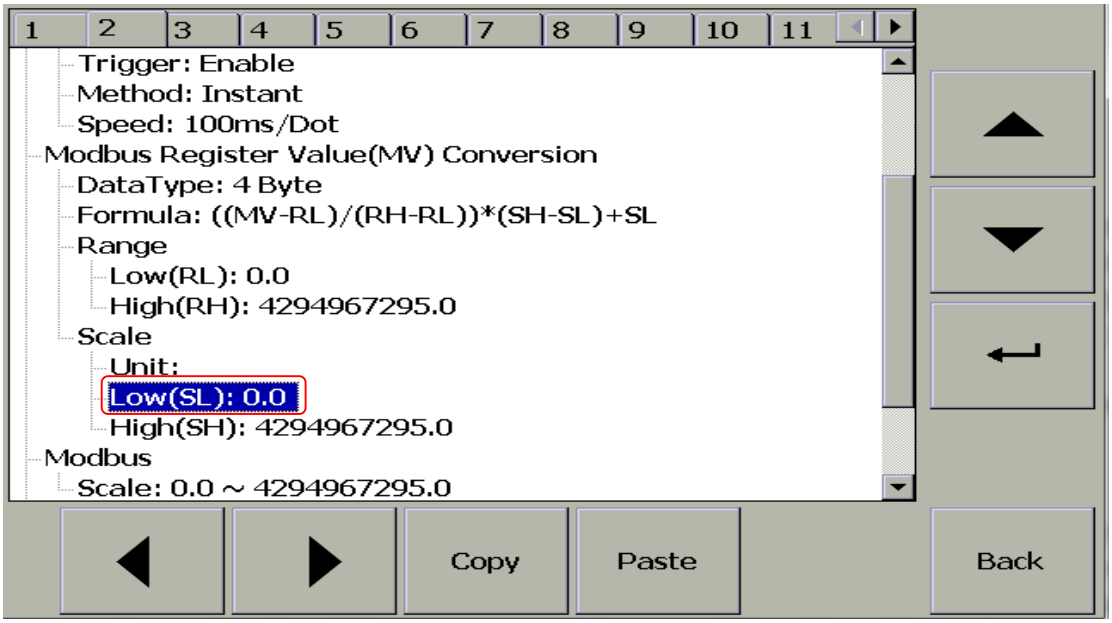


Fig. I-3

iv. Please modify the『Scale』range

Please modify the Ext Scale Low(SL) from 0.0 to -2147483648.0 and the Scale High(SH) from 4294967295.0 to 2147483647.0

Note: Because the Math can set "Decimal" value, so if the decimal is 0, please setting Scale Low(SL) to -2147483648.0 and Scale High(SH) to 2147483648.0.
If the decimal value is 1, please setting Scale Low(SL) to -2147478364.8 and Scale High(SH) to 214748364.8.
If the decimal value is 2, please setting Scale Low(SL) to -21474836.48 and Scale High(SH) to 21474836.47.
If the decimal value is 3, please setting Scale Low(SL) to -2147483.648 and Scale High(SH) to 2147483.647.
If the decimal value is 4, please setting Scale Low(SL) to -214748.3648 and Scale High(SH) to 214748.3647.
If the decimal value is 5, please setting Scale Low(SL) to -21474.83648 and Scale High(SH) to 21474.83647.


1
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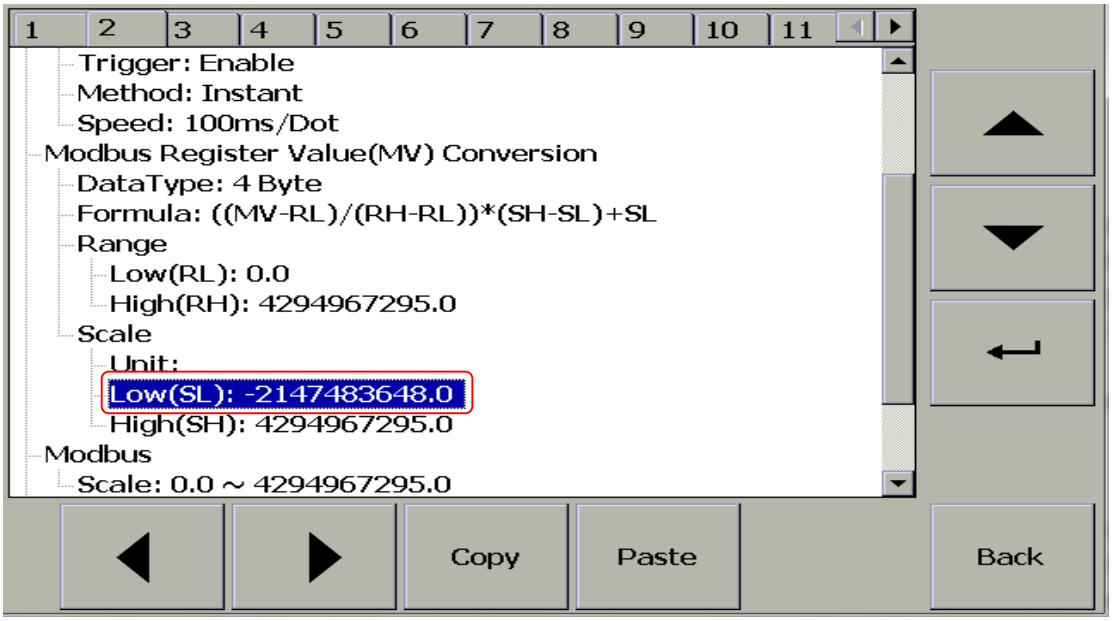
8
9
10
11
Trigger: Enable
Method: Instant
Speed: 100ms/Dot
Modbus Register Value(MV) Conversion
DataType: 4 Byte
Formula: ((MV-RL)/(RH-RL))*(SH-SL)+SL
Range
Low(RL): 0.0
High(RH): 4294967295.0
Scale
Unit:
Low(SL): 0.0
High(SH): 4294967295.0
Modbus
Scale: 0.0 ~ 4294967295.0
Copy
Paste
Back

Fig. I-4


1
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5
6
7
8
9
10
11
Trigger: Enable
Method: Instant
Speed: 100ms/Dot
Modbus Register Value(MV) Conversion
DataType: 4 Byte
Formula: ((MV-RL)/(RH-RL))*(SH-SL)+SL
Range
Low(RL): 0.0
High(RH): 4294967295.0
Scale
Unit:
Low(SL): -2147483648.0
High(SH): 4294967295.0
Modbus
Scale: 0.0 ~ 4294967295.0
Copy
Paste
Back

Fig. I-5

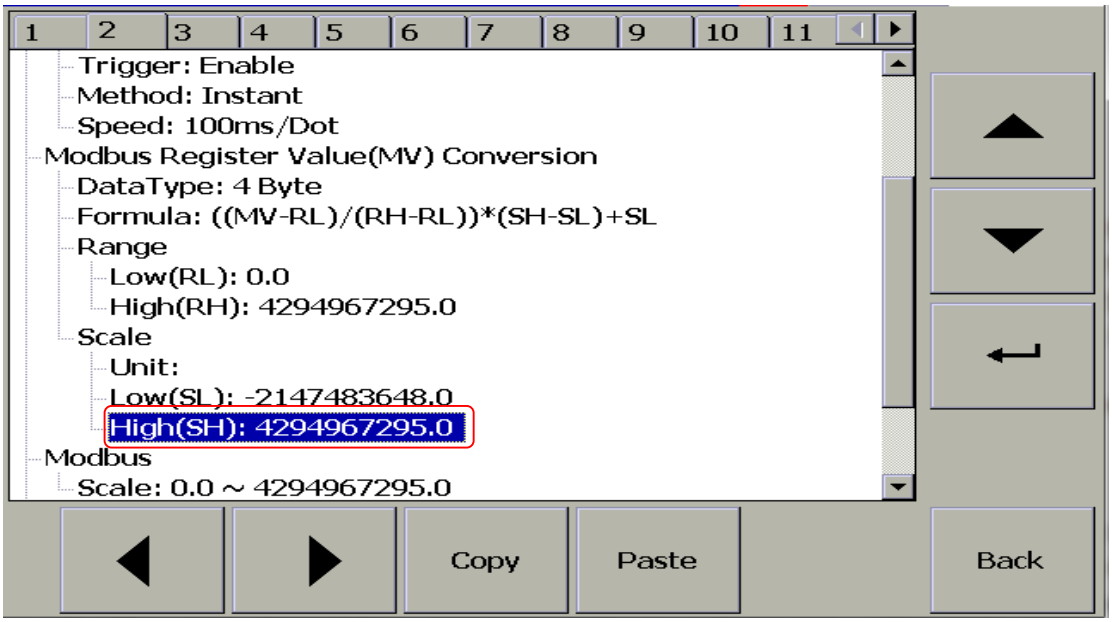

Fig. I-6

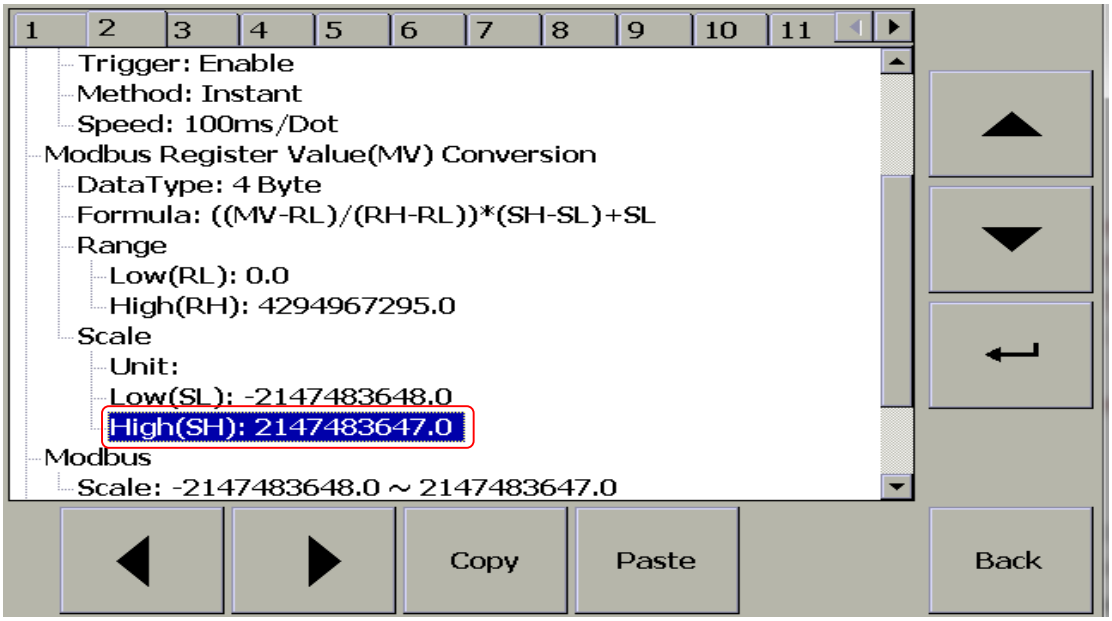

Fig. I-7

v. Repeat Step **iii** to Step **iv** for convert another Math value.