masibus
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# 406
# 406L
# 408-M
## Digital Indicator

Masibus' Digital Indicator Model 406, 406L and 408-M is a micro-controller based 4 digit process indicator, designed to accept multiple input types. Model 406, 406L have 0.56" display size and model 408-M has 0.8" display size which facilitates plant operator to read process data very conveniently from a far distance.
Both models are equipped with field selectable inputs and field scalable ranges for flexible operations.

Built-in transmitter power supply eliminates the need of additional power supply to excite field transmitter, which makes this model well equipped.

It is a low cost high performance indicator which offers high accuracy of ±0.25% of full scale. This model can be used for Pt100, five different types of thermocouples and four types of linear inputs.

It is easy to operate and configuration is user friendly. CJC compensation for thermocouple input is done through software for higher accuracy.

The input is protected from reverse connection and over range inputs.

### Features

- 4 digits, 0.56" or 0.8" LED display
- Universal input (TC, RTD, Volts, mA)
- Transmitter power supply
- Excellent longterm stability
- Easy configuration from front keys

### Applications

- Current/voltage monitoring in drive panel
- RPM monitoring for VFD
- Temperature & process indication
- Plastics molding/extrusion temperature monitoring
- Heat treatment - furnace temperature monitoring
- Chillers
- Water heating boilers
- Oven control
- Pressure/ level/ flow monitoring

# TECHNICAL SPECIFICATIONS

## Input

| | |
|---|---|
| Input Type | Thermocouple (J, K, T, R, S),*** RTD (Pt100)*** Current, voltage |
| Display Range | Refer table-1 |
| Accuracy | ±0.25% of full span + 1°C for T/C and RTD input<br>±0.1% of full span + 1 count for linear input |
| ADC Resolution | 16 bits |
| Display Resolution | 0.1°C / 1 °C |
| Sampling Rate | 5 Samples/Sec |
| CJC Error | +/-3°C |
| Sensor Open | All inputs except 0-5V, 0-10V |
| Sensor Burnout Current<br>RTD Excitation Current | 0.25uA<br>0.166mA (Approx) |
| NMRR | > 40 dB |
| CMRR | > 120 dB |
| Temp-Co | < 100ppm for input to display |
| Input Impedance | > 1MΩ for voltage input<br>250Ω for current input |
| Max. Voltage | 20V DC |

## Display & Keys

| Model | 406, 406L | 408-M |
|---|---|---|
| PV Display | 0.56", 4-digits,<br>7-Segment red LED | 0.8", 4-digits,<br>7-Segment red LED |
| Keys | Enter, increase, decrease | |

## Output***

| | |
|---|---|
| Transmitter Power Supply | 24VDC (±10%) @26mA |

## Power Supply

| | |
|---|---|
| Standard | 85-265VAC/ 100-300VDC |
| Optional | 18 to 36VDC |
| Power Consumption | <3 VA |

**Isolation (Withstanding voltage)**
Between primary terminals* and secondary terminals**: **At least 1500 V AC for 1 minute**
* Primary terminals indicate power terminals
** Secondary terminals indicate analog input signal

## Physical

| | |
|---|---|
| Dimensions (in mm) | 96(W) x 48(H) x 85(D) |
| Depth Behind Panel (in mm) | 75 |
| Panel Cutout (in mm) | 92(W) x 46(H) |
| Mounting | Panel mount |
| Weight | 260 g (Approx) |
| Enclosure Material | ABS plastic |
| Enclosure Protection | IP20 |
| Terminal Cable Size | 2.5 mm2 |
| Standard Accessories | 2 Nos. clamp |

## Environmental

| | |
|---|---|
| Operating Temperature | 0-55 °C |
| Storage Temperature | 0-80 °C |
| Humidity | 20-95% RH non-condensing |

## Table-1: Display Range

| Input Type | | Range |
|---|---|---|
| Thermocouples | J | -200 to 1200°C |
| | K | -200 to 1372°C |
| | T | -200 to 400°C |
| | R | 0 to 1768°C |
| | S | 0 to 1768°C |
| RTD | Pt100 | -199.9 to 850.0°C |
| Linear | 0/1-5V | -1999 to 9999 |
| | 0/4 to 20mA (Ext. 250Ω) | |
| | 0-10V | |

## Ordering Code

| Model | Input Type | | Auxiliary Power Supply | |
|---|---|---|---|---|
| 406 | 2 | J | U1 | 85-265VAC / 100-300VDC |
| 408-M | 3 | K | U2 | 18-36VDC |
| | 4 | T | | |
| | 6 | R | | |
| | 7 | S | | |
| | 9 | Pt100 | | |
| | C | 4-20mA | | |
| | D | 0-20mA | | |
| | E | 1-5V | | |
| | F | 0-5V | | |
| | G | 0-10V | | |

| Model | Input Type | | Auxiliary Power Supply | |
|---|---|---|---|---|
| 406L | C | 4-20mA | U1 | 85-265VAC / 100-300VDC |
| | D | 0-20mA | U2 | 18-36VDC |
| | E | 1-5V | | |
| | F | 0-5V | | |
| | G | 0-10V | | |

**Note:** ***Not applicable for model 406L

Head Office: Masibus Automation And Instrumentation Pvt. Ltd.
B-30, GIDC Electronics Estate, Sector-25, Gandhinagar-382024, Gujarat, India.
Tel: +91 79 23287275-77, Fax: +91 79 23287281.
E-mail: sales@masibus.com, Web: www.masibus.com


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