

# 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  $\pm 999999$ .

**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:** -40 to +80°C (-40 to 176°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.

#### EMC Conformity Standard:

EN61326-1 Class A, Table 2

(For use in industrial location)

## MODEL AND SUFFIX CODES

Model	Suffix Codes	Description
<b>MLX</b>	.....	Loop Indicator
Input signal	<b>-A</b> .....	4 to 20mA DC
Mounting	<b>1</b> ..... <b>2</b> .....	2 inch Horizontal Pipe 2 inch Vertical Pipe (or wall mount)
Housing	<b>1</b> ..... <b>2</b> .....	Cast aluminum alloy SUS316 cast stainless steel and ASTM CF-8M
Communication	<b>-1</b> .....	Standard
Electrical Connection	<b>0</b> ..... <b>2</b> ..... <b>3</b> ..... <b>4</b> .....	ANSI ½ - 14NPT female, two electrical connections without blind plugs ANSI ½ - 14NPT female, two electrical connections and 316 SST blind plugs ISO M20 x 1.5 female, two electrical connections without blind plugs ISO M20 x 1.5 female, two electrical connections and 316 SST blind plugs
Optional Codes		/ <input type="checkbox"/> Optional specification

## OPTIONAL SPECIFICATIONS (For Explosion Protected Type)

Item	Description	Code
Factory Mutual (FM)	FM Explosion-proof/FM Dust-Ignition-Proof Approval Conforms to: FM3600, FM3615, UL 1203 Explosionproof/Dust-Ignition-Proof for Class I, II, III, Division 1 & 2, Groups A - G, Class I, Zone 1, Group IIC T4 Ambient Temperature: -40 to 80°C (-22 to 176°F) Temperature class: T4	<b>FF1</b>
	FM Intrinsically Safe/FM Explosion-proof/ FM Dust-Ignition-Proof /FM Non-incendive Approval Conforms to: FM3600, FM3610, FMRC 3611, FM 3615, FM 3616, UL 913, UL 1203, UL 60079-0, UL 60079-11 Intrinsically Safe for Class I, II, III, Division 1 & 2, Groups A - G, Zone 20, Class I, Zone 0, AEx ia IIC, T4 Ga -40°C < Ta < 80°C (-22 to 176°F) Explosion-proof/Dust-Ignition-Proof for Class I, II, III, Division 1 & 2, Groups A - G, Class I, Zone 1, Group IIC T4 Amb. Temp.: -40 to 80°C (-40 to 176°F) Non-incendive for Class I, II, III, Division 2, Groups A - D, F, G, Class I, Zone 2, Group IIC T4 Enclosure: "NEMA 4X", Temp. Class: T4, Amb. Temp.: -40 to 80°C (-40 to 176°F) Intrinsically Safe Apparatus Parameters [Groups A - G] Vmax=24 V, Imax=150 mA, Pmax=0.65 W, Ci=0 nF, Li=0 H	<b>FU1</b>
CENELEC ATEX	ATEX Intrinsically Safe/ATEX Flameproof/ATEX Non-incendive Approval Applicable Standard: EN 60079-0, EN 60079-1, EN 60079-11, EN 60079-26, EN 60079-31 II 1G Ex ia IIC T4 Ga Entity parameters : Ui=24 V, li=150 mA, Pi=0.65 W, Ci=0 nF, Li=0 H II 2G Ex d IIC T4 Gb II 2D Ex tb IIIC T135 Db II 3G Ex nA IIC T4 Gc Degree of protection : IP66 and IP67 Temperature class: T4, Ambient Temperature: -40 to 80°C (-40 to 176°F)	<b>KU21</b>
Canadian Standards Association (CSA) Canadian Standards Association (CSA)	CSA Intrinsically Safe/CSA Explosionproof/ CSA Dust-Ignition-Proof /CSA Non-incendive Approval Certified to: CSA C22.2 No. 25, CSA C22.2 No. 30, CSA C22.2 No. 157, CSA C22.2 No. 213, CSA C22.2 No. 60079-0, CAN/CSA E60079-11 Explosionproof/Dust-Ignition-Proof for: Class I, II, III; Groups A - G; Divisions 1 & 2. Class I, Zone 1, Group IIC T4. Tamb. -40°C to 80°C Intrinsically Safe for: Class I, Division 1, II, III; Groups A - G; Divisions 1 & 2. Zone 20, Class I, Zone 0 AEx ia IIC T4 Tamb. -40°C to 80°C Entity parameters: Ui=24 V, li=150 mA, Pi=0.65 W, Ci=0 nF, Li=0 H Non-Incendive for: Class I, II, III; Groups A - D, F, G; Divisions 2. Class I, Zone 2, Group IIC T4. Tamb. -40°C to 80°C Enclosure rating: "Type 4X." Temperature Class: T4 Ambient Temperature: -40°C to 80°C	<b>CU1</b>

## OPTIONAL SPECIFICATIONS (For Explosion Protected Type)

Item	Description	Code
IECEx Scheme	IEC Intrinsically Safe/IEC Flameproof/IEC Non-Incendive Approval Applicable Standard: IEC 60079-0:2011, IEC 60079-1:2008, IEC 60079-11:2011, IEC 60079-26:2009, IEC 60079-31:2008 Explosionproof/Dust-Ignition-Proof for: Ex d IIC T4 Gb Ex tb IIIC T135 Db Intrinsically Safe for: Ex ia IIC T4 Ga Entity parameters: Ui=24 V, Ii=150 mA, Pi=0.65 W, Ci=0 nF, Li=0 H Non-Incendive for: Ex nA IIC T4 Gc Ambient Temperature: -40°C to 80°C Enclosure: IP66 and IP67	SU2
Combination of Approvals	Combination of FU1, CU1 and KU21 Approvals	V1U

## OPTIONAL SPECIFICATIONS

Item	Description	Code
Coating	Epoxy resin coating Polyurethane-Epoxy Anti-corrosion coating <sup>Note 1</sup>	X1 X2 <sup>Note 1</sup>
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
Paint	Light Blue (RAL # 5012) Orange (RAL # 2008) Red (Munsell # 7.5 R4/14) Mint Green Silver (RAL # 9006) Yellow (RAL # 1018) Gray (RAL # 7046)	P1 P2 P3 P4 P5 P6 P7

Note 1: Option only available with /FF1 Option.

## 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)

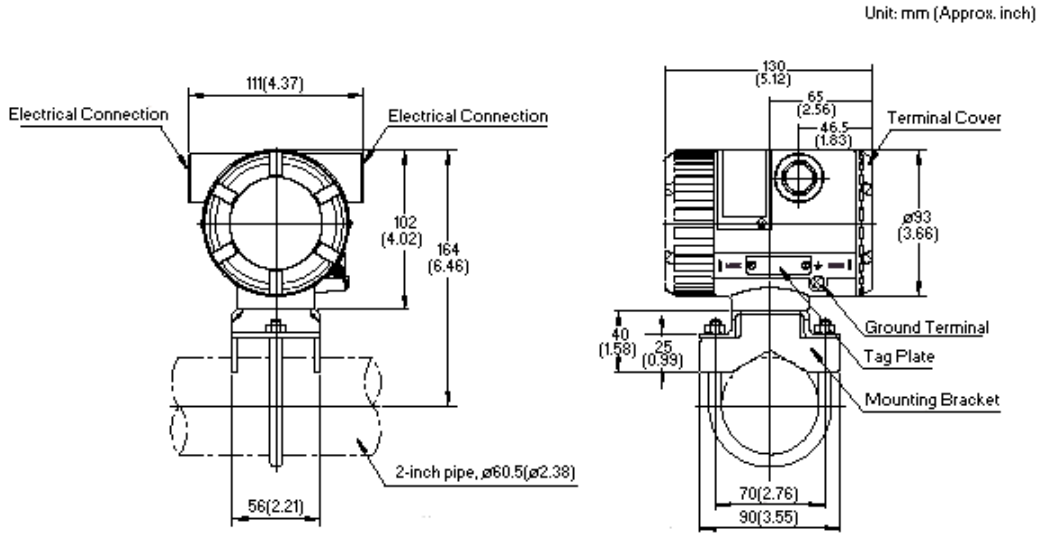
0-200 InH2O Scale in Engineering Units. Please specify Scale and Engineering units when ordering /ENG.

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

## OPTIONS

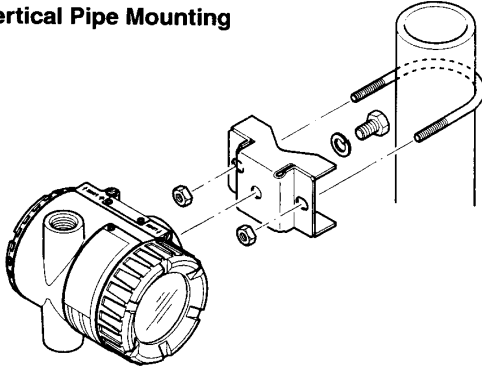
The MLX is fully field configurable from the front panel. To order a pre-configured unit, specify the /ENG option followed by the desired setpoints (zero, full scale, and engineering units).

## DIMENSIONS

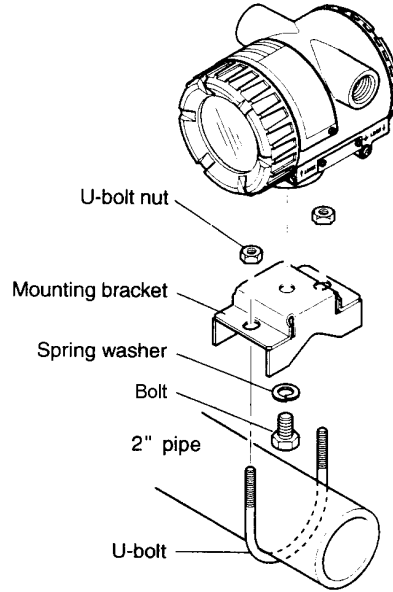


## MOUNTING

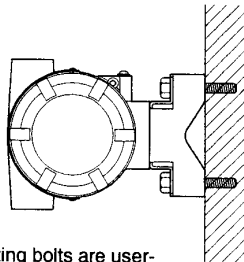
### Vertical Pipe Mounting



### Horizontal Pipe Mounting



### Wall Mounting



Note: Wall mounting bolts are user-supplied.

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## ■ WIRING

The loop powered indicator series is powered by the current 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).

