

LONG RANGE MULTI-DROP TRANSMISSION ON A COPPER PAIR



The MDM192 base-band modem is designed for serial data transmission between industrial devices over a private telephone-grade twisted pair (2 wires).

It transmits industrial serial protocols like Modbus, Profibus DP, DF1, Sysmacway, over a 2 wire copper line with a range up to 30 km (see table next page).

Data can be transmitted between two modems (point to point transmission) or between several modems connected to the same cable (multi-drop transmission).

In the case of multidrop transmission, the modems are connected in parallel to the line. Therefore, failure of one modem does not stop the communication between the other devices.

Key-features

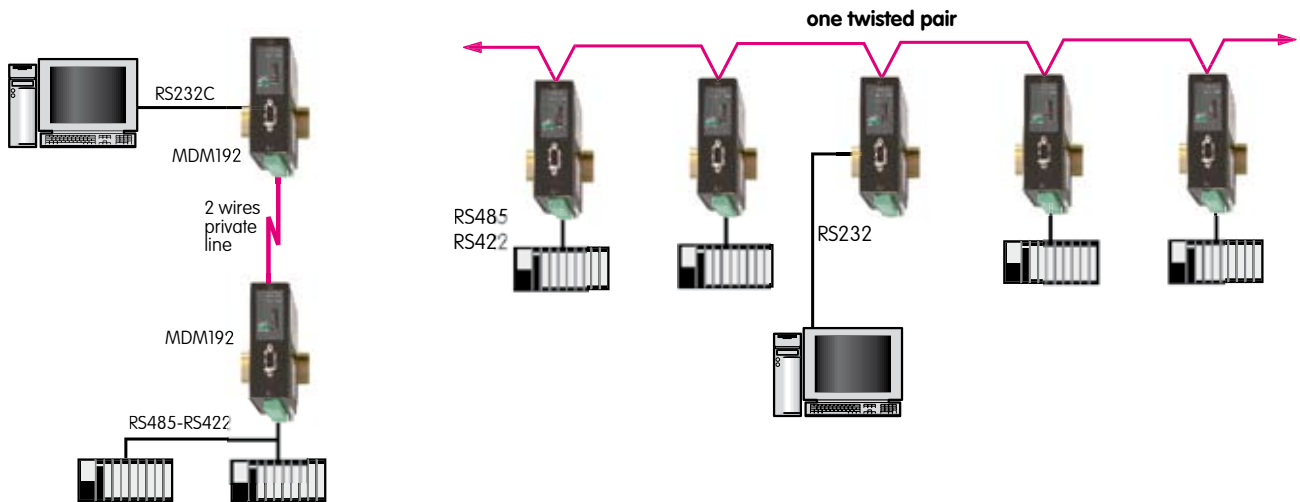
- Up to 30 km range
- 2 400 b/s to 19 200 b/s
- Up to 16 modems connected to the same line
- Profibus DP, MODBUS, DF1, DH485, UNITELWAY, SYSMACWAY...
- Less than 10 ms latency
- RS232 / RS422 / RS485 interface
- 4 000 Vrms isolation from the line
- DIP switches configuration

Applications

Rail and road networks, water, pipe-lines...



MDM192 Multi-drop modem



General characteristics

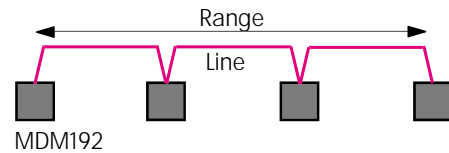
Dimensions	115 x 38 x 96 mm (h, l, d))
Installation	DIN rail 35 mm
Protection class	IP20
Power	<ul style="list-style-type: none"> ■ MDM-0 : 9 to 40 VDC - 2 W ■ MDM-1 : 40 to 60 VDC - 2W
EMC immunity	<ul style="list-style-type: none"> ■ ESD : EN61000-4-2 : 6 KV discharge ■ RF field : EN61000-4-3 : 10V/m < 2 GHz ■ Fast transient : EN61000-4-4 ■ Surge V. : EN61000-4-5 : 4KV line / earth
Safety	EN 60950 & UL1950
Banned substances	2002/95/CE RoHS european union directive
Humidity	5 to 95 % RH non condensing
Operating T°	-20°C/+60°C 95%
Configuration	8 micro-switches

Serial interface

Serial interface	<ul style="list-style-type: none"> ■ RS232 : DB9 female ■ RS232 : RX - TX - RTS - CTS - CD - DSR - DTR ■ RS485 2 wires - Screw block - 16 devices ■ RS422 4 wires - Screw block - 16 devices
Data	<ul style="list-style-type: none"> ■ 7 or 8 bits ■ Parity : none / even / odd ■ 1 start bit, 1 stop ■ 19.2 - 9.6 - 4.8 - 2.4 Kb/s
Field bus compatibility	<ul style="list-style-type: none"> ■ Request / Response protocols ■ PROFIBUS DP, MODBUS, UNITELWAY, DF1, DH-485, SYSMAC-WAY...

Transmission characteristics

Cable type	<ul style="list-style-type: none"> ■ 1 shielded twisted pair ■ Diam 0,4 mm to 1 mm
Isolation from the line	4000 Vrms (transformer)
Transmission technology	<ul style="list-style-type: none"> ■ Half duplex ■ Miller code ■ Line equalization - digital filtering
Latency	3 byte periods



Range at 19200 b/s : (1 twisted pair 50 nF/km)

	0,4 mm	0.6 mm	1 mm
Point-to-point	6 Km	9 km	15 km
Multi-drops 8 modems	5 Km	7 km	12 km
Multi-drops 16 modems	4 Km	6 km	11 km

Range at 9600 b/s : (1 twisted pair 50 nF/km)

	0,4 mm	0.6 mm	1 mm
Point-to-point	10 Km	15 km	25 km
Multi-drops 8 modems	9 Km	13 km	22 km
Multi-drops 16 modems	7 Km	11 km	18 km

Range at 4800 b/s : (1 twisted pair 50 nF/km)

	0,4 mm	0.6 mm	1 mm
Point-to-point	13 Km	20 km	34 km
Multi-drops 8 modems	12 Km	18 km	29 km
Multi-drops 16 modems	11 Km	16 km	26 km

Products reference

Modem (24 VDC voltage)	MDM192-0
Modem (48 VDC voltage)	MDM192-1



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