

smar
FIRST IN FIELDBUS

DF32 to DF40

FEB / 01
DF32 to DF40
VERSION 2.0

INSTALLATION MANUAL

DC INPUT AND RELAY OUTPUT MODULE



smar

web: www.smar.com

**Specifications and information are subject to change without notice.
For the latest updates, please visit the SMAR website above.**

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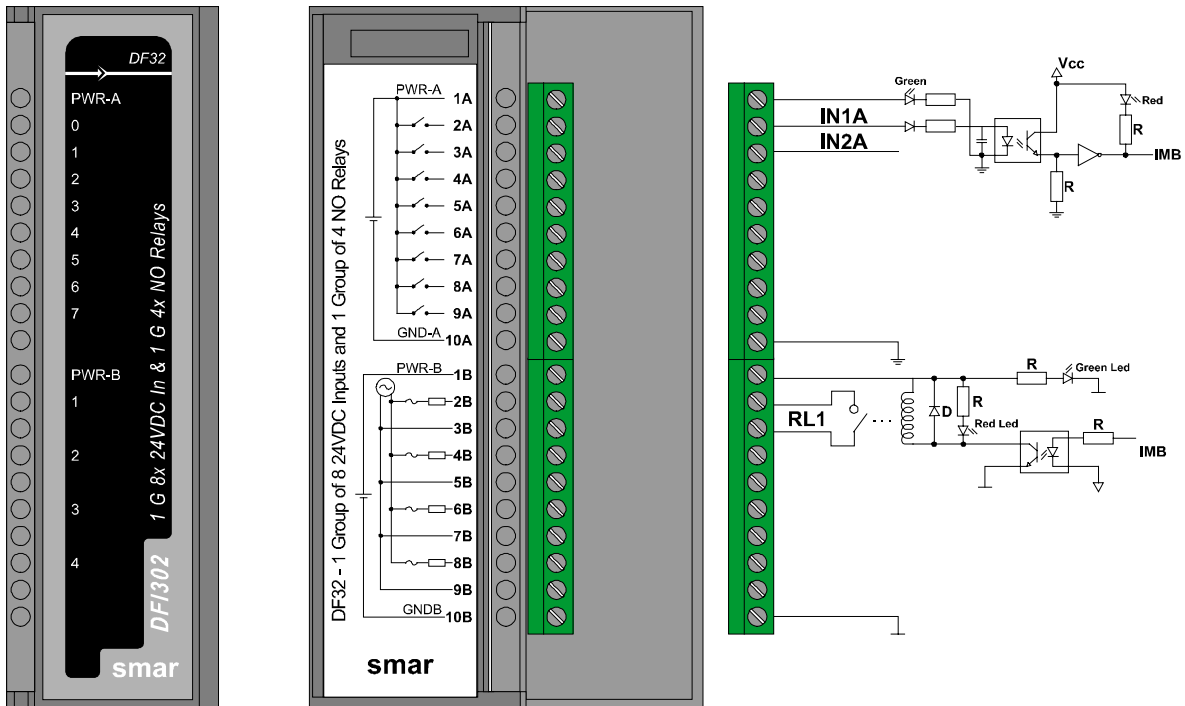
DC Input and Relay Output Module DF32 to DF40

- DF32 (1 group of 8 24 Vdc inputs and 1 group of 4 NO relay)
- DF33 (1 group of 8 48 Vdc inputs and 1 group of 4 NO relay)
- DF34 (1 group of 8 60 Vdc inputs and 1 group of 4 NO relay)
- DF35 (1 group of 8 24 Vdc inputs and 1 group of 4 NC relay)
- DF36 (1 group of 8 48 Vdc inputs and 1 group of 4 NC relay)
- DF37 (1 group of 8 60 Vdc inputs and 1 group of 4 NC relay)
- DF38 (1 group of 8 24 Vdc inputs and 1 group of 2 NO and 2 NC relay)
- DF39 (1 group of 8 48 Vdc inputs and 1 group of 2 NO and 2 NC relay)
- DF40 (1 group of 8 60 Vdc inputs and 1 group of 2 NO and 2 NC relay)

Description

This combo Module with DC Inputs and Relay Outputs is designed to drive relays, pilot lamps, valves and other loads up to 5 A and senses the DC input Voltage and converts them to a True or False logic signal.

It has 1 group of 8 optically isolated 24/48/60 Vdc inputs (DF32, DF35, M207/ DF33, DF36, DF39/ M-203, DF37, DF40) and 4 relay outputs (DF32 to DF40). The relays can drive loads ranging from 24 to 110 Vdc or from 24 to 250 Vac. Two screw terminals are reserved for each relay output, though they are isolated between them.



Technical specifications

Architecture	
Number of Groups	2
Number of Vdc Inputs	8
Number of Outputs	4

Isolation	
Groups are individually isolated.	
8 individually isolated relay contacts. The power supply for the groups are individually isolated.	
The driver for each relays is optically Isolated from IMB up to	5000 Vac

Internal Power	
Provided by the IMB bus	5 Vdc, @ 60 mA Typical
Total Maximum Dissipation	0.3 W
Indicator of source	None

For the VDC Inputs

Architecture	
Number of Points	8

Isolation	
Isolation up to	5000 Vac

External Power	
Voltage Source for Inputs	18-30 Vdc (DF32, DF35, DF38) 36-60 Vdc (DF33, DF36, DF39) 45-75 Vdc (DF34, DF37, DF40)
Typical Consumption	65 mA
Indicator of source	Green LED

Inputs	
Isolation up to	5000 Vac
ON State Level (True Logic)	15-30 Vdc (DF32, DF35, M207) 30-60 Vdc (DF33, DF36, M208) 38-75 Vdc (DF34, DF37, DF40)
OFF State Level (False Logic)	0-5 Vdc (DF32, DF35, DF38) 0-9 Vdc (DF33, DF36, DF39) 0-12 Vdc (DF34, DF37, DF40)
Typical Impedance	3K9 Ω (DF32, DF35, DF38) 7K5 Ω (DF33, DF36, DF39) 10K Ω (DF34, DF37, DF40)
Status display	Yellow LED
Indicator Logic	On when active
Typical Input current	7.5 mA

Switching Information	
Minimum Voltage (0 to 1)	15 Vdc (DF32, DF35, DF38) 30 Vdc (DF33, DF36, DF39) 38 Vdc (DF34, DF37, DF40)
Maximum Voltage (1 to 0)	5 Vdc (DF32, DF35, DF38) 9 Vdc (DF33, DF36, DF39) 12 Vdc (DF34, DF37, DF40)
Typical Hysteresis	10 Vdc (DF32, DF35, DF38) 21 Vdc (DF33, DF36, DF39) 26 Vdc (DF34, DF37, DF40)
Time from “0” to “1”	18 ms
Time from “1” to “0”	40 ms

For the Relay Outputs

Architecture	
Number of Outputs	4

Isolation	
Group is individually isolated.	Each Relay has two dedicated terminals.
Optical Isolation up to	5000 Vac before the Relay isolation itself.

External Power	
Voltage Source for each Group	20 – 30 Vdc
Maximum Current per Group	67 mA
Maximum Consumption per Point	16.8 mA
Indicator of Source per Group	Green LED

Outputs	
Vac Range	20 – 250 Vac
Vdc Range	20 – 110 Vdc
Maximum Current for 250 Vac	5 A
Maximum Current for 30 Vdc	5 A
Status display	Yellow LED
Indicator Logic	ON if the relay coil is active
Leakage	500 μ A @ 100 Vac

Switching Information	
R C Protection Circuit	62 Ω in series with 0.01 μ F
Time to activate	10 ms
Time to deactivate	10 ms

Electrical service life

Mechanic Switching Cycles	100.000 operations minimum @ 5 a 250 Vac
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Dimensions and Weight

Dimensions (WxHxD)	39.9x137.0x141.5 mm ; (1.57x5.39x5.57 in)
Weight	0.298 kg

Wire

One wire	14 AWG (2 mm ²)
Two wires	20 AWG (0.5 mm ²)

Note

To increase the service life of the contacts and to protect the module from potential reverse voltage damage, externally connect a clamping diode in parallel with each inductive DC load or connect an RC snubber circuit in parallel with each inductive AC load.