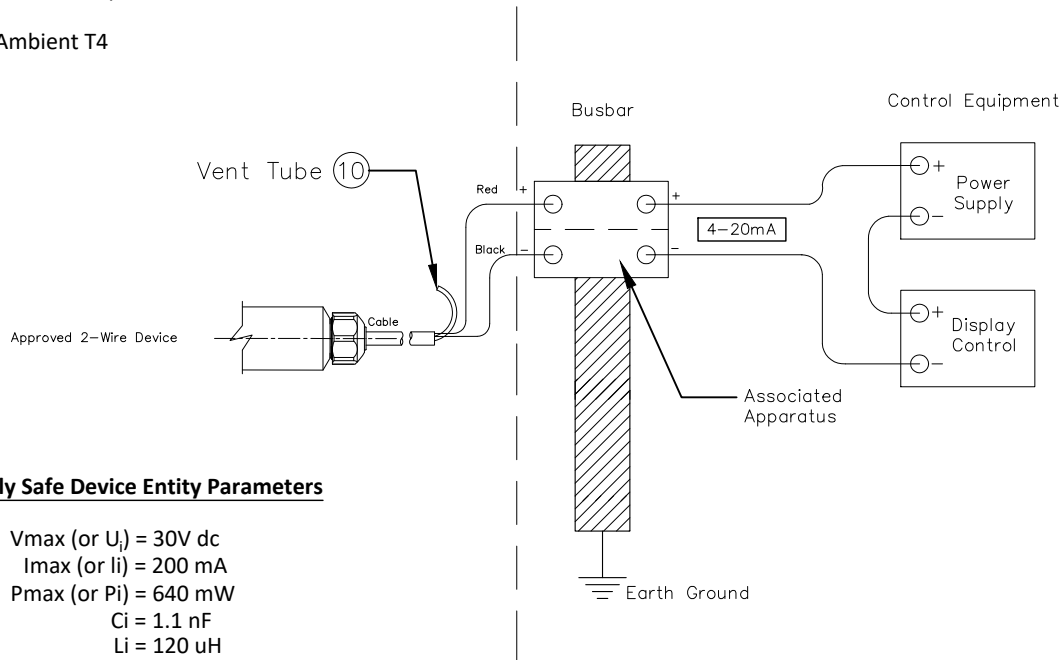


## Hazardous Location

Class I, Division 1, Groups A,B,C and D,  
 Class I, Division 2, Groups A,B,C and D,  
 Class II, Division 1, Groups E,F and G,  
 Class III  
 -10C to 60C Ambient T4

## Non-Hazardous Location



### Intrinsically Safe Device Entity Parameters

$V_{max}$  (or  $U_i$ ) = 30V dc  
 $I_{max}$  (or  $I_i$ ) = 200 mA  
 $P_{max}$  (or  $P_i$ ) = 640 mW  
 $C_i$  = 1.1 nF  
 $L_i$  = 120  $\mu$ H

### Notes:

- Cable parameters:  $L < .36 \mu\text{H}/\text{ft}$  where  $C_c$  = conductor -to- conductor.  
 $C_c < 20\text{pF}/\text{ft}$   $C_s$  = conductor -to- shield.  
 $C_s < 30\text{pF}/\text{ft}$   
 $R = 37.7 \text{ ohm}/1000\text{ft}$
- Selected associated apparatus must be third party listed as providing intrinsically safe circuits for the application, and have  $V_{oc}$  or  $V_t$  not exceeding  $V_{max}$  (or  $U_o$  not exceeding  $U_i$ ),  $I_{sc}$  or  $I_t$  not exceeding  $I_{max}$  (or  $I_o$  not exceeding  $I_i$ ), and the  $P_o$  of the associated apparatus must be less than or equal to the  $P_{max}$  or  $P_i$  of the intrinsically safe equipment, as shown in Table 1.
- Associated apparatus output current must be limited by a resistor such that the output voltage-current plot is a straight line drawn between open-circuit voltage and short-circuit current.
- Cable shield is connected to the transmitter housing. To avoid potential ground loops, any earth connection of the shield must follow local codes. Refer to Article 504.30(B) of the National Electrical Code (ANSI/NFPA 70), Instrument Society of America Recommended Practice ISA RP12.06 for installing intrinsically safe equipment, and or Section 18 of the Canadian Electrical Code.
- Capacitance and inductance of the field wiring from the intrinsically safe equipment to the associated apparatus shall be calculated and must be included in the system calculations as shown in Table 1. Cable capacitance,  $C_{cable}$ , plus intrinsically safe equipment capacitance,  $C_i$ , must be less than the marked capacitance,  $C_a$  (or  $C_o$ ), shown on any associated apparatus used. The same applies for inductance ( $L_{cable}$ ,  $L_i$  and  $L_a$  or  $L_o$ , respectively). Where the cable capacitance and inductance per foot are not known, the following values shall be used for two or three core cables:  $C_{cable} = 60 \text{ Pf}/\text{FT.}$ ,  $L_{cable} = 0.2 \mu\text{H}/\text{ft.}$

TABLE 1:

IS. Equipment	Associated Apparatus
$V_{max}$ (or $U_i$ ) $\geq$	$V_{oc}$ or $V_t$ (or $U_o$ )
$I_{max}$ (or $I_i$ ) $\geq$	$I_{sc}$ or $I_t$ (or $I_o$ )
$P_{max}$ (or $P_i$ ) $\geq$	$P_o$
$C_i + C_{cable} \leq$	$C_a$ (or $C_o$ )
$L_i + L_{cable} \leq$	$L_a$ (or $L_o$ )

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TITLE			DWN BY		DWN	
Control Drawing, UL			A.Woodbury		MTB	7-18-23
SCALE					CHECKED	D.M 7-18-23
					APPROVED	D.M 7-18-23
SERIES	SHT. 1 of 3		351 BELL KING ROAD NEWPORT NEWS, VA 23606 TEL: 757-596-6680 FAX: 757-596-6659 HTTP://WWW.KELLERAMERICA.COM			DWG #
						900006.0028

6. Associated apparatus must be installed in accordance with its manufacture's control drawing and article 504 of the National Electrical Code (ANSI/NFPA 70) for installation in the United States, or section 18 of the Canadian Electrical Code for installations in Canada.

7. The intrinsically safe device does not provide 500 V isolation with respect to earth. Associated apparatus used must be galvanically isolated or dual channel shunt zener diode barriers with linear outputs used channel to channel.

8. Associated apparatus must not be used in combination unless permitted by the associated apparatus certification.

9. Control equipment must not use or generate more than 250 V rms or dc with respect to earth.

10. Cable vent tube, if present, must be terminated in the hazardous area.

11. The approved device is provided with a permanently connected cable having the following characteristics:

Type: XLPE, Hytrel or ETFE jacketed vented cable

Rated Voltage: 500V

Rated Current: 2.2A

Maximum Rated Temperature: 80C

Conductor size: 26 AWG

Insulation type:

Conductors: Polyethylene

Outer Jacket: XLPE, Hytrel or ETFE (based on dd/Cable Type field per page 3 of control drawing)

Insulation thickness:

Conductors: 0.012" minimum

Outer Jacket: 0.025" minimum

12. Additional Ratings

Input Pressure Rating: 2000 psi max (Valueline only)

Operating Temperature: -10C to 60C, Ambient T4

Humidity: Up to 100%

Altitude: 2000m Max

Cleaning:

The device should be slowly lowered membrane-end first into a solution of warm, soapy water. Care should be taken not to submerge the entire device, unless it is specifically designed for continuous submergence. Agitate in the solution for 20-30 seconds or until the input/nosecap to the device is clear. Finish by stirring in fresh water. Wipe dry with a soft rag or towel. A soap scum and hard-water stain remover may also be used, if necessary, but only after compatibility with any o-ring seals in the KELLER product is determined. Follow the solvent manufacturer's recommendations for safe handling.

### Intrinsically Safe / Sécurité intrinsèque

WARNING: Approved devices may optionally contain titanium. Care must be taken in the installation to avoid an ignition hazard due to impact or friction.

AVERTISSEMENT : Les dispositifs approuvés peuvent éventuellement contenir titane. Il faut veiller à ce que l'installation ne soit pas un risque d'inflammation dû à un choc ou à un frottement

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The devices listed below are approved for installation in a Class I, Div I, Groups A-D, Class II, Div I, Groups E-G and Class III hazardous location when connected to associated apparatus per the manufacturer's control drawing.

**Levelgag**

Base Part Number: 19aa.bbbcc.02ddee.ff

Where:

- aa = drawing number: 07, 16
- bbb = all values valid
- cc = pressure units: all values valid
- dd = cable type: 31-38
- ee = cable length code: all values valid (not excluding note 5 of control drawing)
- ff = special options: 13, 53, 54, 56, 116, 117, 126, 141, 157, 193, 210, 215 (316L construction)  
55, 60 (titanium construction)

**Valueline**

Base Part Number: 20aa.bbbcc.02ddee.ff

Where:

- aa = drawing number: 08, 12
- bbb = Full scale pressure code: all pressure range codes with FS pressure no greater than 2000 psis are valid
- cc = pressure units: all values valid
- dd = cable type: 31-38
- ee = cable length code: all values valid (not excluding note 5 of control drawing)
- ff = special options: 13, 53, 54, 116, 117, 126, 141, 157, 210, 215 (316L construction)  
55, 60 (titanium construction)

**LevelRat**

Base Part Number: 21aa.bbbcc.02ddee.ff

Where:

- aa = drawing number: 23, 71
- bbb = all values valid
- cc = pressure units: all values valid
- dd = cable type: 31-38
- ee = cable length code: all values valid (not excluding note 5 of control drawing)
- ff = special options: 13, 53, 117, 157, 210, 215 (316L construction)  
60 (titanium construction)

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