

## MTL660 Displays

### Loop-powered indicators for hazardous areas

- Loop powered 4-20mA
- Field and panel mounting
- Environmental protection to IP67
- Easy to configure
- Number of displayed digits configurable
- Backlight options



The MTL661, MTL662, MTL663 and MTL665 digital indicators enable process variables to be displayed locally in hazardous and general purpose plant areas. A typical example would be the re-transmission of mass/flow computations from the safe area, through a suitable MTL IS interface to the indicator in the hazardous area.

The displays are loop powered from the 4-20mA process signal and their low voltage drop allows them to be installed in almost any 2-wire, 4-20mA transmitter loop.

All units can indicate measured values in a linear or a square root extraction mode; the latter being used, for example, to display flow from differential pressure measurement devices such as orifice plates, Dall tubes, or venturi.

The MTL661 Field mounting unit is housed in a tough aluminium enclosure, suitable for wall or pipe mounting. For corrosive atmospheres use the MTL663 - the plastic case provides excellent resistance to harmful contaminants.

The MTL665 is the panel mounted version and is IP65, IP66, IP67 and NEMA4 rated.

MTL66x IS indicators are classified as 'non-energy storing' simple apparatus so they can be inserted into any IS loop without recertification.



Powering Business Worldwide

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# MTL661, MTL662 & MTL663 I.S. INDICATORS

## loop powered + backlight 'B' option

The MTL66x range offers a variety of field and panel mounting IS indicators to display the current flowing in a 4–20mA loop. The small voltage drop of <1V allows the loop powered display to be installed in almost any 4–20mA loop.

Configuration is carried out using the front panel switches (which can be password protected). Range units, upper and lower limits, decimal point positioning and number of digits displayed are all configured via the front panel.

### SPECIFICATION

#### Unit location

Zone 0, IIC, T4 hazardous area

#### Display

5½ digits - 26mm height (process value)  
Eleven 8mm digits (process units & current)

#### Voltage requirements under all conditions

<1V, loop powered

#### Ambient Temperature

Operating: -25°C to +70°C  
Storage: -40°C to +80°C

#### Humidity

5-99%RH

#### Input range

4-20mA

#### Over-range

200mA maximum without damage

#### Display Range

-99999 to 199999 (Configurable)  
Number of digits after decimal point configurable

#### Zero and span

Setting: anywhere in range

#### Scale direction

Normal or reverse: software selected.

#### Out of range indication

"— RANGE ERROR" displayed between 3.5 - 3.75mA  
"99999 RANGE ERROR" displayed at current >22mA

#### Operating modes

Linear or square root extraction is software selectable.

#### Accuracy at 20°C

± 0.01mA

#### Effects of temperature on accuracy

Zero: ± 0.0025% of span /°C  
Span: ± 0.01% of span /°C

#### Ripple rejection

<0.01mA error with 1mA peak to peak ripple at 50Hz

#### Electrical safety

The input circuit of the indicator is designed such that it does not influence the intrinsically safe circuit to which it is connected. (In the USA the application is covered by the entity concept.)  
Input circuit (terminals 4 & 5) in type of explosion protection intrinsically safe Ex ia IIC, with the following parameters:  
Ui=30V, Ii=200mA, Pi=1.2W, Ci=0nF, Li=0mH only for connection to a certified intrinsically safe circuit not exceeding these values.

#### Backlight (see Ordering Information & final page for details)

Separately powered backlight from an IS power source  
(U<sub>O</sub> = 28V, I<sub>O</sub> = 200mA, P<sub>O</sub> = 0.96W max.)

#### Dimensions

See final page



Showing backlight

### ORDERING INFORMATION

When ordering a MTL661, MTL662 or MTL663, use one of the following order codes to uniquely specify your requirement.

| Order code | Type  | Backlight | Case material | Weight (nom.) | Case style |
|------------|-------|-----------|---------------|---------------|------------|
| MTL661     | Field | No        | Aluminium     | 825g          | A          |
| MTL661B    | Field | Yes       | Aluminium     | 825g          | A          |
| MTL662     | Panel | No        | Aluminium     | 425g          | B          |
| MTL662B    | Panel | Yes       | Aluminium     | 425g          | B          |
| MTL663     | Field | No        | GRP           | 500g          | A          |
| MTL663B    | Field | Yes       | GRP           | 500g          | A          |

# MTL665

## I.S. INDICATOR

### loop powered + backlight 'B' option

The MTL665 is a DIN-standard, panel mounting, IS indicator to display the current flowing in a 4–20mA loop. The small voltage drop of <1V allows the loop powered display to be installed in almost any 4–20mA loop.

Configuration is carried out using the front panel switches (which can be password protected). Range units, upper and lower limits, decimal point positioning and number of digits displayed are all configured via the front panel.

## SPECIFICATION

### Unit location

Zone 0, IIC, T4 hazardous area

### Display

5½ digits - 26mm height (process value)  
Eleven 8mm digits (process units & current)

### Voltage requirements under all conditions

<1V, loop powered

### Ambient Temperature

Operating: -25°C to +70°C  
Storage: -40°C to +80°C

### Humidity

5-99%RH

### Input range

4-20mA

### Over-range

200mA maximum without damage

### Display Range

-99999 to 199999 (Configurable)  
Number of digits after decimal point configurable

### Zero and span

Setting: anywhere in range

### Scale direction

Normal or reverse: software selected.

### Out of range indication

"----- RANGE ERROR" displayed between 3.5 - 3.75mA  
"99999 RANGE ERROR" displayed at current >22mA

### Operating modes

Linear or square root extraction is software selectable.

### Accuracy at 20°C

± 0.01mA

### Effects of temperature on accuracy

Zero: ± 0.0025% of span /°C  
Span: ± 0.01% of span /°C

### Ripple rejection

<0.01mA error with 1mA peak to peak ripple at 50Hz

### Electrical safety

The input circuit of the indicator is designed such that it does not influence the intrinsically safe circuit to which it is connected. (In the USA the application is covered by the entity concept.)  
Input circuit (terminals 4 & 5) in type of explosion protection intrinsically safe Ex ia IIC, with the following parameters:  
Ui=30V, Ii=200mA, Pi=1.2W, Ci=0nF, Li=0mH only for connection to a certified intrinsically safe circuit not exceeding these values.

### Backlight (see Ordering Information & final page for details)

Separately powered backlight from an IS power source  
(U<sub>0</sub> = 28V, I<sub>0</sub> = 200mA, P<sub>0</sub> = 0.96W max.)

### Dimensions

See final page



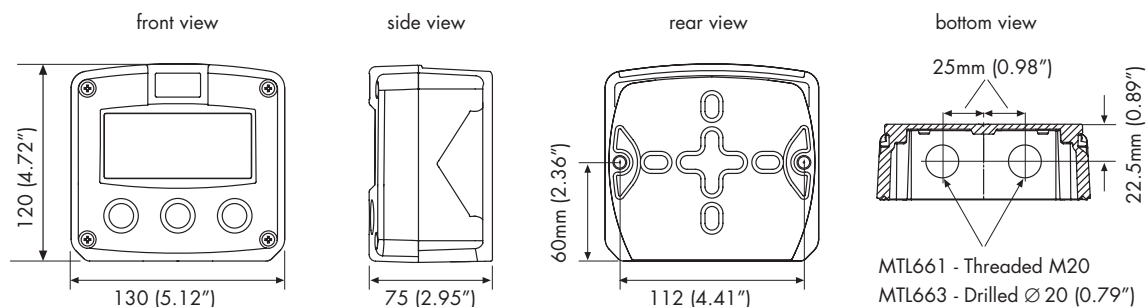
## ORDERING INFORMATION

When ordering a MTL665 use one of the following order codes to uniquely specify your requirement.

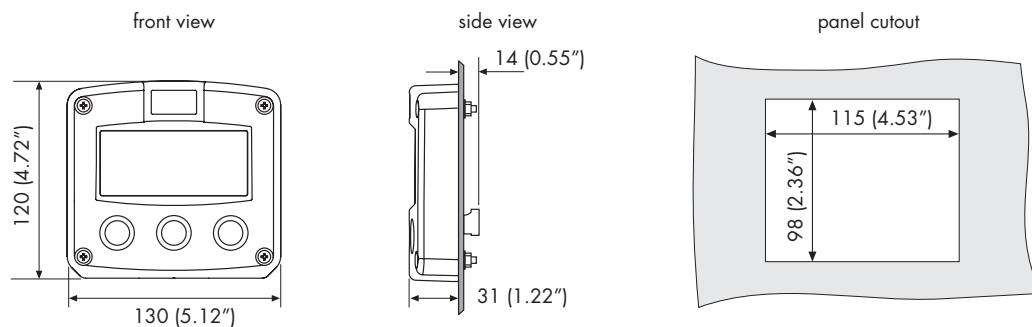
| Order code | Type  | Backlight | Case material | Weight (nom.) | Case style |
|------------|-------|-----------|---------------|---------------|------------|
| MTL665     | Panel | No        | Aluminium     | 300g          | C          |
| MTL665B    | Panel | Yes       | Aluminium     | 300g          | C          |

## CASE DIMENSIONS (mm)

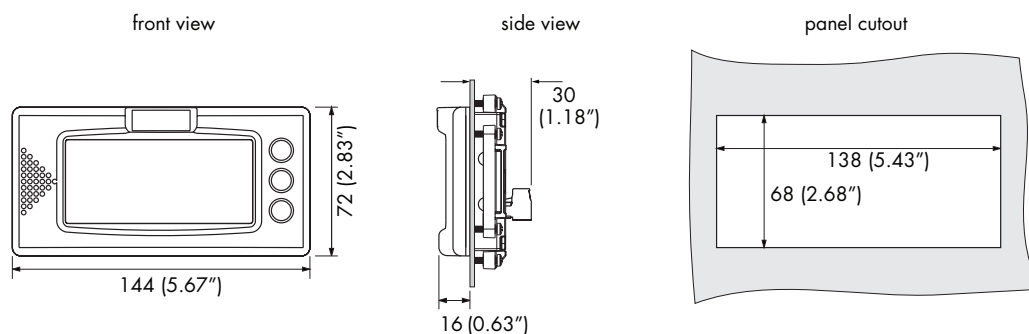
### Style 'A'



### Style 'B'



### Style 'C'



## ACCESSORIES

| Order code    | Description                           | Used with  |
|---------------|---------------------------------------|------------|
| <b>WMP66</b>  | Wall mounting plate                   | MTL661/663 |
| <b>PMA66</b>  | Pipe mounting adaptor used with WMP66 | MTL661/663 |
| <b>PIP66</b>  | Pipe mounting kit                     | MTL661/663 |
| <b>GAS660</b> | Spare gaskets - pk of 10              | MTL661/663 |
| <b>GAS665</b> | Spare gaskets - pk of 10              | MTL665     |

### Recommended IS interfaces for powering display

- Input circuits (in series with transmitter)  
MTL5541, MTL4541, MTL7787+
- Output circuits (direct connected or in series with field device)  
MTL4546Y, MTL5546Y, MTL7728P+
- Recommended IS interfaces for powering backlight  
MTL5521, MTL4521, MTL7728P+



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