Chapter 2 – Overview

Overview

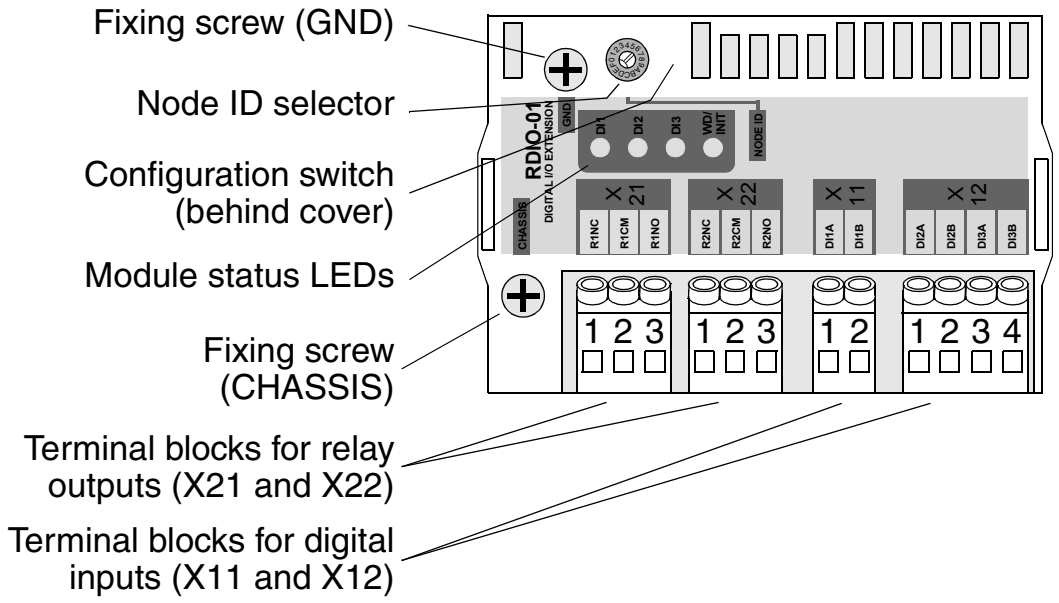
This chapter contains a short description of the Digital I/O Extension module, a delivery checklist and warranty information.

The RDIO-01 module

The Digital I/O Extension module (RDIO) offers three digital inputs (24…250 V DC or 110…230 V AC) and two relay outputs (1250 VA/250 V AC or 5 A/24 V DC). The isolation voltage between the digital inputs, digital outputs and power supply is 2.5 kV (1.5 kV between DI2 and DI3).

WARNING! According to international standards, applying voltages below 50 V (DC or AC) and above 150 V (AC or DC) simultaneously to the digital inputs and/or outputs of the RDIO-01 is not allowed. Additionally, only voltages of the same nominal level should be applied simultaneously to digital inputs DI2 and DI3 due to reduced isolation voltage.

Module layout



Delivery check The option package contains:

- RDIO-01 module
- Two screws (M3×8 mm)
- This manual.

Compatibility The RDIO-01 is compatible with the ACS 800 Standard Application Program version ASXR7000 or later.

Chapter 3 – Installation

WARNING! Follow the safety instructions given in this guide and in the *ACS 800 Hardware Manual.*

Mounting

The RDIO-01 is to be inserted into the position marked SLOT 1 or SLOT 2 on the drive. The module is held in place with plastic retaining clips and two screws. The screws also provide the earthing of the I/O cable shield connected to the module, and interconnect the GND signals of the module and the RMIO board.

On installation of the module, the signal and power connection to the drive is automatically made through a 38-pin connector.

Mounting procedure:

1. Insert the module carefully into SLOT 1 or SLOT 2 on the RMIO board until the retaining clips lock the module into position.
2. Fasten the two screws (included) to the stand-offs.
3. Remove the cover of the module enclosure – directions are given below.
4. Set the configuration DIP switches of the module to the required position and refit the cover.

Note: Correct installation of the screws is essential for fulfilling the EMC requirements and for proper operation of the module.

Removing and refitting the cover of the enclosure

To choose operating mode and input signal type, the cover of the module enclosure must be removed. This can be done by carefully bending the two cover retaining clips with a small screwdriver (see Figure 3-1) and lifting the cover off.

Refit the cover by pushing it back into its place until the retaining clips lock it into position.

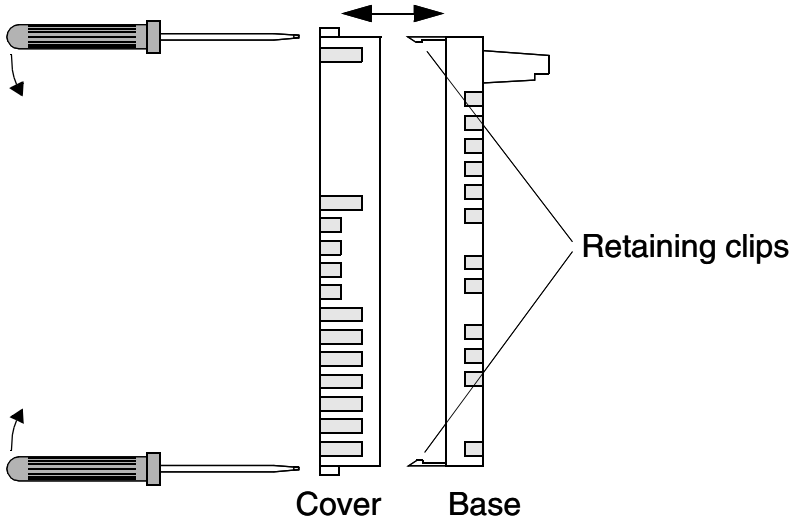


Figure 3-1 Removing and refitting the cover

Switches

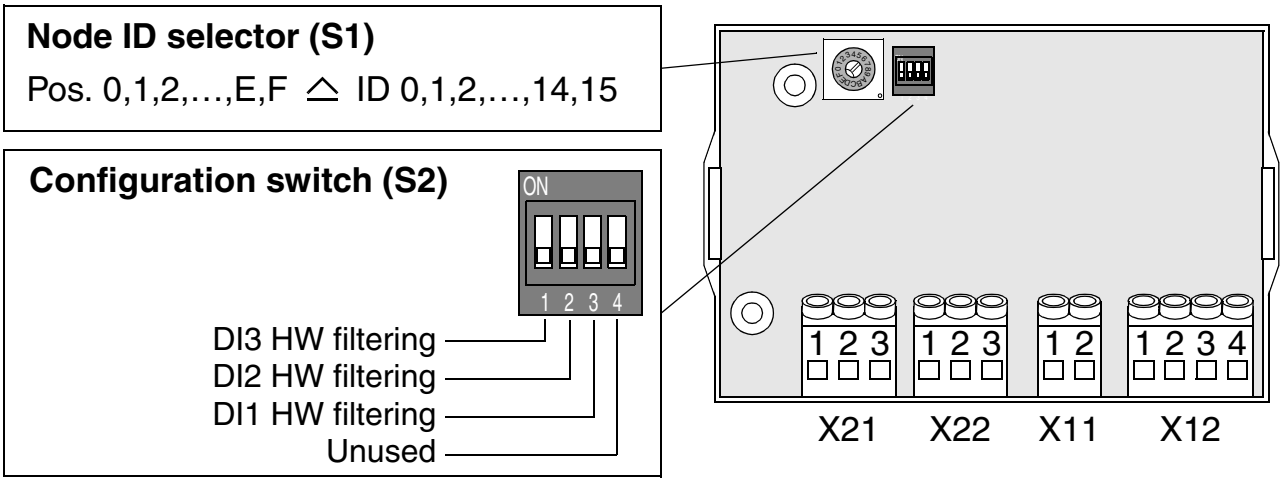
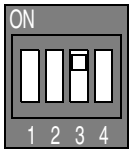
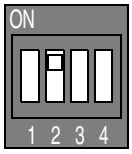
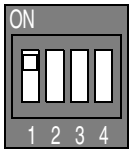
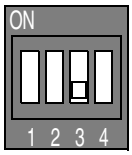
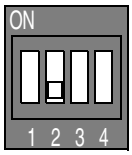
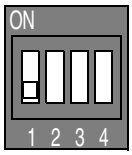


Figure 3-2 Top view of the module, cover removed

Digital input hardware filter suppression

For faster input signal detection with a DC signal, the hardware filter of the digital input in question can be disabled using the configuration DIP switch (S2) on the circuit board of the module. Disabling the hardware filtering will however reduce the noise immunity of the input.

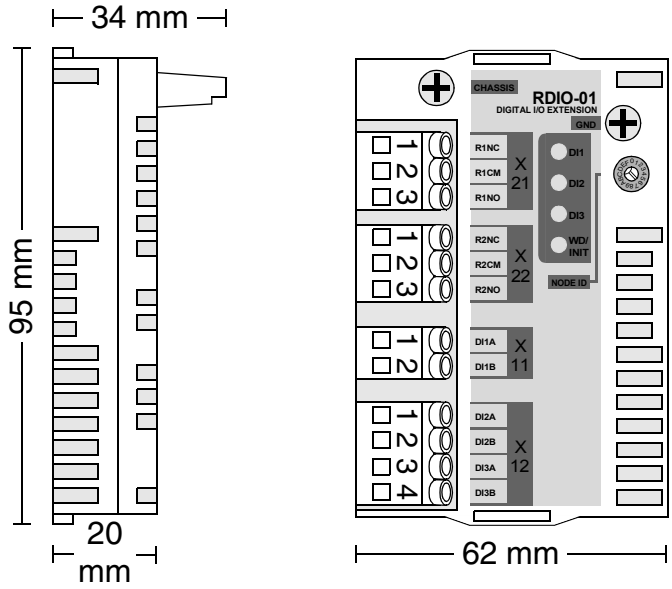
Hardware Filtering	**DIP switch settings**		
	Digital input DI1	**Digital input DI2**	**Digital input DI3**
Enabled (Default)			
Disabled			

Note: Always have the hardware filtering enabled with an AC input signal.

Note: Actuator no. 4 is unused.

Appendix A – Technical data

Dimensions:



Mounting: Into an option slot of the RMIO board of the drive or onto external I/O Module Adapter (AIMA-01).

Degree of protection: IP 20

Ambient conditions: The applicable ambient conditions specified for the drive in its *Hardware Manual* are in effect.

Hardware settings:

- Rotary switch for node ID selection (range: 1…15)
- One DIP switch for each digital input for disabling/ enabling hardware filtering

Connectors:

- 38-pin parallel bus connector
- Four (one 4-pole, one 2-pole, two 3-pole) non-detachable screw-type terminal blocks for max. 2.5 mm^2 wire.

Digital inputs:

- Input voltages: 24…250 V DC, 110…230 V AC
- Logic levels (DC): "0" < 8 V, "1" > 12 V
- Input currents: 4 mA (min), 10 mA (typical) at 24 V DC, 4 mA (typical) at 230 V AC
- Filtering time (selectable for all channels): ON: 5…10 ms , OFF: 2 ms
- Updating interval in the ACS 800 Standard Application Program: 12 ms (min.)
- Isolated from each other, the relay outputs, power supply and earth. Test voltages: 2.5 kV rms, 1 minute (DI1 and DI2+DI3); 1.5 kV rms, 1 minute (DI2 and DI3

Relay outputs:

- Max. contact voltage: 120 V DC, 250 V AC
- Max. contact current / power: 5 A, 24 V DC; 0.4 A, 120 V DC; 1250 VA, 250 V AC
- Max. continuous current: 2 A rms
- Minimum current: 5 mA, 24 V DC
- Contact material: Silver cadmium oxide (AgCdO)
- Contact protection: Varistor (250 V)
- Isolated from each other, the digital inputs, power supply and earth. Test voltage: 2.5 kV rms, 1 minute

General

- Max. power consumption:
  150 mA (5 V) + 30 mA (24 V)
  Both voltages supplied by the RMIO board
- Estimated min. lifetime: 100 000 h
- All materials UL/CSA-approved
- Complies with EMC standards EN 50081-2 and EN 50082-2