DM

Catalog

Data Acquisition and Control Module

The Data Acquisition and Control Module - DM is the interface of digital systems with any analog or electromechanical equipment that does not have a serial port and needs to be supervised or controlled. Three versions are available, each one with 8, 16, and 24 inputs/outputs:

- DM - 1 for the supervision of dry contact inputs;
- DM - 2 for the supervision of analog signal inputs;
- DM - 3 with output contacts for load switching.

Functions and Characteristics

- Communication with a remote data acquisition and control system through the RS-485 serial interface, with Modbus RTU protocol (standard) or DNP3.0 (optional);

– Remote monitoring of the status of dry contacts (alarms, trips, signalization, and contact actuation time counting).

– Remote measurement of analog signals (outputs of transducers, gas monitors, levels, etc.).

– Remote activation of potential-free output contacts (on/off motors, lamps, etc.).

– Up to 31 DM´s can be interconnected to the same communication network.

– Communication distance up to 1,300 meters, measured between the extreme points of the network.

– Digital and analog input circuits, output contacts, and RS-485 interface with galvanic insulation.

– Interconnection of DM's through a twisted pair cable or fiber optic cable using electro-optical converter.

Technical Data

Power Supply:	+ 5 Vdc ± 5%
Operation Temperature:	-10 to 70 ºC
Serial Communication	S 485 with ModBus RTU protocol(standard) or DNP3.0 level 1 (optional)
Protection Class:	IP 20
Fixation:	DIN Rail 35mm
Number of Inputs/Outputs:	8, 16 or 24

Digital Input Module:

Consumption:	< 0.5 W/(for one 8 input module)
Inputs:	Potential free contacts
Field Contacts Power Supply:	+12V ± 20%
Contact Consumption at 12V:	< 0.15 W/closed contact

Analog Input Module:

Consumption:	< 0.5 W/(for one 8 input module)
Inputs:	
Current Loop (ohms):	0 ... 1 mA 1000W 0 ... 5 mA 200W 0 ... 10 mA 100W 0 ... 20 mA 50W
Input Voltage Drop	< 1 V

Digital Output Module:

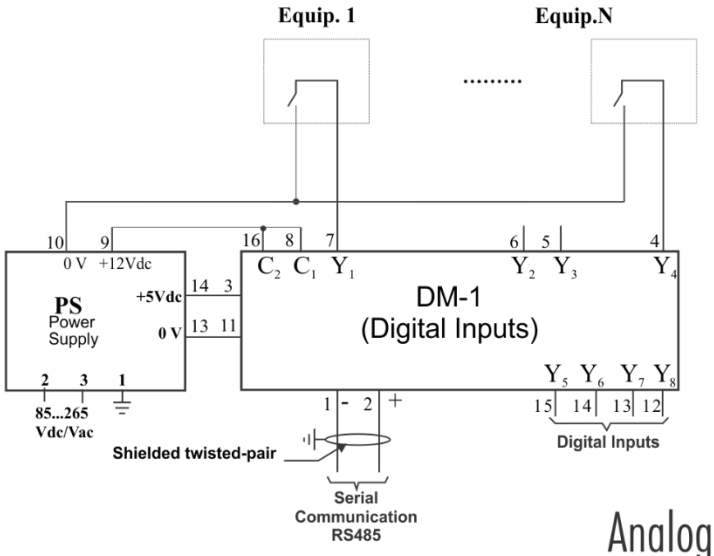
Consumption:	< 2 W/(for one 8 output module)
Outputs:	Normally Open (NO)
Maximum Switching Power:	70 W (dc) / 250 VA (ac)
Maximum Switching Voltage:	250 Vdc/Vac
Maximum Conduction Switching :	1.0 A/(for one 8 output module)

Power Supply Module:

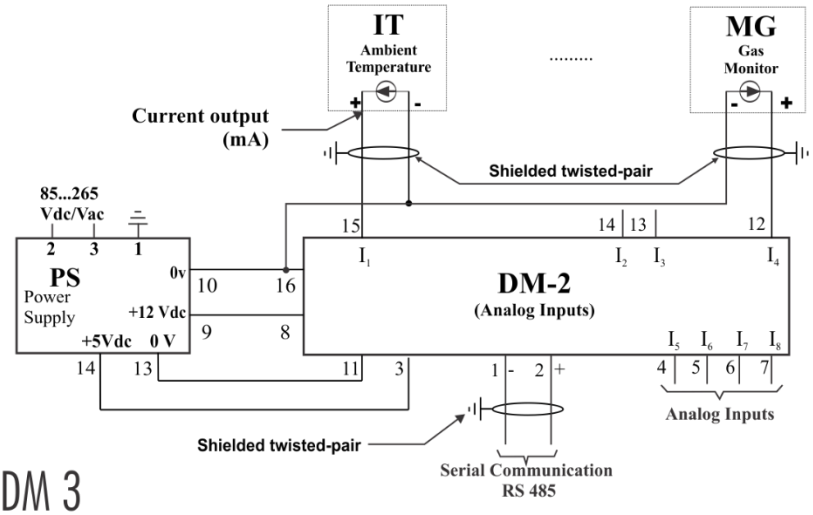
Power supply:	85 to 265 Vdc/Vac, 50/60Hz
Consumption:	15 W
Output Voltage	+5 Vdc and + 12 Vdc
Output Power:	7.5 W for + 5 Vdc 4.5 W for + 5 Vdc
Quantity of modules supplied per voltage converter:	
DM1:	3 DM11 or 1 DM12 + 1 DM11 or 1 DM13
DM2:	15 DM21 or 7 DM22 + 1 DM21 or 5 DM23
DM3:	3 DM31 or 1 DM32 + 1 DM31 or 1 DM33

Connection Diagrams

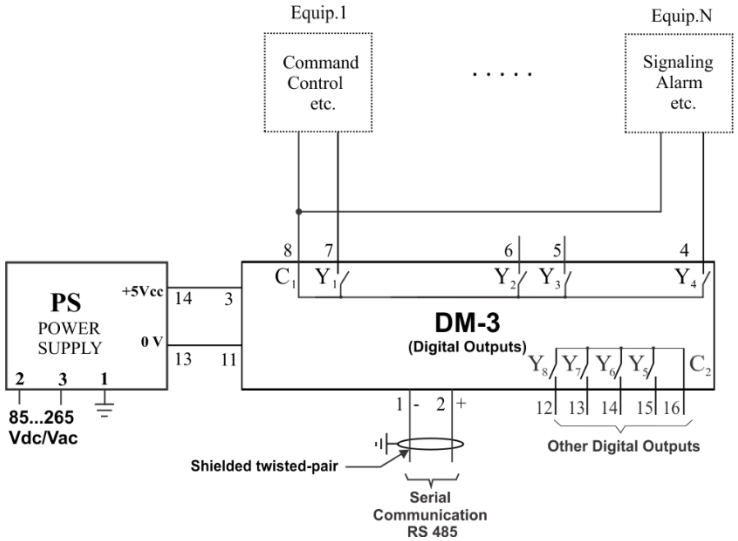
Digital input module 1 - DM 1



Analog input module 2 - DM 2



Digital output module 3 - DM 3



Notes:

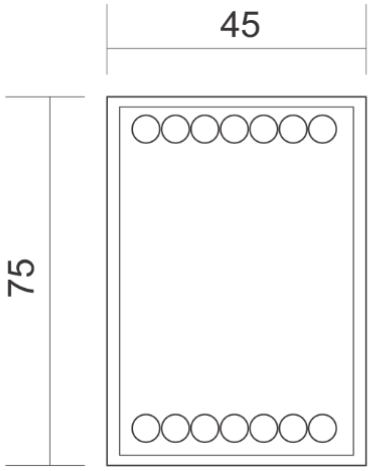
1) The above diagrams illustrate the connections of modules with 8 inputs or outputs. See DM technical manual for connection diagrams of modules with 16 and 24 inputs/outputs.

2) All DM3 contacts shown with the module de-energized.

3) The power supply module PS was formerly denominated FA-01.

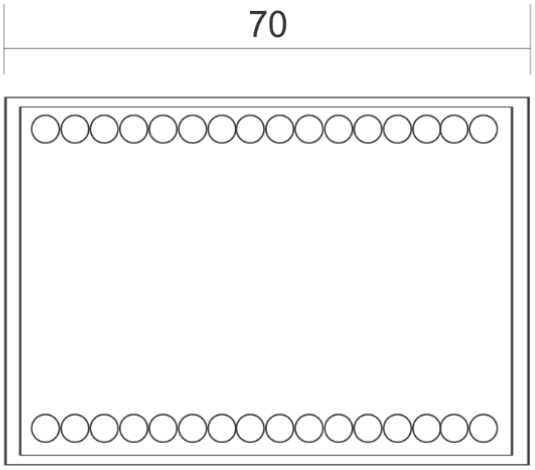
Dimensions

Module with 8 inputs/outputs and Power Supply PS



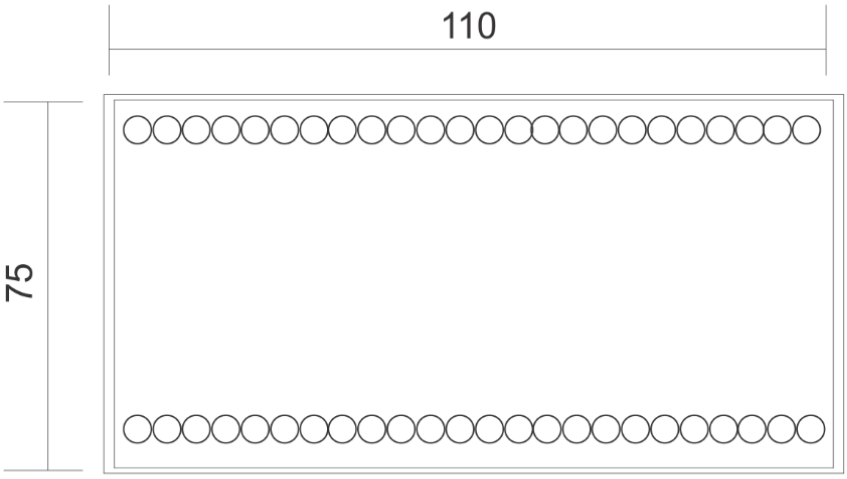
Front View

Module with 16 inputs/outputs

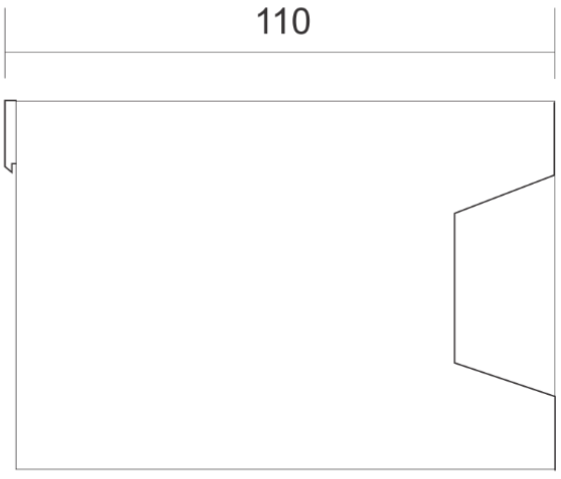


Front View

Module with 24 inputs/outputs



Front View



Side View

All dimensions in mm

Type Testing

Electrical transients Immunity (IEC 60255-6):	
• 1st cycle peak	2.5 kV
• frequency:	1.1 MHz
• time and repetition rate:	2 seconds, 400 surges/sec.
• decay to 50%:	5 cycles
Voltage Impulse (IEC 60255-5):	
• Wave form:	1,2 / 50 ms
• Amplitude and energy:	5kV, 0.5J
• Number of pulses:	3 negative e 3 positive, 5s interval
Insulation Voltage (IEC 60255-5):	
• Industrial frequency insulation voltage	2 kV 60Hz 1 min. to ground
Irradiated electromagnetic field Immunity (IEC 61000-4-3):	
• Frequency:	26MHz to 2 GHz
• Field intensity:	10 V/m
Electrostatic Discharge (IEC 60255-4-2):	
• Air mode:	8 kV, ten discharges per polarity
• Contact mode:	8 kV, ten discharges per polarity
Fast electrical transient immunity (IEC61000-4-4):	
• Power supply, inputs and outputs:	2 kV
• Serial communication port:	2 kV
Climatic test: (IEC 60068-2-14):	

• **Temperature range:**	-10 to +70ºC
• **Total test time:**	5,5 hours

Order Specification

By asking the Data Acquisition and Control Module Treetech - DM – it is necessary specify the quantity, the number of inputs / outputs, the type of analog inputs and the communication protocol.

Type	Inputs/Outputs	Analogic Inputs	Communication Protocol
1 – Digital Input	1 – 8	0 – Not Applicable	Modbus RTU (Standard)
2 – Analogic Input	2 – 16	1 – 0...1 mA	DNP 3.0 level 1 (Opt.)
3 – Digital Output	3 - 24	2 – 0...5 mA	
-	-	3 – 0...10mA	
-	-	4 – 0...20mA	

Power Supply PS (former designation FA-01)
Power Supply Module with 5V and 12V outputs

Example: Data Acquisition and Control Module with DM - 110 with protocol DNP3.0 level1

Treetech

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