DigiRail-2R

Digital Outputs Module

INSTRUCTION MANUAL – V1.0x E

INTRODUCTION

DigiRail-2R Modbus Module for Digital Outputs is an electronic unit with two digital relay outputs. An RS485 serial interface allows you to configure and activate the outputs through the communication network. It is suitable for mounting on DIN rails 35 mm.

The outputs are electrically isolated from the serial interface and the module power supply. There is no electrical isolation between serial interface and power supply.

The **DigiRail-2R** configuration is performed over the RS485 interface, through Modbus RTU commands. The **DigiConfig** software allows you to configure and perform diagnostics of all **DigiRail-2R** features. **DigiConfig** offers features to detect the devices present in the Modbus network and configure the **DigiRail-2R** communication parameters.

This manual provides instructions for installing and connecting the module. The **DigiConfig** installer and documentation for the **DigiRail-2R** Modbus communication (*DigiRail-2R Communication Manual*) are available at www.novusautomation.com.

SPECIFICATIONS

Outputs: Two independent outputs with relay SPDT, 8 A @ 250 Vac or 8 A @ 30 Vcc (resistive load).

Timing for activating the output relays: 32 bits (up to 4.294.967.295 hundredths of seconds), optional and configurable for each relay.

Dielectric strength between open contacts: 1000 Vac

Power supply: 10 to 35 Vdc. Typical consumption: 90 mA @ 24 V. Internal protections against polarity inversion.

Electrical insulation between outputs and power supply/serial port: 2000 Vac

Serial communication: 2-wires RS485, Modbus RTU protocol. Configurable parameters: Communication speed: from 1200 to 115200 bps; Parity: even, odd or none.

Response time to the commands: 6 ms

Bounce time (NA / NC): 3 / 6 ms

Key for restoring communication parameters: The RCom key, located on the front panel, puts the device into diagnostic mode (Baud Rate 1200, parity even, 1 Stop Bit), able to be detected and configured by the **DigiConfig** software.

Frontal light indicators for communication and status:

- **TX**: Signals that the device is sending data on the RS485 line.
- **RX**: Signals that the device is receiving data on the RS485 line.
- **Status**: When permanently lit, signals that the device is in normal operation; when blinking every second (approximately), signals that the device is in diagnostic mode.

Configurator software in Windows environment: DigiConfig

Electromagnetic compatibility: EN 61326:2000

Operating temperature: 0 to 70 °C (32 to 158 °F)

Operational relative humidity: 0 to 90 % RH

Assembly: DIN rail 35 mm

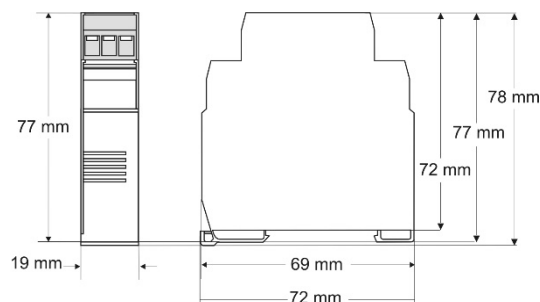**Dimensions:** The figure below shows the module dimensions:

Figure 1 – Dimensions

ELECTRICAL INSTALLATION

INSTALLATION RECOMMENDATIONS

- Electronic and analog signal conductors should run through the plant separately from the output and supply conductors. If possible, in grounded conduits.
- The power supply for electronic instruments must come from a network suitable for instrumentation.
- In control applications, you must consider what can happen when any part of the system fails.
- We recommend the use of RC FILTERS (47 Ω and 100nF, series) in parallel with contactor and solenoid coils which are close or connected to **DigiRail-2R**.

ELECTRICAL CONNECTIONS

Figure 2 shows the necessary electrical connections. Terminals 1, 2, 3, 7, 8 and 9 are for output connections, terminals 5 and 6 for the module supply, and terminals 10, 11 and 12 for the digital communication. For better electrical contact with the connectors, it is recommended to use pin terminals at the end of the conductors. For direct wire connection, the minimum recommended gauge is 0.14 mm² and must not exceed 4.00 mm².

> ⚠ Be careful when connecting the power supply terminals to the **DigiRail-2R**. If the positive conductor of the power supply source is connected, even momentarily, to one of the communication connection terminals, the module may be damaged.
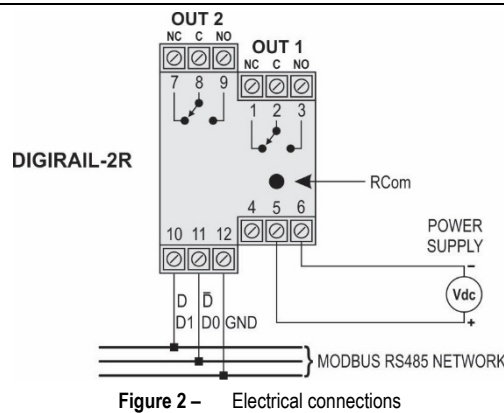

Figure 2 – Electrical connections

Table 1 shows how to connect the connectors to the RS485 communication interface:

D1	D	D+	B	Bidirectional data line.	Terminal 10
D0	$\overline{D}$	D-	A	Inverted bidirectional data line.	Terminal 11
C				Optional connection which improves the communication performance.	Terminal 12
GND					

Table 1 – RS485 connections

CONFIGURATION

DigiConfig is a program for Windows used to configure **DigiRail-2R** modules. To install it, just run the *DigiConfigSetup.exe* file, available on our website, and follow the instructions presented.

DigiConfig has a complete help file, which presents the information necessary for its use. To consult the help, start the application and select the "Help" menu, or press the F1 key.

To download the **DigiConfig** installer and additional product manuals, see www.novusautomation.com.

WARRANTY

Warranty conditions are available on our website www.novusautomation.com/warranty.