domat
control system

M325	# Digital output module – 16 outputs with manual intervention

Summary

The M325 digital output module is a microprocessor-controlled, communicative 16 binary outputs module. It uses a RS485 bus with Modbus RTU for communication, and can be easily integrated in a variety of supervision and control systems.

Applications

- **HVAC and industrial control systems – binary signal control: fans, pumps, lights, 3rd party systems etc.**

Function

The M325 module hosts 16 independent open collector outputs to switch voltage up to 50 V DC, max. current 0,5 A. Usually small DC relays are connected to the outputs. They galvanically separate the power part and are able to switch low voltage circuits.

Each output may be manually overridden into ON or OFF position. Long push (> 1.5 s) of the corresponding button brings the output into manual mode, which is signalled by the yellow LED (hand symbol). Short pushes (< 1 s) toggle between ON and OFF states. The status is signalled by the green LED (digital output symbol). Another long push brings the output into automatic mode again and the output is controlled by the bus commands.

The manual mode and status are kept in EEPROM and restore after power up.

Removable connectors are used for incoming and outgoing data line so that mounting is fast and easy. The module mounts on a DIN 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 switching the BUS END DIP switch to ON. Two LEDs located inside of the housing enable fast diagnostics – power up and communication (Tx). Eight LEDs at the outputs indicate the status of each of the outputs separately.

To put the module to default settings, set the INIT DIP switch 4 to ON and power the module. The Modbus address will be 1, communication speed 9600 bps, 8 N 1. Then it is possible to readdress the module. When done, set the INIT switch to OFF and remove and apply power again.

Connection examples: see *domat - Technical application notes*.

All the settings are backed up in a EEPROM chip. The module is equipped with a watchdog circuit and the communication part is galvanically separated.

In the SoftPLC IDE engineering tool, define the M325 module as a M320. The MAN/AUT states are to be read by a separate generic variable, if necessary.

Technical data

Supply voltage	10 V ÷ 35 V DC, 14 V ÷ 24 V AC
Consumption	1500 mW
Working temperature of the module	0 ÷ 70°C
Communication	RS485, 1200 ... 115200 bit/s
Max. bus length	1200m
Max. number of modules on the bus	256
Number of binary outputs	16 open collector outputs
Nominal output load	0,5 A at 50 V DC
Dimensions	see below

Terminals
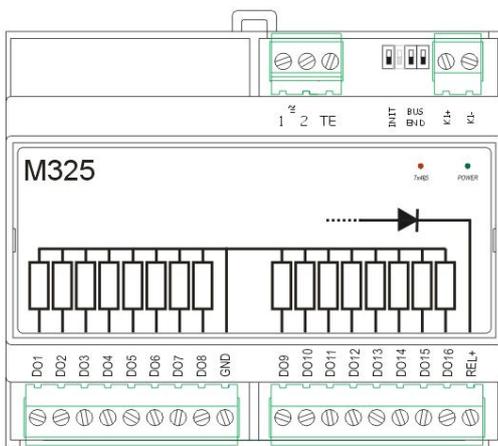
| Marking	Description
DO1 to DO16	transistor outputs (collectors)
REL+	terminal to connect the „+" potential to protect against peaks
GND	common transistor ground
1, 2	power supply, any polarity
TE	technical earth (optional)
K1+, K1-	communication bus
BUS END	terminating resistors DIP – active if switches 1 and 2 are set to ON
INIT	To put the module to INIT mode (bus address 1, baud rate 9600 bps 8N1) set the DIP switch 4 to ON and power up the module

Connection
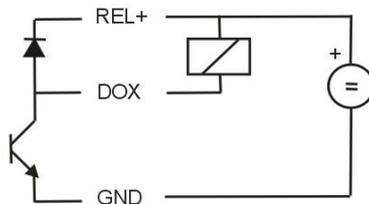
Recommended connection of the relay. Typical supply voltage for the relay is 24 V DC.

Internal diodes protect the transistors from voltage peaks. Connect the REL+ terminal and positive terminal of the power source for the relays.

Maximum current values

Maximum current values
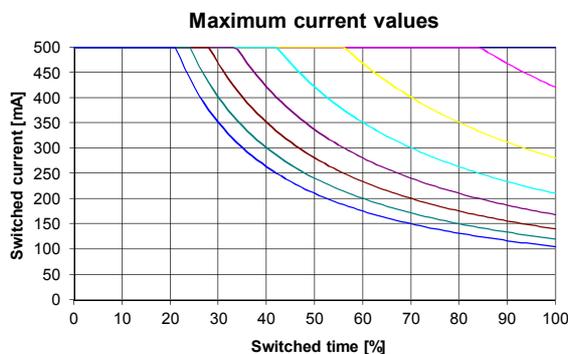
Relation between output current of the transistor, load in time, and number of outputs – for each 8 outputs separately (1-8 and 9-16).

E.g. for 4 outputs at 350 mA each, the total „on" time should not exceed 60%. At 100 mA, all outputs may be on all the time.

Dimensions