

## Indicator (Model 408)



Masibus offers a wide range of process indicators for monitoring process variables such as pressure, temperature, humidity, flow, level etc. Model 408 has a large display which facilitates plant operator to read PV very conveniently from far distance. Model 408 is microprocessor based indicator with high accuracy and has a multiple input selection capability which helps user to maintain common inventory. It is also equipped with field selectable inputs and field scalable ranges for flexible operations.

Explosion-proof and weather-proof housings are also offered as options to the standard panel mount version. Built-in transmitter power supply eliminates the need of additional power supply to excite field transmitter, which makes this model well equipped.

Model 408 uses large size LED of 20mm (0.8") height which facilitates operator to read the process data from long distance and provides clear visibility. This model is powered by 110/230 VAC auxiliary power supply and 24 VDC auxiliary power supply is available as option on request.

It is a low cost high performance indicator which offers high accuracy of  $\pm 0.25\%$  of full scale. This model can be used for Pt 100, five different types of thermocouples and four types of linear inputs.

Reliability is ensured by an ISO 9001 approved quality control system. The input is protected from reverse connection and over range inputs.

Model 408 is the first choice of OEM, system integrators and end users.

## Features

- *Microprocessor based process indicator*
- *High accuracy*
- *8 selectable input types*
- *4 digit LED display of 20mm (0.8") high*
- *Built-in Transmitter Power Supply*
- *96 x 48mm DIN enclosure*
- *Excellent long-term stability*
- *Easy configuration from front keys*
- *Optional weather proof and flame proof enclosures*

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## HARDWARE SPECIFICATIONS 408

### Measured Input Signal

Number of Inputs	1
Input Type, Measurement Range & accuracy	As per table 1
Sampling Period	500 ms
Burn out detection	Available with TC, 1 to 5VDC, 4 to 20mA
Burn out current	0.5 $\mu$ A
Measuring current (RTD)	0.1 mA
Input Impedance	V: 1M , TC: 100
Allowable lead-wire resistance	15 / wire or less Effect from allowable lead wire resistance: 0.66°C / 10 or less
Allowable Input Voltage	TC / RTD: $\pm$ 10V DC DC voltage: $\pm$ 20V DC

### Noise Rejection Ratio

Common Mode:	> 120 dB (50 Hz)
Normal Mode:	> 45 dB (50 Hz)

Reference junction compensation error  $\pm$  2 °C (0 to 55°C)

Applicable standard ITS-90 or IPTS - 68

24V DC Loop Power Supply for sensor 24 VDC  $\pm$ 5 % @ 30 mA

### Display Unit Specification

Process Value display	4- digit 7- segment Red LED ( 0.8")
Display update rate	Continuous

### Construction/Installation/Wiring

Enclosure	General purpose
Body construction	ABS Plastic
Case color	Black
Weight	Approximately 500 gms
Dimensions	96W x 48H x 160D (all in mm)
Mounting	Panel mount / Grid mount compatible
Panel Cut-out	92(W) x 45(H) (all in mm)
Wiring	2.5 Sq. mm Barrier Terminal
Standard Accessories	2 mounting clamp

### Power supply/Isolation

Power supply	230 VAC (-15% to +10%) @ 50Hz
Power consumption	Less than 10 VA
Isolation resistance	Between power supply terminal and ground terminal, 500V DC 50 M

### Isolation Specifications

Power supply terminal	Isolated from internal circuit.
Ground terminal	Isolated from internal circuit.

### Environmental Conditions

Normal Operating conditions	
Ambient Temperature	0 to 55 deg C
Ambient humidity	20 to 90% RH (non-condensing)
Warm up time	> 45 min

## HARDWARE SPECIFICATIONS 408

### Storage conditions

Temperature	0 to 70 deg C
Humidity	20 to 90% RH (non-condensing)

### Effect of operating conditions

Effect of Ambient temperature	For T/C input, $\pm$ 0.1% of F.S./°C or less For Voltage input, $\pm$ 0.05% of F.S./°C or less For RTD input, $\pm$ 0.13% of F.S./°C or less
Effect on power supply fluctuation (within rated voltage range)	For analog input, within $\pm$ 0.005 % of F.S./ 10V

TABLE 1

Input Type	Range	Measurement Accuracy
Thermocouples	J -100 to 1200 °C	$\pm$ (0.25% of FS $\pm$ 1 count)
	K -100 to 1372 °C	$\pm$ (0.25% of FS $\pm$ 1 count)
	T -100 to 400 °C	$\pm$ (0.25% of FS $\pm$ 1 count)
	R 0 to 1768 °C	$\pm$ (0.25% of FS $\pm$ 1 count)
	S 0 to 1768 °C	$\pm$ (0.25% of FS $\pm$ 1 count)
RTD	Pt-100 (1 °C) -199 to 850 °C	$\pm$ (0.25% of FS $\pm$ 1 count)
	Pt-100 (0.1 °C) -199.9 to 300.0 °C	$\pm$ (0.25% of FS $\pm$ 1 count)
DC Voltage	1-5V -1999 to 9999	$\pm$ (0.1% of FS $\pm$ 1 count)
	0-5V -1999 to 9999	$\pm$ (0.1% of FS $\pm$ 1 count)

## ORDERING CODE

Model	Input Type	APS		Mounting	
408	X	XX		XX	
	2	J	A1	110Vac	P0 Panel
	3	K	A2	230Vac	W1 Wall-IP55
	4	T	A3	24Vdc	FP Wall-FLP
	6	R			
	7	S			
	9	Pt-100,3W			
	C	4-20mA			
	D	0-20mA			
	E	1-5Vdc			
	F	0-5Vdc			

X - Specify from table

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