

TWIX-2

Operating Instructions

## **FEATURES**

- ➤ PLC with built-in HMI
- ➤ Configurable LED display
- > RS485 based communication with MODBUS RTU protocol

48mm x 96mm

SPECIFICATIONS							
			Top Red – 8 digits (7 segment)				
Display		Bottom Green – 6 digits (7 segment)					
				Red + 4 Green)			
No. of Keys			5 (4-user co	nfigurable)			
Supply Voltage			230V AC (9	230V AC (90 - 270 VAC) 18V - 30V DC			
Sensor Supply (SS)			12V, 50mA				
FUNCTIONAL SPECIFICA	TIONS (CPU	J)					
Programming Language	)		Windows based user friendly SELPRO software for ladder logic programming.				
				emory : 240 kE	3		
Memory			Data Memor	<u>-                                      </u>			
oy			EEPROM Memory: 2 kB				
			VAR_IN-OUT & VAR_OUTPUT TYPE Variable Max 120 bytes retention				
Scan Time			Typical 1ms				
Function Blocks			Timer On delay, Timer Off delay, Pulse Timer, Special Timer, Up/Down Counter, PID control etc.				
Memory Retention			10 Years	10 Years			
DIGITAL INPUTS			* <sup>1</sup> = 90 <sup>0</sup> Phase shift signals				
Number of Digital Input	s		8 (including 2 inputs(0-10Vdc) & 2 Fast Input)				
Operating Modes 19 †v.:1t	, €wax^.r.s}v		Unidirectional / Bidirectional / Quadrature / Dual Unidirectional / None				
Channel	DI		MODE				
Onarmer	Di .	UNI	BI	QUAD	DUAL UNI	None	
FC0	10	Rate Totalizer	Rate Totalizer	1st input*1	Rate Totalizer	Digital Input	
FOU	l1	Digital Input	Direction	2nd input *1	Totalizer	Digital Input	
Operating Range			5 ~ 30V DC				
Input current	Input current			3 mA @10V			
Action Level	Level	1 → Level 0	<3V DC				
ACTION Level	Level	0 → Level 1	5V DC				
Response Time	Digita	al Input mode	Typical 1ms (based on ladder scan time)				
	Fast Input mod		100µsec				
Input Impedance	Input Impedance			7.5 k			
Debounce Time	Debounce Time			0 ~ 255 ms (Default = 10 ms)			
Maximum counting Free	Maximum counting Frequency			Normal Input : 30 Hz Fast Input : 5 KHz			
Protection against polar	Protection against polarity Inversions						

RELAY OUTPUTS			
Number of Relay Outputs	5		
Output Type	NO contact type 5A @28VDC (Resistive), 5A @240VAC (Resistive)		
Output Current			
Response Time	10ms		
Life Expectancy	Mechanical -: 2 x 10 <sup>7</sup> ops Electrical -: 1 x 10 <sup>5</sup> ops		
Isolation	No		
Existence of common points between channels	2 COM for 5 Relay Outputs		

ANALOG INPUTS					
	TC Type	RTD Type	Voltage	Current	
Number of channels	2		2	2	
Sensor type	J, K, T, R, S, C, E, B, N, L, U, W, PLATINEL II, MILLIVOLT (-5 to 65mV)	PT100	0-10V	0-20mA	
Type of input	N	Non-differentia	l		
Temperature Resolution	0.1°C				
Digital Resolution for MILLIVOLT	12 bits	NA	12 bits		
Input impedance in signal range	560 k	750 k	330 k	100	
Analog input error at 25°C	0.25% of full scale .1°C			0.25% of full scale	
Conversion time		100 ms			
Protection against polarity inversion	Yes	NA	Yes	Yes	
Channel isolation	No				
ANALOG OUTPUT					
Number of channel	1				
Output Type	Voltage - 0-10 V / C		A ( selectable v	/ia S/W)	
Resolution	14 bits				
Conversion Time	10 msec.				
Linearity Error		0.1%			
COMMUNICATION					
Communication Port		RS485 Slave			
Communication Protocol	MODBUS RTU				
Baud Rate	9600, 19200, 38400, 57600, 115200 (user configurable via software and hardware) Default = 19200 (Preferred ladder downloading at 19200)				
ENVIRONMENTAL CONDITIONS					
Operating Temperature	0 to 55°C				
Storage Temperature	-20 to 70°C				
Humidity (non-condensing)	95%				
Mounting	Panel Mounted				
Weight	Approx. 240 gms				

# **SAFETY PRECAUTIONS**

This manual is meant for personnel involved in wiring, installation, operation and routine maintenance of the

All safety related conditions, symbols and instructions that appear in this operating manual or on the equipment must be strictly followed to ensure operator and instrument safety. Any misuse may impair the protection provided by the equipment.

▲ CAUTION : Read complete instructions prior to installation and operation of the unit. ▲ CAUTION : Risk of electric shock

# **INSTALLATION INSTRUCTIONS**

### ! CAUTION

- 1. This equipment, being built-in-type, normally becomes a part of the main control panel and the terminals do not
- remain accessible to the user after installation.
- 2. Conductors must not come in contact with the internal circuitry of the equipment else it may lead to a safety hazard that may endanger life or cause electrical shock to the operator.
- 3. Circuit breaker or mains switch must be installed between the power source and supply terminals to facilitate power 'ON' or 'OFF' function.
- 4. The equipment shall not be installed in environmental conditions other than those specified in this manual.
- 5. Since this equipment forms part of the main control panel, its output terminals get connected to the host equipment. Such equipment shall also comply to EMI /
- EMC and safety requirements like CE standard
- 7. Thermal dissipation of equipment is met through ventilation holes provided on housing of equipment.

  Obstruction of these ventilation holes may lead to a
- 8. The output terminals shall be loaded strictly as per the values / range specified by the manufacturer.

#### **ELECTRICAL PRECAUTIONS DURING USE**

Electrical noise generated by switching of inductive loads can create momentary disruption, erratic display, latch up, data loss or permanent damage to the

### To reduce noise:

Use of Selec make Snubber across load is

recommended.

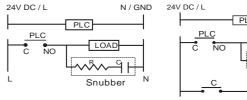
Snubber Part no. : SNUBBER

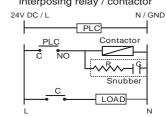
**NOTE:** Below mentioned diagram is applicable only for 230V relay outputs.

## **Typical Connections For Loads:**

For load current < 0.5A

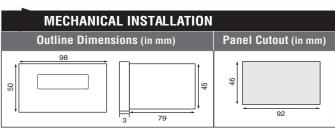
For bigger loads use interposing relay / contactor





NOTE: Use snubber as shown above to increase life of internal relay.

B) Use separate shielded wires for inputs.



For installing the controller

- 1. Prepare the panel cutout with proper dimensions as
- 2. Fix the unit into the cutout. Insert the clamp from both sides and tighten the screws.

### ! CAUTION

The equipment in its installed state must not come in proximity to any heating sources, caustic vapors, oils, steam or other unwanted process by products.

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