

DM100

HARDWARE MANUAL

- DM100
RTU Series

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Preface



Mikrodev DM100 series RTUs can control and read data from Intelligent Electric Devices in the electricity sector with the industry standard protocols IEC 61850, IEC 60870, Modbus TCP and Modbus RTU (protect relays, recloser cutters, energy and quality analyzers, etc.). In the addition, DM100 can communicate to SCADA and control center softwares with IEC 60870, DNP3 and MODBUS TCP protocols. Mikrodev RTU products are preferred in electrical energy applications with their easy, flexible and fast programming capabilities and expandable I / O capability up to 512 points. It serves its users with a rich communication protocol library by incorporating the current and practical communication protocols.

MQTT protocol is used for wide IoT applications by reading (subscribe) and writing (publish) values and RTU can have a communication with Cloud Servers that support MQTT.

Reading electricity meter applications can be done with IEC62056-21 protocol over RS485/RS232* port.

In the programming of Mikrodev DM100 series RTUs, IEC 61131-3 standard is used. It defines Function Block Diagram - FBD language. Applications can be improved by Programming with FBD language. It is easy, quick and capable with drag-and-drop logic.

In this document, you can find information about the hardware features of Mikrodev DM100 series RTUs.

Please follow our website www.mikrodev.com for the up to date version of the document.

*RS232 available for DM100

About Us, Mikrodev



Since 2006, MIKRODEV has been developing and manufacturing industrial control and communication products. MIKRODEV serves the system integrators in the public and private sector, OEM and end users.

Our products are manufactured complying with the quality standards required by the industrial automation industry and the quality of our products are proved on the field for many years

MIKRODEV is one of the few companies in the world that has its own designed IEC 61131-3 compliant library for its programmable logic control devices. In addition, the open, flexible, programmable SCADA solution developed by MIKRODEV is also available to customers.

MIKRODEV products' performance and wide range of applications make them possible for customers to achieve faster, simplified and cost-effective results.

WARNING!

- ✓ Please take care of the following issues when using Mikrodev devices.
- ✓ Since the unit operates with 24 VDC (12-36 VDC) voltage, you should take care of the voltage level that the unit is connected to. If a voltage above this voltage level is applied, the device may be damaged and may be out of warranty.
- ✓ Make sure that the energy connection of your device is connected to the ground or to a properly grounded terminal.
- ✓ Make sure that the environment in which your device is being used is free of moisture, electric shock, vibration and dust.
- ✓ Pay attention to the supply voltage and the connections of the product. Mikrodev is not responsible for any issues due to power failure since there is no auxiliary supply (UPS) on the device.
- ✓ The fuse to be used must be a FF super fast type and current limit value 1A.
- ✓ Do not use the device under conditions other than the environmental conditions specified in the "Electrical Specifications" section (humidity, dust, liquid and temperature, etc.)
- ✓ Removing the warranty label on the product or removing the protective case will void the warranty.
- ✓ Products that are damaged, boxes have been changed and other brand labels are affixed are not covered by the warranty.
- ✓ The appliance must not be cleaned with solvents (thinner, benzene, acid etc.) or with abrasive cleaning agents.
- ✓ Only dry cloth should be used when cleaning the appliance.
- ✓ Do not open the device by removing the case of the appliance, do not interfere with the electronic components and circuits. There is no user-replaceable part inside the device.
- ✓ If there is a problem or malfunction on your device, it should only be repaired by an authorized service. Installation and electrical connections must be made by technical personnel in accordance with the instructions in the operating manual.

Failure to comply with these rules may result in death, serious injury or property damage

1 DM100 GENERAL INFORMATION

1.1 Physical Interfaces

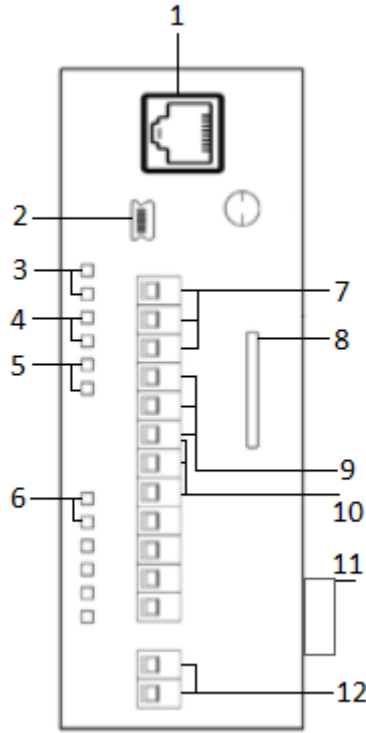


Figure 1: Connectors and Physical Interfaces

1	Ethernet Port*	7	Port1 RS485 Connections
2	USB Port	8	MicroSD Card Slot
3	System Power /Running LEDs	9	Port2 RS485 Connections
4	Error and Com Information LEDs	10	RS232** Port Connections
5	Port1 Protocol Data Transfer LEDs	11	Expansion Connector
6	Port2 Protocol Data Transfer LEDs	12	Device Power(V+/V-) Connections

*DM110 has 2 ethernet ports

**Available for DM100

1.2 General Device Specifications

SPECIFICATION	ITEM	DESCRIPTION
Processor	Processor Architecture	ARM Cortex A7
Electrical	Supply	24 VDC (12-48VDC)
	Power	<10W @ 24V DC
	Real Time Clock	Integrated
Enviromental Conditions	Operating Temperature	-20...+60 C
	Storage Temperature	-40...+85 C
	Humidity	5..95 RH
Memory	Memory Information*	256MB DDR3 256MB NAND Flash
	Retentive Memory	128 Blocks/Register
Communication Ports	Ethernet Port*	10/100 Mbps
	RS485	2 Ports, 3 Kv ESD Protection
	RS232**	1 port
	USB	1 Port, Mini USB Type B
Expansion Capacity	Din RAIL Type- CANBUS Expansion Modules	Up to 512 I/O Points

*May differ on some models

**Available for DM100

2 INSTALLATION INFORMATION

2.1 Rail Installation

DIN Rail Mountage

First, the upper part of the device is mounted on the DIN rail. Then, with the help of the springs behind the device, when a lightly force is applied to the lower part, the device locates into the DIN rail easily and the montage is completed. (See Figure 2)

DIN Rail Demontage

To demount the device, firstly it is pulled from the bottom using flexibility of the spring, the device is removed from the DIN Rail and the demounting is completed.

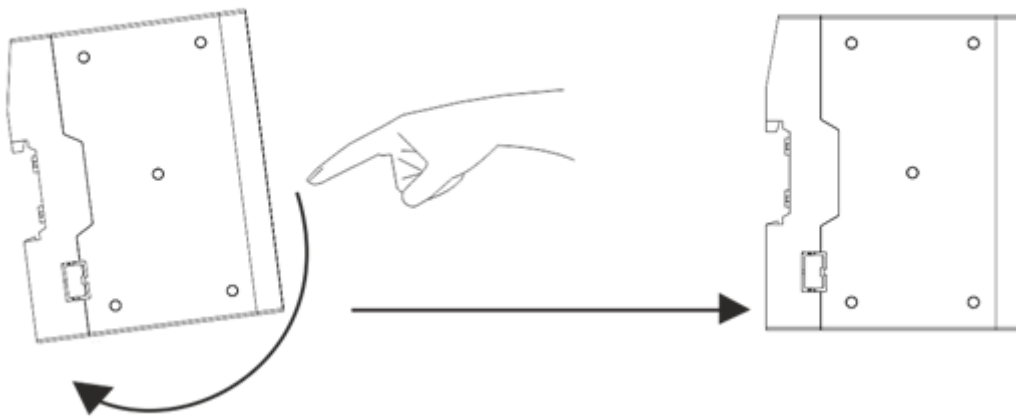


Figure 2: Mounting

2.2 Expansion Installation

The DM100 product and its extensions are mounted by sliding over the rail in such a way that the connectors corresponds.

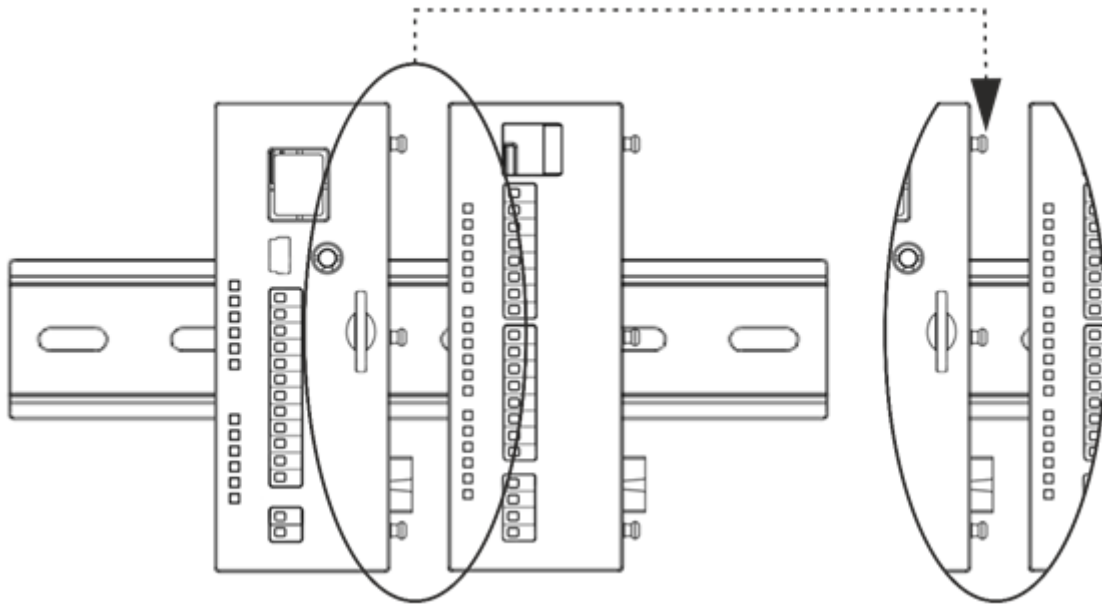


Figure 3: Expansion Installation

3 CONNECTION DIAGRAMS

3.1 Supply Connection

Supply:	12-36 VDC, Protected
Power:	< 10 W

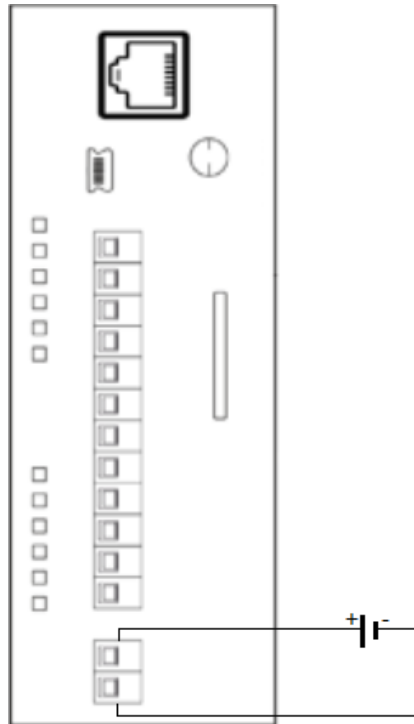


Figure 4: Power Connection Diagram

3.2 RS485 SERIAL PORT

RS485 Port Count:	2 Ports, 3 kV ESD Protection
Maximum Slave Counts:	Limited to Hardware
Isolation:	Galvanic and Optical
Communication Distance:	1000 m
Data Bits:	7-8
Stop Bits:	1-2
Parity:	None, Even, Odd
Baudrate:	300 bps to 200 kbps

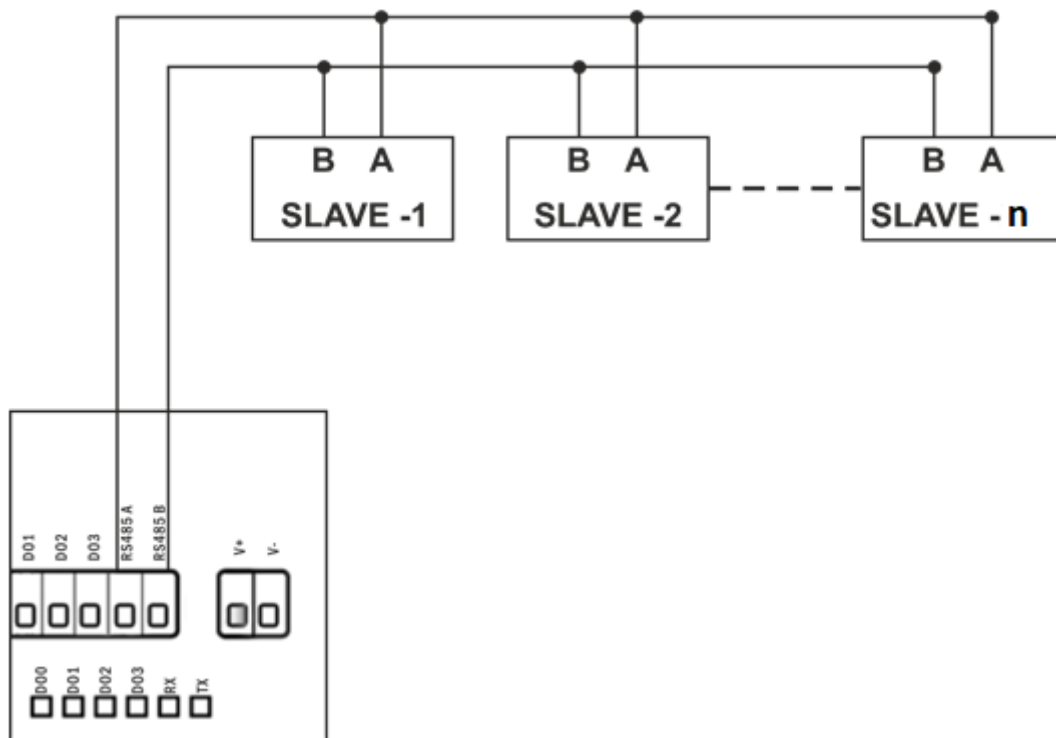


Figure 5: RS485 Serial Port Connection Diagram

3.3 RS232 SERIAL PORT

RS232 Port Count:	1 Port
Communication Distance	10 m
Data Bits	7-8
Stop Bits	1-2
Parity:	Odd, Even, None
Baudrate:	300 bps to 200 kbps

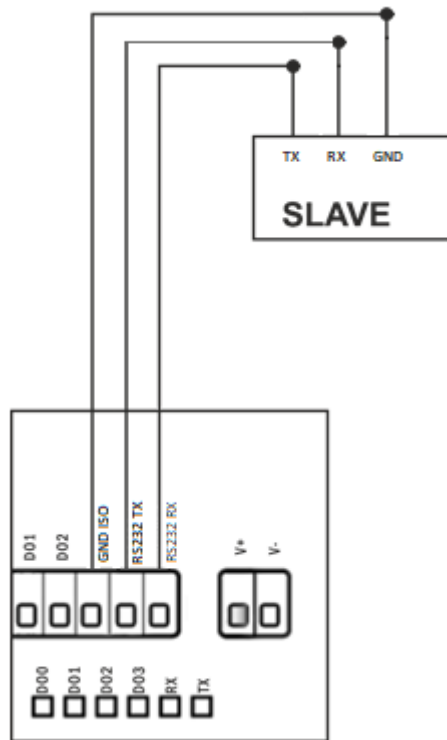


Figure 6: RS232 Serial Port Connection Diagram