PLC - Micro Modular Series

MBRX - 2M



DIN 35mm

Features :

- Modular PLC with Pluggable / Independent Display
- Flexible I/O Card Selection for customized applications
- RS485 Communication – MODBUS RTU Protocol
- Serial Printing Support*
- Windows-Based Software for Ladder Programming and HMI Configuration

CE RoHS compliant PATENTED

Display Specifications

Display Specifications	MiBRX-DSP-2M-7-1-04-A	MiBRX-DSP-2M-0-1-06-A
Display Type	7 segment LED	
Digits	4 Red	1 Red
LED bank	6 Red LEDs	
No. of Keys	3 keys (2 user configurable)	1 key
No of IO Slots	2	

Note: *A maximum of 25 variables of type VAR_IN_OUT and VAR_OUTPUT (each 32-bit) can be retained when operating at 110V.*

Digital Input Specifications	MiBRX-2M-1-0-0-24VAC	MiBRX-2M-1-0-0-24VDC
No. of Inputs	3 inputs + Card Configurations: 2 / 4 / 6 inputs	
Input Type	PNP	
Voltage Range	5-30V DC	
Input Current	2 mA @12V	
Debounce Time	Programmable 1-255ms (Default: 10ms)	
Isolation (Power ↔ Input)	Yes for Isolated cards	
Isolation (CPU ↔ Input)	Yes for Isolated cards	
Protection against Polarity Inversion	Yes	
Timer Accuracy	0.1% or 1ms (Whichever Greater)	
Response Time	Typical 1m sec (Based on ladder scan time) & 100µ sec for fast Input	
Fast Input		
No. of Channels	-	1 (FC0 - DI0 & DI1)
Max Speed	-	5 kHz
Operating Mode	-	Unidirectional / Bidirectional / Quadrature / Dual Uni (5 kHz for all) / None

**Fast Counter Input (For 24V DC variants only)*

Analog Input Specifications		
No. of Channels	-	1 NTC* + Card Configurations: 1 / 2 / 3 Inputs
Input Type	-	J, K, T, R, S, C, E, B, N, L, U, W, PLTNL, mVolt (-5 to 65mV), 0-10V, 0-20mA, NTC, PTC, RTD
Accuracy	-	0.25% ±1°C (TC), 0.1% ±1°C (RTD) at 25°C, ±0.25% of FS. ±1 count for AI's, ±2°C for NTC
Resolution	-	12 Bit
Conversion Time	-	TC - 100ms, RTD - 300ms, 0-10V - 100ms, 0-20mA - 100ms, NTC - 100ms
Linearity	-	0.10%
Max Non-Destructive Input	-	AIV= 17V, AII=31mA
Channel-to-Channel Isolation	-	NO
Reverse Polarity Protection	-	TC - YES, RTD - N/A, 0-10V - YES, 0-20mA - YES, NTC - YES
Input Impedance	-	TC - >330KΩ, RTD - >510KΩ, 0-10V - >330KΩ, 0-20mA - >100Ω, NTC - >2KΩ

Digital Output Specifications		
No. of Outputs	As per Card Configurations: 4 (NO) type Relay (12AC)	As per Card Configurations: 2 / 3 / 4 / 5 (NO) type Relay
Contact Rating	5A @250V AC (resistive load), 5A @30V DC (resistive load)	
Relay Type	SPST	
Isolation (CPU ↔ Output)	2.5kV	
Isolation (Output ↔ Output)	NA	
Response Time	20ms	
Mechanical Life	5 Million Operations	
Digital Output - Transistor		
No. of Outputs	-	As per Card Configurations: 4 Transistorized
Output Rating	-	100mA @24V DC (current sourcing output), 18-30V DC (External Supply)
Output type	-	PNP (Source)
Short Circuit Protection	-	Yes
Isolation (CPU ↔ Output)	-	2.5kV
Isolation (Output ↔ Output)	-	No
Polarity Inversion Protection	-	Yes
Response Time	-	10ms
Nominal Load	-	240Ω (likely referring to the typical load resistance)
Breaking Current	-	110mA (maximum current that can be interrupted)
Analog Output Specifications		
No. of Channels	-	As per Card Configurations: 1 / 2
Output Range	-	0-10V DC / 0-20 mA DC
Resolution	-	12 Bits
Load Limit	-	0-10V DC ≥1 kΩ, 0-20mA <= 500 Ω
Digital Resolution	-	0.0-100.0% = 0-10.000V DC, 0.0-100.0% = 0-20.000mA
Conversion Time	-	100ms
Isolation (CPU ↔ Output)	-	Yes for Isolated cards
Isolation (Output ↔ Output)	-	No
Output Error @25 °C	-	±0.25% of Full Scale
Linearity	-	0.10%
Programming & Memory		
Programming Software	Windows-Based Ladder & HMI Configuration	
Program Memory	112 KB	
Data Memory	16 KB	
EEPROM	8 KB	
Upload Memory	NA	
Max Objects	5000 (subject to Memory Availability)	
Min Scan Time	200 µs	
Typical Scan Time	1 ms (Depends on Ladder logic Complexity)	

Note : *Set jumpers as per the manual for PD & Wi-Fi Card before use.*

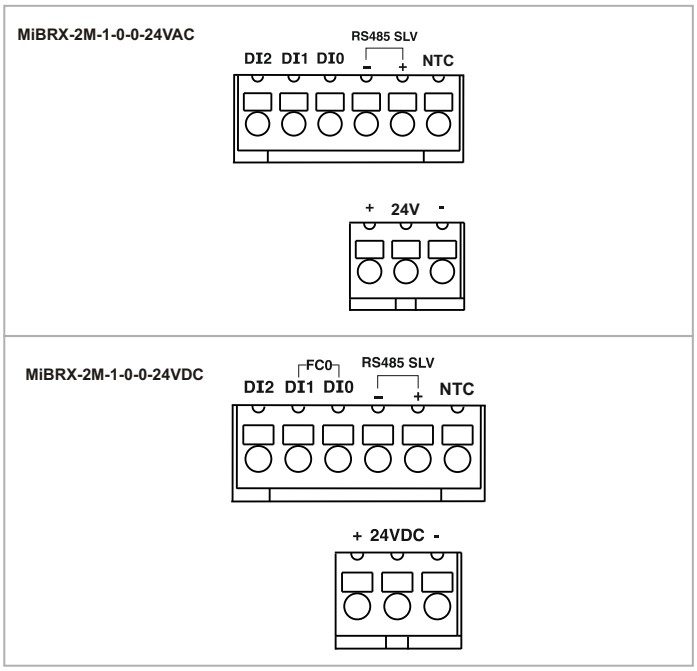
Functional Features		
Timer Operational Modes	On Delay, Off Delay, Special Timer (Up / Down), Pulse Timer, 1ms Timer*	
Counter Modes	Up Counter, Down Counter, Up/Down Counter, Special [Up/Down] Counter	
Other Functional Blocks	Array, For Next, Totalizer, Rate Totalizer, Analog Input, Scaling, FTC, Hysteresis, PIDT, Rampsoak, Communication	
Memory Retention	10 years (2 KB)	
Real-Time Clock (RTC)	-	Yes with MiBRX-SC-DL
Clock drift	-	Maximum ±4 seconds per day

**Limited to 4 Nos*

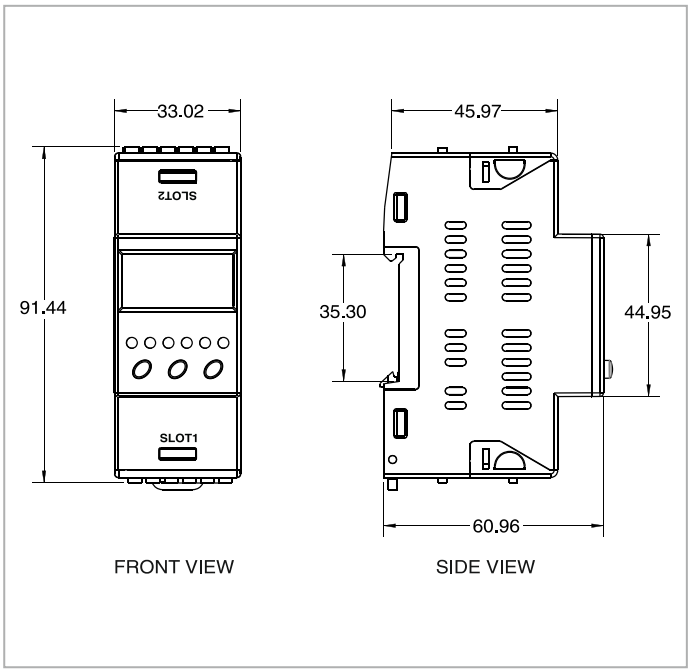
Communication Specifications		
Communication Port	RS485 [Slave]	
Communication Protocol	MODBUS RTU	
Connector	2 Wire	
Transmission Mode	Half Duplex	
Transmission Speed	2400, 4800, 9600, 19200, 38400, 57600, 115200 bps	
Data Bits	7 or 8	
Parity	None, Odd, Even, Space, Mark	
Stop Bits	1 or 2	
Environmental Specifications		
Operating Temp	0°C to 55°C	
Storage Temp	-20°C to 70°C	
Humidity	10% to 95% RH (Non-condensing)	
IP rating	Display: IP50, Terminals: IP20	
Mechanical Specifications		
Weight	90 grams	
Mounting	DIN Rail Mountable	
Dimensions in mm (WHD)	35 x 94 x 67	
Auxiliary Supply Specifications		
Supply Voltage	18-30V AC	18-30V DC
Inrush Current	2.3A	
Power Consumption	4VA	4W
Polarity Inversion Protection	YES	
Isolation (Power ↔ Communication)	NO	
Source Supply Output	NA	

Note: *A maximum of 25 variables of type VAR_IN_OUT and VAR_OUTPUT (each 32-bit) can be retained when operating at 110V.*

Terminal connections



Dimensions (All are in mm)



Ordering information

Product code	Description	Certification
MiBRX-2M-1-0-0-24VAC	MiBRX 2M Base module - 24VAC - 2 Slots, 3DI	CE RoHS
MiBRX-2M-1-0-0-24VDC	MiBRX 2M Base module - 24VDC - 2 Slots, 3DI (incl 1FI)	CE RoHS

Supported display modules

Product code	Description	Certification
MIBRX-DSP-2M-7-1-04-A	MiBRX Display 2M - 7 Seg (4 digit), 6 LED	CE RoHS
MIBRX-DSP-2M-7-1-06-A	MiBRX Display 2M - Blind, 6 LED	CE RoHS
MiBRX-DSP-AP-2M	MiBRX 2M Adapter Plate for Extending display	CE RoHS

Accessories (To Be Ordered Separately)

Product Code	Description
Power Supplies	
RPS60-24-CE	60W, 24V/2.5A DIN rail mounted power supply in plastic housing - CE Certified
Cables & Communication Accessories	
AC-USB-RS485-02	Protocol Converter Cable – USB to RS485 (2 wire)
For MODBUS Networking	
AC-USB-RS485-03	Protocol Converter Cable – USB to RS485 (RJ25)
ACH-004-CE-RoHS	Expansion Cable – RJ25 to RJ25 (6Pin)
AC-IOEXP-03-CE-RoHS	Communication Adapter
For Extending Display (*Use external power supply)	
MiBRX-DSP-AP-2M	MiBRX 2M Adapter Plate for independent display
ACH-004-CE-RoHS	Expansion Cable – RJ25 to RJ25 (6Pin)
MiBRX-DSP-IND-96-8-0-00-B*	MiBRX Independent Display 96x96 - Customized, 14 & 7 Seg, Bar Graphs, Speedometer
MiBRX-DSP-IND-96-8-0-00-C*	MiBRX Independent Display 96x96 - 3.5 Inch Graphic Touch
MiBRX-DSP-IND-96-8-2-16-B*	MiBRX Independent Display 96x96 - LCD Text (16x2)
MiBRX-DSP-IND-96-8-4-16-B*	MiBRX Independent Display 96x96 - LCD Text (16x4)
Software - www.selec.com/software	
Selpro	Windows-based software for ladder logic and built-in HMI programming
USB to Serial Driver	USB to Serial cable drivers

Supported I/O Cards

IO Cards	Description	Certification
MiBRX-SC-DI0X**	MiBRX Slot Card - 4 / 5 / 6 Digital Inputs	CE RoHS
MiBRX-SC-DI05-230V AC	MiBRX Slot Card - 5 Digital Inputs 230V (AC)	CE RoHS
MiBRX-SC-TO04	MiBRX Slot Card - 4 Transistor Outputs	CE RoHS
MiBRX-SC-RO0X*	MiBRX Slot Card - 2 / 3 / 4 / 5 Relay Outputs	CE RoHS
MiBRX-SC-D102-TO02	MiBRX Slot Card - 2 Digital inputs & 2 Transistor Outputs	CE RoHS
MiBRX-SC-DI02-RO03	MiBRX Slot Card - 2 Digital Inputs & 3 Relay Outputs	CE RoHS
MiBRX-SC-AI0X-V **	MiBRX Slot Card - 2 / 3 Analog Inputs - Voltage	CE RoHS
MiBRX-SC-AI0X-I **	MiBRX Slot Card - 2 / 3 Analog Inputs - Current	CE RoHS
MiBRX-SC-AI02-V-I **	MiBRX Slot Card - 2 Analog Inputs - 1 Voltage & 1 Current	CE RoHS
MiBRX-SC-AI02-TC **	MiBRX Slot Card - 2 Analog Inputs - Thermocouple	CE RoHS
MiBRX-SC-AI03-2TC-1I-ISO	MiBRX Slot Card - 3 Analog Inputs - 2 Thermocouple (Isolated) & 1 Current (Isolated)	CE RoHS
MiBRX-SC-AI02-RTD **	MiBRX Slot Card - 2 Analog Inputs - RTD	CE RoHS
MiBRX-SC-AI03-2RTD-1I-ISO-P	MiBRX Slot Card - 3 Analog inputs - 2 RTD (Isolated) & 1 Current (Isolated), With Pluggable Terminals	CE RoHS
MiBRX-SC-AI02-PT1000	MiBRX Slot Card - 2 Analog Inputs - PT1000	CE RoHS
MiBRX-SC-A102-NTC	MiBRX Slot Card - 2 Analog Inputs - NTC	CE RoHS
MiBRX-SC-A102-PTC	MiBRX Slot Card - 2 Analog Inputs - PTC	CE RoHS
MiBRX-SC-D102-AI01-T	MiBRX Slot Card - 2 Digital Inputs & 1 Analog Input - TC/RTD	CE RoHS
MiBRX-SC-AO01V/I *	MiBRX Slot Card - 1 Analog Output (Voltage/Current)	CE RoHS
MiBRX-SC-AO02-V-I *	MiBRX Slot Card - 2 Analog Outputs - 1 Voltage & 1 Current (Isolated)	CE RoHS
MiBRX-SC-AO02-X-ISO *	MiBRX Slot Card - 2 Analog Outputs - Voltage / Current (Isolated)	CE RoHS
MiBRX-SC-FI02	MiBRX Slot Card - 2 Fast Inputs (10KHz)	CE RoHS
MiBRX-SC-F001-TO02-N	MiBRX Slot Card - 1 Fast Output (200KHz) & 2 Transistor Output (NPN)	CE RoHS
MiBRX-SC-LC02	MiBRX Slot Card - 2 Analog Inputs - Load Cell (24 Bit)	CE RoHS
MiBRX-SC-DL	MiBRX Slot Card - Datalogging (2MB) & RTC	CE RoHS
MiBRX-SC-WIFI	MiBRX Slot Card - WIFI	CE RoHS
MiBRX-SC-PD	MiBRX Slot Card - Portable Downloader	CE RoHS

***Pluggable card variant available**
**** Pluggable + Isolated (ISO) variant available**
e.g., MiBRX-SC-DI0X-ISO, MiBRX-SC-DI0X-P

Note:
1. Non-Isolated DI cards supports only in Non-ISO variant.
2. Pluggable variant is not available for MiBRX-SC-RO05.
3. Refer to the IO card and base module compatibility guidelines to ensure effective and valid IO card combinations.