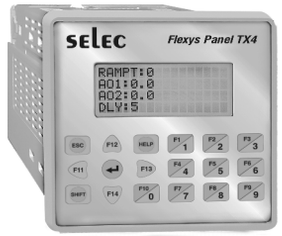
selec

Flexys Panel TX4
Operating Instructions



99 x 95.6 x 90.5mm

FEATURES

- Flexible card selection
- Compact PLC with built-in HMI
- 4 line x 16 characters LCD display
- Windows based user friendly software for ladder programming & HMI configuration
- RTC with Time Switch function (Optional)
- RS 485 based communication with MODBUS Protocol

SPECIFICATIONS

Display	LCD(backlight) 4 line x 16 Character, Font size 5 x 7mm
No. of Keys	18 (10 numeric keys) -14 User Configurable
RTC	Yes
Supply Voltage	1)230VAC(90-270V) 2)24VDC(18-30V)
Sensor Supply(SS)	10V (100mA) Available only in 230V power supply card
IO Card Slots	4 (max)

DIGITAL INPUT (Max. counting frequency 50Hz)

Input Type	PNP
Input Voltage Range (V+)	7-30V DC
Response Time (Inputs other than fast counter)	10ms max
Isolation	2.5 kV

FAST COUNTER INPUT (on power supply card only)

Input Type	PNP
No. of Digital Input	4 (uni) / 2(Bi / Quad) / 4 Standard Digital Input
Operating Modes / Frequency	Unidirectional / Bidirectional / Quadrature Modes / Dual Uni (5kHz for all)

CH	DI	MODE			
		UNI	BI	QUAD	DUAL UNI
CH0	I0	RT	RT	1st IP *	RT
	I1	STD IP	Direction	2nd IP *	T
CH1	I2	RT	RT	1st IP *	RT
	I3	STD IP	Direction	2nd IP *	T

DIGITAL OUTPUT - RELAY

Contact Rating	NO Type : 8ch (5A resistive @ 230V AC) 8ch (5A resistive @ 30V DC)
Isolation	2.5 kV
Initial Max. Contact Resistance	100mΩ (@1A, 6V DC)
Switching Time	20ms max.

Note : Maximum limit for no. of FL-SC-RO08 cards is 2.**(**Applicable only for 230v power supply card)

DIGITAL OUTPUT - TRANSISTOR

Transistor Rating	PNP Type : 24V,100 mA
Switching Time	10ms max.

*** 90° Phase shift signals ; RT - Rate Totalizer ; T - Totalizer ; STD IP - Standard Input**

ANALOG INPUT

Sensors	J, K, T, R, S, C, E, B, N, L, U, W, PLTNL II, RTD, MVOLT(0-60mV), VOLT (0-10V), CURR (0-20mA)		
Resolution	12 bits	0 - 10V	2.5mV
		0 - 20mA	5µA
		TC / RTD	0.1°C (Note : 1°C for R & S type)
Conversion Time	100 msec.		
Accuracy at 25°C	0.25% of full scale		

ANALOG OUTPUT

Output Type	**Current** - 0-20 mA ; **Voltage** - 0-10 V
Resolution	14 bits
Conversion Time	10 msec.
Linearity Error	0.1%

COMMUNICATION

Communication Port - Port 1	1 : RS485 Slave 2 : RS485 Master for IO610 Expansion Module (Optional) 3 : Proprietary for IO630 Expansion Module (Optional)
Communication Protocol	MODBUS RTU, Proprietary Protocol for IO630 expansion port

ENVIRONMENTAL CONDITIONS

Temperature	Operating : 0 to 55°C ; Storage : -20 to 70°C
Humidity (non-condensing)	10% to 95% RH
Enclosure	Panel Mounted
Weight	329.2gms (without IO Cards)

INSTALLATION PROCEDURE

Fig. A

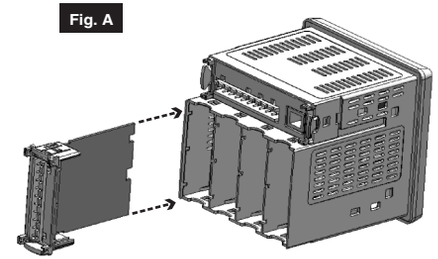


Fig. B

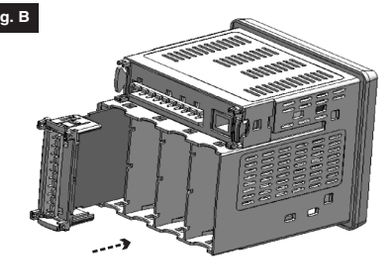


Fig. C

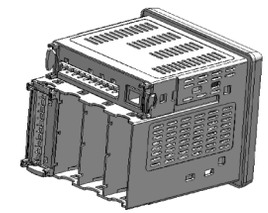
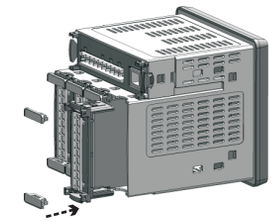


Fig. D



A. Card order as viewed from back, left to right
1. Slot 1 IO Card
2. Slot 2 IO Card
3. Slot 3 IO Card
4. Slot 4 IO Card

B. Mount the slot card on the PLC slot by pressing the latch, refer fig. A

C. Slide the slot card in the PLC, refer fig. B
Note : The slot card will slide easily if it was mounted properly

D. Ensure that the latch is fitted properly inside the lock, refer fig. C side view

E. Place the lock plate to cover the Latch, refer fig. D

! SAFETY PRECAUTIONS

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

Read complete instructions prior to installation and operation of the unit. 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 procedure.
7. Thermal dissipation of equipment is met through ventilation holes provided on housing of equipment. Obstruction of these ventilation holes may lead to a safety hazard.
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 instrument.

To reduce noise :

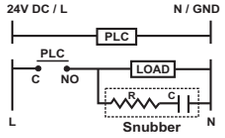
Use of MOV / Snubber circuit across load / contactors of the unit are recommended.

1. MOV Part no. : AP-MOV-03
2. Snubber Part no. : APRC-01

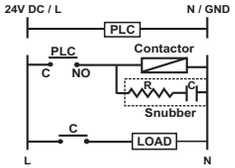
NOTE : Below mentioned diagram is applicable only for 230V relay outputs.

Typical Connections For Loads :

For load current < 0.5A



For bigger loads use interposing relay / contactor

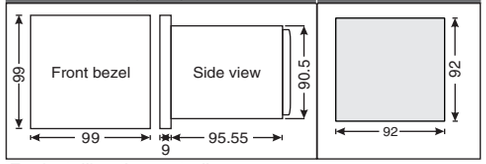


NOTE : Use snubber as shown above to increase life of internal relay.

B) Use separate shielded wires for inputs.

MECHANICAL INSTALLATION

Outline Dimensions (in mm)	Panel Cutout (in mm)



For installing the controller

1. Prepare the panel cutout with proper dimensions as shown above.
2. Remove the clamp from the PLC.
3. 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 close proximity to any heating sources, caustic vapors, oils, steam, or other unwanted process by products.

EMC Guidelines :

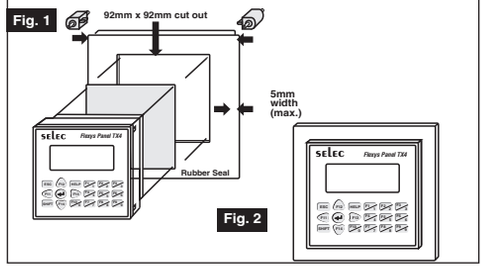
1. Use proper input power cables with shortest connections and twisted type.
2. Layout of connecting cables shall be away from any internal EMI source.

MAINTENANCE

1. To avoid blockage of ventilation holes, clean the equipment regularly using a soft cloth.
2. Do not use Isopropyl alcohol or any other organic Solvents for cleaning.

PANEL MOUNTING

Fig. 1



1. Before you begin, note that the mounting panel cannot be thicker than 5 mm (0.197").
2. Make a panel cut-out measuring 92mm x 92mm (3.622" x 3.622").
3. Slide the controller into the cut-out, ensuring that the rubber seal is in place.
4. Push the 2 mounting brackets into their slots on the sides of the controller as shown in Fig. 1.
5. Tighten the bracket screws against the panel. Hold the bracket securely against the unit while tightening the screw.
6. When properly mounted, the controller is squarely situated in the panel cut out as shown in Fig. 2.

WIRING INSTRUCTIONS

CAUTION

1. To prevent risk of electric shock, power supply to the equipment must be kept OFF while wiring.
2. Terminals and electrically charged parts must not be touched when the power is ON.
3. Wiring shall be done strictly according to the terminal layout provided in the operating manual.
4. To eliminate electromagnetic interference use short wire with adequate ratings and twists of equal size.
5. The power supply connection cable must have a cross section of 1sq.mm or greater and insulation capacity of at least 1.5KV.

FUNCTIONAL DETAILS

FLEXYS PANEL TX4 is a PLC with built in HMI. The user can configure the product using SELPRO software.

SELPRO has two sections :

1. Ladder logic programming section
2. Selec Machine Interface, used for configuration of HMI.

This software is provided with the product. For details of the software and configuration method, please refer to its user manual with the product.

PORT DESCRIPTION

Port 1 (6 Pin jack)

PIN	DESCRIPTION
1	RS485 Slave +ve
2	RS485 Master +ve
3	RS485 Master -ve
4	Proprietary Expansion +ve
5	Proprietary Expansion -ve
6	RS485 Slave -ve

ORDERING INFORMATION

ORDER CODE	DESCRIPTION
FL-TX4-DI04-PS-230V	230VAC Power Supply Card
FL-TX4-DI04-PS-24V	24VDC Power Supply Card
FL-TX4-LG-1-1-1-V2	Logic Card
FL-TX4-LG-1-1-1-V2	Logic Card

Supported IO cards	
FL-SC-DI10	10 Digital Inputs
FL-SC-DI14	14 Digital Inputs
FL-SC-RO08	8 Relay Outputs
FL-SC-TO08	8 Transistor Outputs
FL-SC-TO08-1A	8 Transistor Outputs-1A
FL-SC-AI04-TC	4 Analog Inputs (TC)
FL-SC-AIDF04-TC	4 Analog Inputs (TC - J, K, T, R, S, C, E, B, N, L, U, W, Platinel II and 0-60mV)
FL-SC-AI04-RTD	4 Analog Inputs (RTD – PT100)
FL-SC-AI04-U	4 Analog Inputs Universal(TC/RTD,V,I)
FL-SC-AI06-V	6 Analog Inputs (0-10V)
FL-SC-AI06-I	6 Analog Inputs (0-20mA)
FL-SC-AI03-NTC-AI03-I	3 Analog Inputs (NTC,Current)
FL-SC-AI03-U-AO02-U	3 Analog Inputs (TC/RTD,V,I) 2 Analog Outputs (V/I)
FL-SC-DI04-RO04	4 Digital Inputs 4 Relay outputs
FL-SC-LC04	Load Cell
FL-SC-AO04-I	4 Analog Outputs (Current)
FL-SC-AO04-V	4 Analog Outputs (Voltage)

Expansion Modules on Master RS485 / Proprietary Port

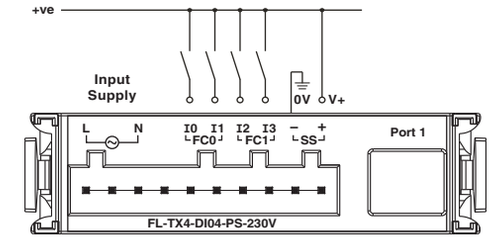
DESCRIPTION	Modbus RTU protocol for IO 610	Proprietary protocol for IO 630
8 Digital Input	IO610-8DI	IO630-8DI
4 Relay Output	IO610-4RO	IO630-4RO
4 Transistor Output	IO610-4TO	IO630-4TO
2 Analog Input (Voltage / Current)	IO610-2AI-VI	IO630-2AI-VI
2 Analog Input (TC / RTD)	IO610-2AI-TCR	IO630-2AI-TCR
2 Analog Output (Voltage / Current)	IO610-2AO	IO630-2AO
EXP-FLEX-2M	Supported IO Cards	——

ACCESSORIES

Accessories for Communication
AC-USB-RS485-03 (USB to 6 pin RJ25 jack) AC-USB-RS485-02 (USB to 2 pin open wire)
Accessories for Expansion Module
ACH 004 (6 pin to 6 pin RJ25 jack) for expansion only
AC-IOEXP-03 (Port expansion adapter)
Window-Based Software for Ladder Programming
ACD-005
Relay Module : 1) RLYMD-1-S4-1CO-24VDC 2) RLYMD-1-S4-2CO-24VDC 3) RLYMD-2-S8-1CO-24VDC 4) RLYMD-2-S8-2CO-24VDC 5) ERLYMD-2-1-S8-1CO-24VDC

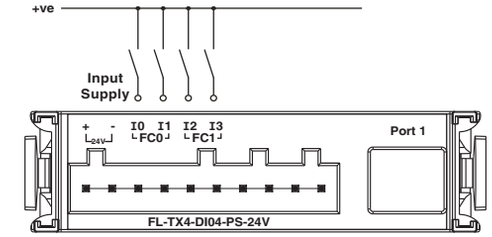
TERMINAL CONNECTION

FL-TX4-DI04-PS-230V



Power Supply Card

FL-TX4-DI04-PS-24V



Power Supply Card

SERVICE DETAILS

This device contains no user serviceable parts and requires special equipment and specialized engineers for repair.
Please contact service center for repair on the following numbers :
Toll free : 1800 227353 (BSNL / MTNL subscribers only)
Others : 91-22-41418 468 / 452

(Specifications are subject to change, since development is a continuous process)

Selec Controls Pvt. Ltd.
Tel. No. : +91-22-41418 468 / 452
Fax No. : +91-22-41418 408 I Toll free : 1800 227 353
Website: www.selec.com I Email: sales@selec.com