selec

MiBRX-96-X-X-X
Operating Instructions



Patents applied worldwide

FEATURES

- Flexible card selection
- Compact PLC with user selectable HMI.
- Windows based user friendly Selpro software for ladder
- Programming & HMI configuration
- RTC with Time Switch function (Optional)
- Data Logging Feature (Optional)

SPECIFICATIONS

	MiBRX-96-X-X-230V	MiBRX-96-X-X-24VDC
Supply Voltage	90-270V AC/DC	24DC (10-30V)
Sensor Supply(SS)	24V@ 50mA	NA
IO Card Slots	6 (max)	
RTC	Yes (Optional)	
DIGITAL INPUT (Max. counting frequency 50Hz)		
Input Type	PNP	
Input Voltage Range (V+)	5-30V DC	
No. of Digital Input	4	6
	Including 1 input (0-10Vdc) & 1 Fast input CH	
Response Time	10 ms max	
Isolation	NO	
FAST COUNTER INPUT (On Fixed card)		
Input Type	PNP	
No. of Digital Input	2 (uni) / 1(Bi / Quad) / 4 Standard Digital Input	2 (uni) / 1(Bi / Quad) / 6 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

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

ANALOG INPUT(On Fixed Card)		
Input Type	NA	Current(0-20mA)
COMMUNICATION		
Communication Port - 2	1 : PORT 1- RS485 Slave (MODBUS RTU) 2 : PORT 2- RS485 Master (MODBUS RTU) For Expansion	
ENVIRONMENTAL CONDITIONS		
Temperature	Operating : 0 to 55°C ; Storage : -20 to 70°C	
Humidity (non-condensing)	10% to 95% RH	
Enclosure	Panel Mounting	
Weight	330 gms (Without I/O cards)	310 gms (Without I/O cards)

Data Logging Feature (Optional)	
Memory Storage	**1MB**
Minimum Logging Interval Time	**10 Sec**
Data Retention	**10 Years**

Note : Refer I/O cards and Display cards for further mentioned I/O specifications.

DIGITAL OUTPUT - RELAY			
Contact Rating	NO Type : (5A resistive @ 230V AC / 30V DC)		
Isolation	2.5 kV		
Initial Max. Contact Resistance	100mΩ (@1A, 6V DC)		
Switching Time	20ms max.		
DIGITAL OUTPUT - TRANSISTOR			
Transistor Rating	PNP Type : 24V,100 mA		
Switching Time	10ms max.		
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 (1Count)
		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%		

Fig. A

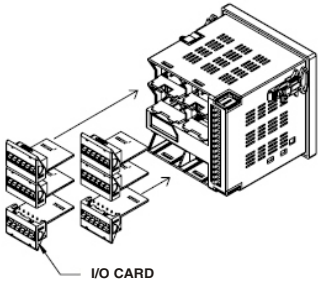


Fig. B

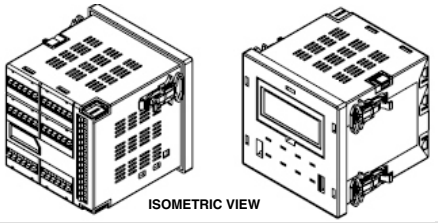
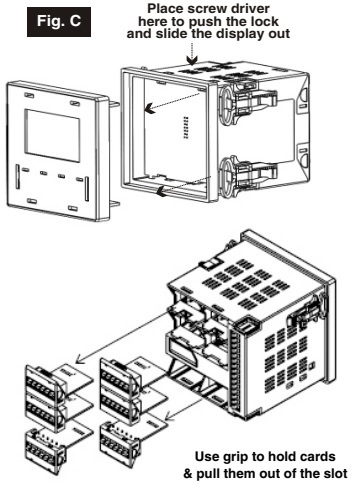
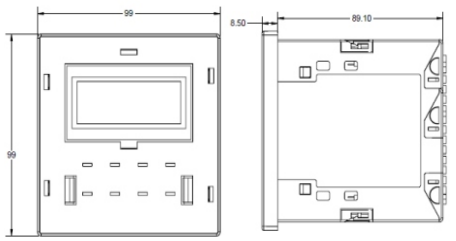


Fig. C



1. Insert the I/O card as shown in Fig. A.
2. Fig. B shows fully assembled MiBRX-96 unit with LCD display module shown as reference.
3. To remove card from slot, use screw driver to push the lock and slide the card out as shown in Fig. C.
4. To remove display module use screw driver to push the lock and pull it out, refer Fig. C.

MECHANICAL INSTALLATION



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.

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.

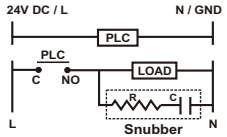
1.MOV Part no. : AP-MOV-03

2.Snubber Part no. : APRC-01

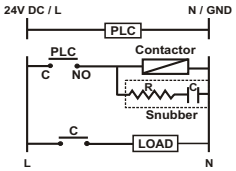
NOTE : Below mentioned diagram is applicable only for 230V relay outputs.

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. Use separate shielded wires for inputs.

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.

PANEL MOUNTING

Fig. 1

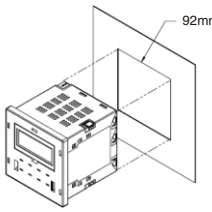
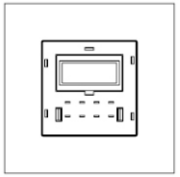


Fig. 2



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. 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 sliding bracket against the panel. Hold the bracket securely against the unit while tightening the slide clamp.
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

MIBRX is a PLC with user selectable HMI. The user can configure the product, it's I/O slots and display type 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 referto its user manual with the product.

Note: Ensure card inserted in any slot is the same one selected

ORDERING INFORMATION

ORDER CODE	DESCRIPTION
MiBRX-96-1-1-230V	230V POWER SUPPLY WITH RTC
MiBRX-96-1-0-230V	230V POWER SUPPLY WITHOUT RTC
MiBRX-96-1-1-24VDC	24VDC POWER SUPPLY WITH RTC
MiBRX-96-1-0-24VDC	24VDC POWER SUPPLY WITHOUT RTC

SUPPORTED IO CARDS

MiBRX-SC-DI04	4 Digital Input
MiBRX-SC-DI06	6 Digital Input
MiBRX-SC-RO03	3 Relay Output
MiBRX-SC-RO04	4 Relay Output
MiBRX-SC-TO04	4 Transistor Output
MiBRX-SC-DI02-RO02	2 Digital Input & 2 Relay Output
MiBRX-SC-DI02-TO02	2 Digital Input & 2 Transistor Output
MiBRX-SC-AI02-V	2 Analog Input (Voltage)
MiBRX-SC-AI02-I	2 Analog Input (Current)
MiBRX-SC-AI01-V-I	1 Analog intput(Voltage & Current)
MiBRX-SC-AO01V/I	1 Analog Output(Voltage/Current)
MiBRX-SC-AI02-RTD	2 Analog input RTD (PT100)
MiBRX-SC-AI02-PT1000	2 Analog input PT1000
MiBRX-SC-AI02-TC	2 Analog input TC
MiBRX-SC-AI02-NTC	2 Analog Inputs (NTC)
MiBRX-SC-AI02-PTC	2 Analog Inputs (PTC)
MiBRX-SC-LC02	2 Load cell

SUPPORTED DISPLAY CARDS

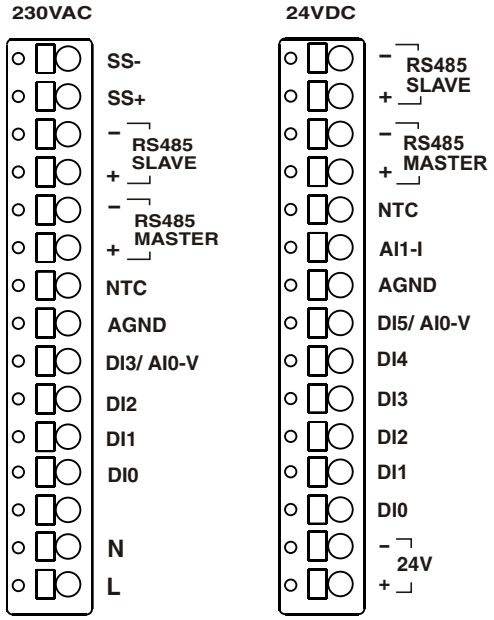
MiBRX-DSP-96-8-4-16-B
MiBRX-DSP-IND-96-8-0-00-B

ACCESSORIES

Accessories for Communication
AC-USB-RS485-02 (USB to 2 pin open wire)
AC-USB-RS485-03 (USB to 6 pin RJ25 jack)
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



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 :

Tel. No. : + 91-7498077172 ; Email : service@selec.com

NO WARRANTY ON UNIT DAMAGED DUE TO WRONG POWER SUPPLY.

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

Selec Controls Pvt. Ltd.

Factory Address :

EL-27/1, Electronic Zone, TTC Industrial Area, MIDC, Mahape, Navi Mumbai - 400 710, INDIA.

Tel. No. : +91-22-41 418 419/430 I Fax No. : +91-22-28471733 I

Toll free : 1800 227 353 (BSNL/MTNL Subscribers only)

Website : www.selec.com I Email : sales@selec.com