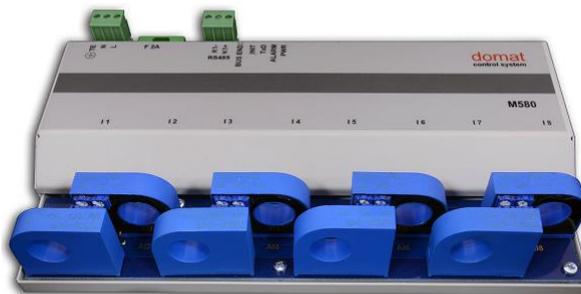


M580

DC string measuring module



Summary

M580 is a microprocessor controlled current measuring module for 8 DC strings up to 100 A each, and optional internal temperature sensor. It communicates over an optically separated RS485 bus with Modbus RTU and is easy to integrate into a number of control and automation systems.

Application

- **String measuring and fault detection at photovoltaic power plants**

Function

The module uses contactless Hall sensors for DC current measuring. The analogue signals are brought into an A/D converter which acquires the signals and converts them into data. The values are recalculated and available at the RS485 bus, where they can be interrogated by a Modbus master.

Removable connectors are used for power and communication lines. The DC string wires have to be pulled through the probe holes and brought to a common rail.

The communication circuits are protected against overvoltage. If the module is terminating the communication bus, i.e. it is the last in line, a terminating 120 Ω resistor may be switched on by short-circuiting of the BUS END jumpers. Red LED indicates communication (TX), and green LED power on.

All settings (address, baudrate, input configuration...) are stored in a EEPROM. The module is equipped by a watchdog. Address and other parameters are configured by means of a free software, domat.exe (see www.rcware.eu), or by direct writing into the Modbus registers. The Modbus table is available as a separate document.

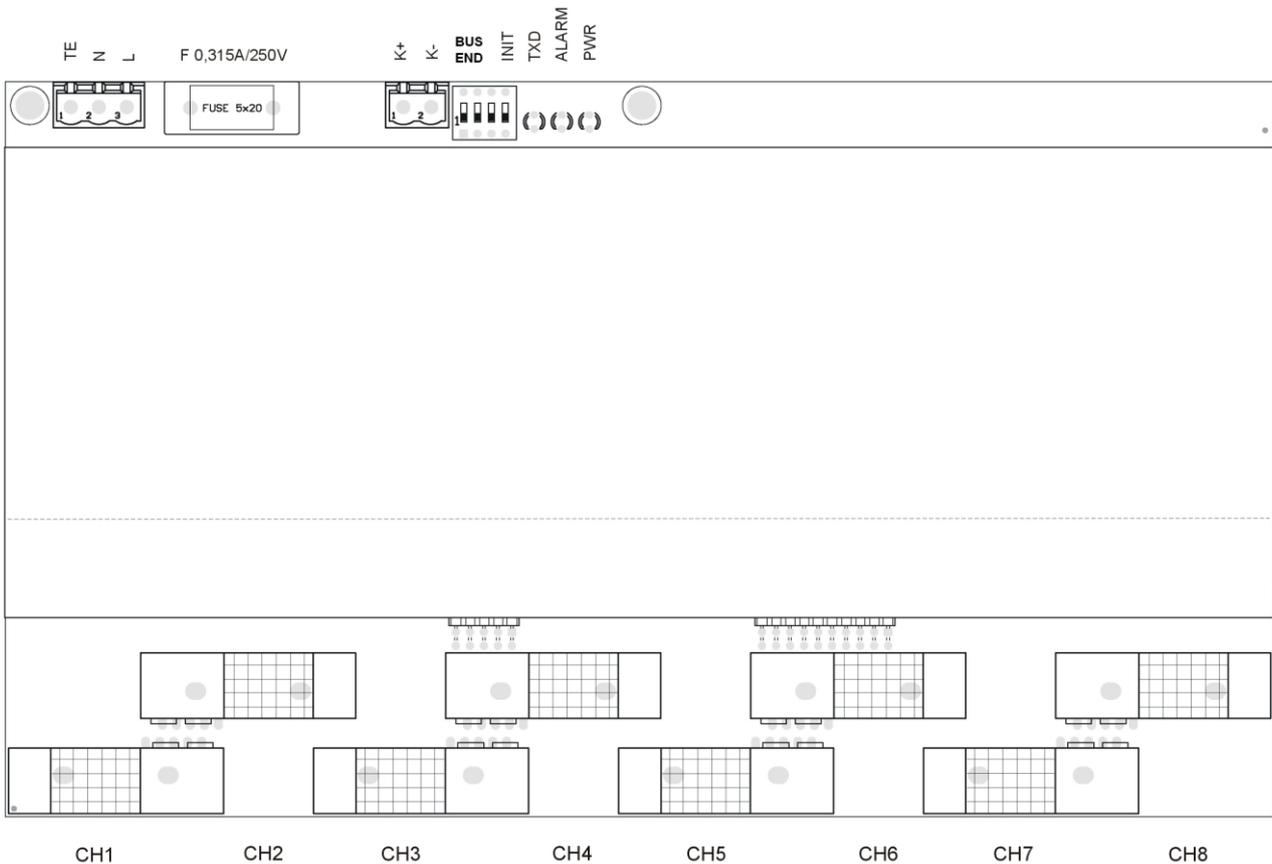
Technical data

Supply voltage	160...240 V AC
Consumption	max. 7 VA
Temperature measuring range (optional)	-20 ÷ 70°C
Communication Protocol	RS485 optically separated, 1200 ... 115200 bit/s Modbus RTU
Max. bus length	1200m
Max. number of modules on the bus	250

DC current measuring inputs	8
Current measuring probes	Hall probes
Maximum measured current	+/- 100 A
Accuracy	+/- 1 % at 100 A
Linearity	+/- 1 %
Insulation	up to 3000 V
Aperture	Ø 15 mm
Terminals	Removable screw terminals, wire 0,14 – 1,5 mm ²
Dimensions	240 (l) x 140 (w) x 48 (h), incl. DIN rail holder

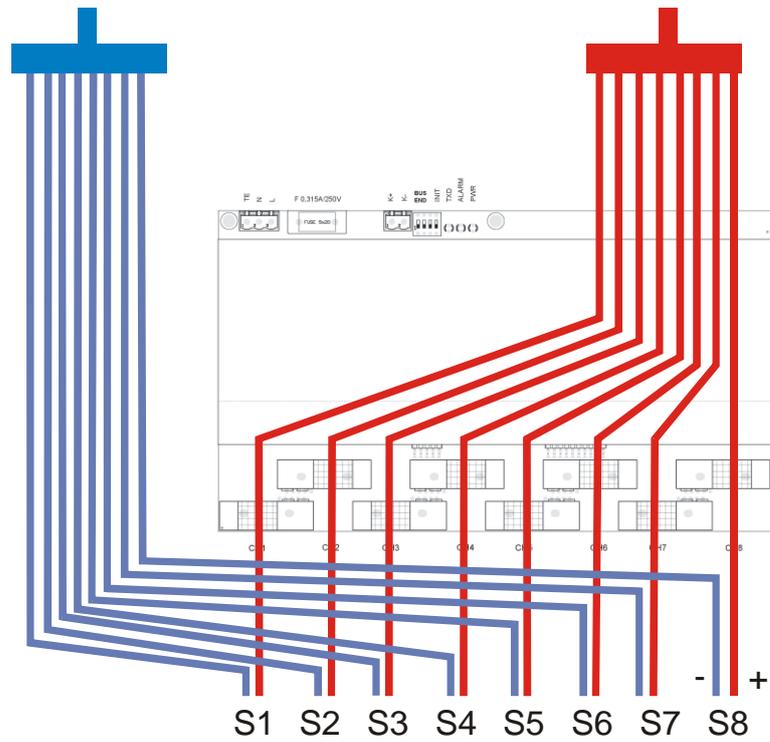
Terminals

TE	technical ground
N	power - common
L	power - line
K+	communication Modbus RTU RS485 +
K-	communication Modbus RTU RS485 -
CH...	measuring channel



BUS END	switches 1 and 2, if ON, terminate the RS485 bus (use if the module is the first or the last on the bus)
INIT	switch 4: if ON at power up, sets the Modbus address to 1, communication speed to 9600, N, 8, 1 (default parameters).
TXD (red)	flashes if the module is transmitting data (responding to master)
PWR (green)	on: power is OK
ALARM (yellow)	on: internal problem of the module
F	fuse 0.315 A / 250 V – replace if broken with the same type

Connection



Installation

Install the module on a DIN rail in the DC junction cabinet. Lead one of the string conductors through the aperture in the probe, the other conductor must be lead separately – see image above.

It is possible to join more strings together and bring them to one probe to save costs, but then the measuring discriminability is decreasing. Consult the monitoring software supplier for details.

Related products:

M080	converter USB/RS485 for module addressing and setup
IPLC500	SoftPLC process station, 1x RS485, Ethernet
IPLC510	SoftPLC process station, 2x RS485, 2x RS232, Ethernet
RC-Vision	SCADA software