masibus®

409-4IN

Large Display Indicator

Model 409-4IN is the large display Indicator which can be monitored up to distance of 160 feet (50m). Its large digit facilitates process value to be monitored across wider geographical area in plant. It has most advanced features for monitoring and communication of process status.

Model 409-4IN accepts 21 different industry standard inputs with high accuracy of 0.1% to measure temperature, pressure and other process variables. It is easy to operate and configuration is user friendly. CJC compensation for thermocouple input is done through software for higher accuracy.

It can be interfaced with SCADA/PLC using optional RS485 communication and analog retransmission output for process automation. It has two-way communication facility allowing user to read and write PV over Modbus between any Master device and Indicator.

Alarm can be configured for two set points which are indicated on front Status LEDs. This Indicator has SMPS power supply for smooth and reliable performance. It is also equipped with transmitter power supply.

Model 409-4IN utilizes its unique feature of LED brightness control which enables plant engineers/ operators to adjust intensity of controllers' LED display in order to achieve comfort for eyes.

Model 409-4IN is equipped with advanced functions like digital filtering, password setting, input and output protection and square root function for optimum process functionality.

Features

- 4" (100mm) Large LED Display
- 21 selectable input types (TC, RTD, mV, mA, V, ?)
- Transmitter Power Supply
- RS485 serial communication (optional)
- PV write facility via Serial input
- Programmable retransmission output (optional)
- Two programmable alarm outputs (optional)
- Available with 19" Rack & IP65 Wall mount enclosure
- Display brightness control
- Serial RS485 Input (Modbus Slave Read/Write)
- Input Scalability for Linear input type
- Square Root Extraction for linear input type.
- Selectable Digital Filter 0-60 Sec

Applications

- Temperature & process indication
- Pressure/ Level/ Flow Monitoring
- Plastics molding/extrusion temperature monitoring
- Heat treatment - furnace temperature monitoring
- Weighing platform
- Remote Process Supervision

TECHNICAL SPECIFICATIONS

Input

Input Type	Thermocouple (E, J, K, T, B, R, S), RTD (Pt100), Current, Voltage, Resistance
Display Range	Table-1
Accuracy	±0.1% of FS ± 1Digit
ADC Resolution	17 bits
Display Resolution	0.1°C/ 1 Count
Sampling Rate	4 Samples/Sec
CJC Error	±2.0 °C
Sensor open	All inputs except 0-5V, 0-10V, ± 10V, 0-20mA
Sensor Burnout current	0.5 uA (Approx.)
RTD excitation current	0.8 mA (Approx.)
NMRR	> 40 dB
CMRR	> 100 dB
Temp-co	< 100ppm for Input to Display < 150ppm for retransmission output
Input Impedance	> 1M? for TC, 0-2V, 0.4-2V, 0-75mV, ± 75mV > 840 k? for 0-5V, 1-5V, 0-10V, ±10V
Max Voltage	20VDC

Display & Keys

Process Value	4" Four-digit Seven segment Red LED
Status Indication	4 Red LED's for (Alarm and Tx/Rx)
Keys	Menu, Enter, Increase, Decrease

Output

Alarm Output (Optional)	
Relays	2 Nos.
Type	Single Change over (C, NO, NC)
Rating	5A @ 230VAC / 30VDC
Retransmission Output (Optional)	
Current	0/4-20mA @500? Max.
Voltage	0/1-5V, 0-10V @2K? Min.
Accuracy	0.25% of FS
Communication (Optional)	
Interface	RS485 (2 Wire)
Protocol	Modbus-RTU
Baud rate	4800, 9600, 19200, 38400
Transmitter Power Supply	24VDC (±10%) @50mA

Power Supply

Supply Voltage	85-265VAC/ 125-300VDC
Power consumption	<10 VA

Isolation (Withstanding voltage)
- Between primary terminals* and secondary terminals**: At least 1500 V AC for 1 minute
- Between primary terminals* and grounding terminal: At least 1500 V AC for 1 minute
- Between grounding terminal and secondary terminals**: At least 1500 V AC for 1 minute
- Between secondary terminals**: At least 500 V AC for 1 minute

* Primary terminals indicate power terminals and relay output terminals.
** Secondary terminals indicate analog I/O signal and Communication O/P.
Insulation resistance: 20M? or more at 500 V DC between power terminals and grounding terminal.

Enclosure Protection	IP20	IP65
Mounting	19" Rack / Panel Mount /Wall Mount	Wall Mount
Enclosure material	MS Powder Coated	MS Powder Coated
Dimensions(in mm)	440(W)x175(H)x70(D)	500(W)x300(H)x120(D)
Panel Cutout(in mm)	444 (+0.8) x175 (+0.8)	NA
Weight	3 Kg (Approx.)	8.3 Kg (Approx.)
Terminal Cable Size	2.5mm²	2.5mm²
Standard Accessories	2 Nos. Clamp, 2 Handle for 19" Rack / Panel Mount	4 Nos. Wall Mounting Bracket. 3 Nos. of PG 13 Gland (For Cable entry).

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	E	-200 to 1000°C
	J	-200 to 1200°C
	K	-200 to 1350°C
	T	-200 to 400°C
	B	450 to 1800°C
	R	0 to 1750°C
	S	0 to 1750°C
RTD	Pt-100	-199.9 to 850.0°C
Resistance	0 - 400?	-1999 to 9999
	0 - 6000?	
Linear	1-5V /4-20mA	-1999 to 9999
	0-5V/0-20mA	
	0-2V	
	0.4-2V	
	±10 V	
	0 - 10 V	
	-10-20mV	
	±75 mV	
	0-75mV	
Serial (RS485)	PV write Facility	1999 to 9999

ORDERING CODE

Model	Input Type	Communication	Relay	Retransmission O/P	Mounting (Protection)
409-4IN	1 E	N None	N None	N None	P0 19" Rack (IP20)
	2 J	Y RS485	Y 2 Relays	C 4-20mA	W0 Wall (IP20)
	3 K			D 0-20mA	W1 Wall (IP65)
	4 T			E 1-5V	
	5 B			F 0-5V	
	6 R			G 0-10V	
	7 S				
	9 Pt-100				
	C 4-20mA				
	D 0-20mA				
	E 1-5V				
	F 0-5V				
	G 0-10V				
	H 0-2 V				
	I 0.4 – 2V				
	R ±75mV				
	U 0-75mV				
	V 0-400?				
	W 0-6000?				
	M Serial RS485#				
	S Special				

When Serial input type is selected, RS485 o/p needs to be selected

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