

General Specifications

Model MLX Loop Powered Process Indicator

GS 60A02S01-01E-A

The Model MLX Loop-Powered Process Indicator receives DC current signals from electronic transmitters and indicates process measurement values. Standard models are general purpose.

STANDARD SPECIFICATIONS

FUNCTIONAL SPECIFICATIONS

Input: 4-20mA DC 2-wire

Voltage Drop: 3.5V at 20mA

LCD Display

Numerical: Six 7-segment digits

Alpha-numerical: Six 14-segment characters

Bar graph: 20-segment Bar graph.

Symbols: P, SP, T, F, %, $\sqrt{\quad}$, x10, x100, x1000

Configuration: User configurable for desired engineering units.

Method: User configurable from front panel

Zero & Span: Zero and span can be set between ± 999999 .

Turn-on Time: 12 second (includes power on self-test and memory integrity check)

Update Time: 1 second

Isolation: Input/Output/Ground isolated to 500V DC

PERFORMANCE SPECIFICATIONS

Accuracy: $\pm 0.05\%$ of full scale +1 digit

Operating Current: 3.6mA to 28mA

Ambient Temperature: -30 to +60°C (-22 to 140°F)

Ambient Humidity: 0 to 100%RH at 23°C (73°F)

Ambient Temperature Effect: 0.1°C per 10°C

Over range: 200mA without damage

Maximum error: +0.02%, -0.03% (of full scale)

Conformity (Linearity): 0.03%

Hysteresis error: 0.03%

Repeatability: 0.03%

Vibration: 3G @ 10-150Hz

Shock: 50G

Explosion Protection: FM, CSA, ATEX, and IEC

PHYSICAL SPECIFICATIONS

Enclosure

Material

Housing: Low copper cast aluminum alloy with Polyurethane resin baked finish - Deep sea moss green (equivalent of Munsell 0.6GY3.1/2.0) or SUS316 cast stainless steel (ASTM CF-8M)

Name plate: Black anodized aluminum or 316 SST

Tag: 304 SST

Wired tag: 304 SST

Degrees of Protection: NEMA 4X, IP67

Mounting: Nominal 2" (50mm) pipe mount or surface. (horizontal or vertical)

Weight: 1.25kg (2.70 lbs)*

*: Without mounting bracket

Add 0.8 kg (0.35 lbs) for mounting bracket

Electrical Connection: ½ NPT female or M20 female



FEATURES

User interface

A front panel push button switch combined with four touch switches allows easy configuration of the indicator (calibration, span, zero and engineering units).

Root extraction

For applications where the process variable is non-linear and based on the square root, 3/2 root or 5/2 root, the MLX can be configured to display the root function of the input.

Field Configurable

Via the front panel user interface, the process variable parameters can be modified as desired in the field.

LCD Display features

The LCD display includes a bar graph for an analog indication of the process variable magnitude. The 6 digit display and 6 character display (combined with several symbols) give an instant view of all process variable parameters. A menu system allows customizing parameters such as decimal point position, engineering units, status of symbols and state of bar graph.

Self-diagnostics

Built-in diagnostics operate at power-up and during operation for ease of maintenance and troubleshooting.

MODEL AND SUFFIX CODES

Model	Suffix Codes	Description
MLX	Loop Indicator
Input signal	-A	4 to 20mA DC
Mounting	1	2 inch Horizontal Pipe
	2	2 inch Vertical Pipe (or wall mount)
Housing	1	Cast aluminum alloy
	2	SUS316 cast stainless steel and ASTM CF-8M
Communication	-1	Standard
	-2	HART Communications (To be announced later)
Electrical Connection	0	ANSI ½ NPT female, two electrical connections without blind plugs
	1	ANSI ½ NPT female, two electrical connections and a 304 SST blind plug
	2	ANSI ½ NPT female, two electrical connections and a 316 SST blind plug
	3	ISO M20 female, two electrical connections without blind plugs
	4	ISO M20 female, two electrical connections and a 316 SST blind plug
Optional Codes		/ <input type="checkbox"/> Optional specification

OPTIONAL SPECIFICATIONS (For Explosion Protected Type)

Item	Description	Code
Factory Mutual (FM)	FM Explosion-proof Approval Applicable Standard: FM3600, FM3615, FM3810, ANSI/NEMA 250 Explosionproof for Class I, Division 1, Groups A, B, C and D, Dust-ignitionproof for Class II/III, Division 1, Groups E, F and G, in Hazardous locations, indoors and outdoors (NEMA 4X) Temperature class: T5, Ambient Temperature: -30 to 60°C (-22 to 140°F)	FF1
	FM Intrinsically Safe/FM Explosion-proof/FM Non-incendive Approval (Pending) Applicable Standard: FM3600, FM3610, FM3611, FM3615, FM3810, ANSI/NEMA 250 Intrinsically Safe for Class I, Division 1, Groups A, B, C & D, Class II, Division 1, Groups E, F & G and Class III, Division 1, Class I, Zone 0, in Hazardous Locations, AEx ia IIC Non-incendive for Class I, Division 2, Groups A, B, C & D, Class II, Division. 2, Groups E, F & G, and Class III, Division 1, Class I, Zone 2, Group IIC, in Hazardous Locations Enclosure: "NEMA 4X", Temp. Class: T5, Amb. Temp.: -40 to 85°C (-40 to 185°F) Intrinsically Safe Apparatus Parameters [Groups A, B, C, D, E, F and G] Vmax=30 V, Imax=200 mA, Pmax=0.9 W, Ci=6 nF, Li=0 _H [Groups C, D, E, F and G] Vmax=30 V, Imax=200 mA, Pmax=0.9 W, Ci=10 nF, Li=0 mH	FU1
CENELEC ATEX	ATEX Intrinsically Safe/ATEX Flameproof/Non-incendive Approval (Pending) Flameproof Applicable Standard: EN 60079-0, EN 60079-1, EN 60079-31 II 2G, 2D Ex d IIC T5 Ex tD A21 IP6X T85 Degree of protection : IP66 and IP67 Temperature class: T5, Ambient Temperature: -40 to 85°C (-40 to 185°F) Intrinsically safe Applicable Standard: EN 60079-0, EN 60079-11, EN 60079-26 II 1G, 1D Ex ia IIC T5 Degree of protection : IP66 and IP67 Temperature class: T5, Ambient Temperature: -40 to 85°C (-40 to 185°F) Entity parameters : Ui=30 V, li=200 mA, Pi=0.9 W, Ci=10 nF, Li=0 mH Non-incendive Applicable Standard: EN 60079-0, EN 60079-11 II 3G Ex ic IIC T5 Temperature class: T5, Ambient Temperature: -40 to 85°C (-40 to 185°F) Entity parameters : Ui=30 V, li=200 mA, Pi=0.9 W, Ci=10 nF, Li=0 mH	KU21

Item	Description	Code
Canadian Standards Association (CSA) Canadian Standards Association (CSA)	<p>CSA Intrinsically Safe/CSA Explosionproof Approval (Pending) Applicable C22.2 No.25, C22.2 No.30, Standard: FM 3600, FM 3615, UL 1203, UL 50, UL 50E, C22.2 No.94, C22.2 No. 94.2 Explosionproof for Class I, Division 1, Groups A, B, C and D, Dust-ignitionproof for Class II/III, Division 1, Groups E, F and G Enclosure: TYPE 4X, Temp. Code: T5 Ex d IIC T5 Enclosure: IP66 and IP67 Amb.Temp.: -40 to 85°C (-40 to 185°F) for T5 Applicable Standard: C22.2 No.0, FM 3600, FM 3610, FMRC 3611, UL 60079-0, UL 60079-11, C22.2 No.60079.0, CAN/CSA E60079-11, C22.2 No.213, CAN/CSA C22.2 No.157 Intrinsically Safe for Class I, Division 1, Groups A, B, C & D, Class II, Division 1, Groups E, F & G, Class III, Division 1, Non-incendive for Class I, Division 2, Groups A, B, C & D, Class II, Division 2, Groups E, F & G, Class III, Division 1 Enclosure: Type 4X, Temp. Code: T5 Amb. Temp.: -40 to 85°C (-40 to 185°F) Electrical Parameters: [Intrinsically Safe] Vmax=30V, Imax=200mA, Pmax=0.9W, Ci=10nF, Li=0 [Non-incendive] Vmax=30V, Ci=10nF, Li=0 [For CSA E60079] Ex ia IIC T5, Ex ic IIC T5 Enclosure: IP66 and IP67 Amb. Temp.: -40 to 85°C (-40 to 185°F) Electrical Parameters: [Ex ia] Ui=30V, li=200mA, Pi=0.9W, Ci=10nF, Li=0 [Ex ic] Uj=30V, Ci=10nF, Li=0</p>	CU1
IECEX Scheme	<p>IEC Intrinsically Safe/IEC Flameproof Approval (Pending) Intrinsically safe and type n Applicable Standard: IEC 60079-0, IEC 60079-1, IEC 60079-11, IEC 60079-26, IEC 60079-31 II 1G, 1D Ex ia IIC T5, II 3G Ex ic IIC T5 Degree of protection : IP66 and IP67 Amb. Temp.: -40 to 85°C (-40 to 185°F) Electrical Parameters: [Ex ia] Ui=30V, li=200mA, Pi=0.9W, Ci=10nF, Li=0 [Ex ic] Uj=30V, Ci=10nF, Li=0 Flameproof Applicable Standard: IEC 60079-0, IEC60079-1 II 2G, 2D Ex d IIC T5 Ex tD A21 IP6X T85 Degree of protection : IP66 and IP67 Amb.Temp.: -40 to 85°C (-40 to 185°F) for T5</p>	SU2
Combination of Approvals	Combination of FU1, CU1 and KU21 Approvals (Pending)	V1U
INMETRO (Brazil) Certificate	INMETRO Intrinsically Safe/INMETRO Flameproof Approval (Pending)	BU1
GOST (Russian) Certificate	Russian GOST certificate (Pending)	QR1

OPTIONAL SPECIFICATIONS

Item	Description	Code
Paint	Epoxy resin paint Polyurethane-Epoxy combination paint (Anti-corrosion coating)	X1 X2
Calibration	Calibration range and scale	ENG
Stainless steel tag plate	Stainless steel tag screw attached to housing Stainless steel tag wired to housing	SST SSW

ORDERING INFORMATION

Specify the following when ordering:

1. Model and suffix codes.
2. Option codes.
3. Tag number
4. Calibration range desired (optional)

Example Ordering Information:

MLX-A11-10/FF1/ENG/SST

(Field Mounted Loop Indicator, 4 to 20mA DC, 2" Horizontal Pipe mount, aluminum housing, standard communication, ANSI ½ NPT electrical connection without blind plugs, FM Explosion-proof approval)

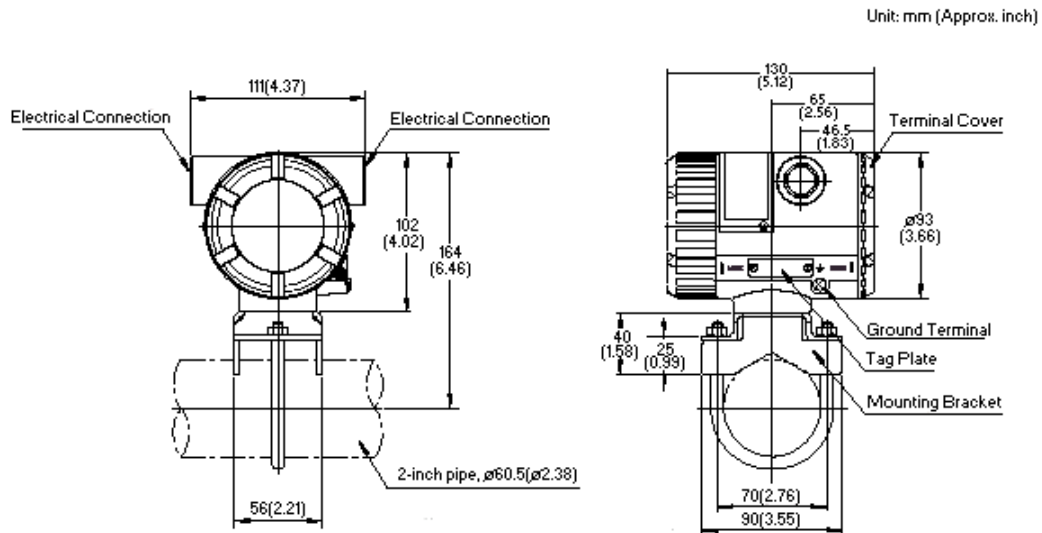
0-200 InH2O Scale in Engineering Units. Please specify Scale and Engineering units when ordering /ENG.

FT-201 Specify Tag Number when ordering /SST and/or /SSW.

OPTIONS

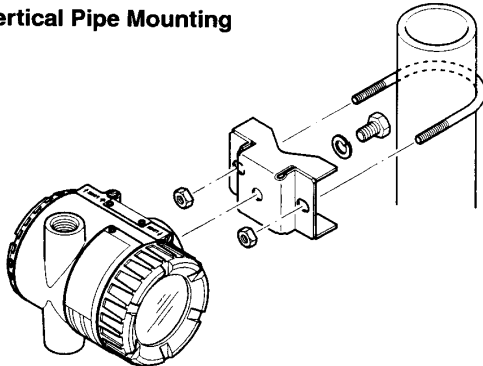
The MLX is fully field configurable from the front panel. To order a pre-configured unit, specify the /ENG option followed by the desired setpoints (zero, full scale, and engineering units).

DIMENSIONS

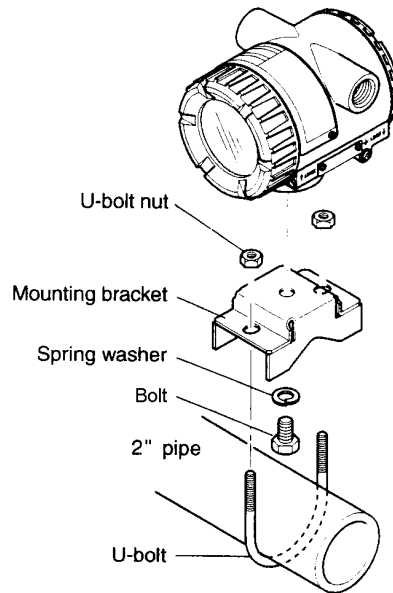


MOUNTING

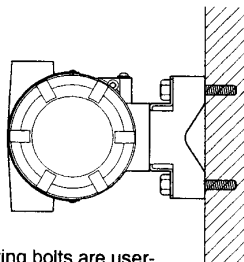
Vertical Pipe Mounting



Horizontal Pipe Mounting



Wall Mounting



Note: Wall mounting bolts are user-supplied.

■ WIRING

The loop powered indicator series is powered by the current output loop and does not require external power. All devices must be wired in series with the current loop. Twisted pair shielded cable is recommended.

The following is a typical wiring example of the MLX Loop Indicator connected to an EJA Pressure Transmitter (Note: The EJA Transmitter below can be replaced with any 4-20mA 2 wire device).

