DF45

smar
FIRST IN FIELDBUS

INSTALLATION MANUAL

ANALOG INPUTS MODULE
TEMPERATURE / LOW LEVEL SIGNALS

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DF45

VERSION 2.0

DF45ME

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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AVOIDING ELECTROSTATIC DISCHARGES

ATTENTION

Electrostatic discharges may damage semiconductors electronics components found in the boards. Generally, they may occur when these components or connectors pins in the modules and racks are touch, without using any appropriated equipment to prevent the electrostatic discharges.

It is extremely recommendable the following procedures:

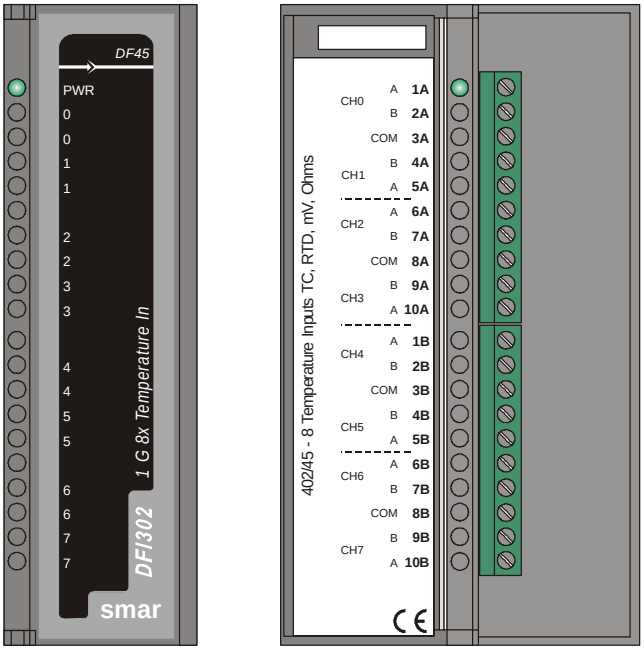
- Before handling the modules and racks, discharge the electrostatic charge found in the body through appropriated equipments or even touching grounded equipments;
- Avoid touching in the electronics components or in the connectors pins in the racks and modules.

DF45 - ANALOG INPUTS MODULE TEMPERATURE / LOW LEVEL SIGNALS

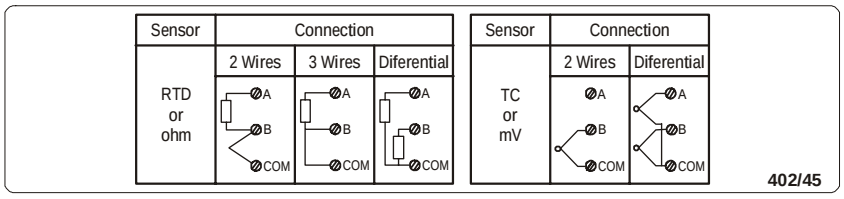
DF45 (1 Group of 8 Low Signal Analog Inputs for TC, RTD, mV and Ohm)

Description

This module is able to measure temperature from a large variety of Thermocouples (TC) and RTD's as well as millivolts and resistance with high accuracy. Temperature measurements are internally linearized and in the case of TC's a cold junction compensation is already built-in close to the terminals the module.



Note
In order to attend EMC standards, use shielded cables in signals inputs (ground the shield in the panel only in one side of the cable). The scale for Temperature Module is done using XD_SCALE parameter in AI and AO blocks respectively and a copy of this scale is done to TEMP transducer, in VALUE_RANGE_x parameters. In this particular case, the access to these parameters is read only. When using MAI or MAO, the VALUE_RANGE_x parameters are used to configuration and you should write to them.



Technical Specifications

Architecture	
Number of Inputs	8
Number of Groups	1
Number of Points per Group	8

Isolation	
Channel To Bus	Isolation up to 1500 Vrms

Internal Power	
Provided by the IMB bus	5 Vdc @ 35 mA Maximum, during operation
	5 Vdc @ 55 mA Maximum, during configuration
Total Maximum Dissipation	0.250 W
Indicator of source	Green LED

Inputs	
Typical Input Impedance	1 MΩ

A/D Conversion	
Conversion Time	90 ms/channel
Resolution	16 bits
Precision at 77 ºF (25 ºC)	0.05% of span for the ranges 3 and 6*
Effect of the ambient temperature	0.004% of maximum span/^{o}C

* 0.15 % of span for the ranges 2 and 5.

Dimensions and Weight	
Dimensions (W x D x H)	39.9 x 137.0 x 141.5 mm; (1.57 x 5.39 x 5.57 in.)
Weight	0.202 kg

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

Sensor	2 or 3 wires				Differential	
	Type		Range [°C]	Range[°F]	Range [°C]	Range [°F]
RTD	Cu10 GE		-20 a 250	-4 a 482	-270 a 270	-486 a 486
	Ni 120 DIN		-50 a 270	-58 a 518	-320 a 320	-576 a 576
	Pt50 IEC		-200 a 850	-328 a 1562	-1050 a 1050	-1890 a 1890
	Pt100 IEC		-200 a 850	-328 a 1562	-1050 a 1050	-1890 a 1890
	Pt500 IEC		-200 a 450	-328 a 842	-650 a 650	-1170 a 1170
	Pt50 JIS		-200 a 600	-328 a 1112	-800 a 800	-1440 a 1440
	Pt100 JIS		-200 a 600	-328 a 1112	-800 a 800	-1440 a 1440
THERMOCOUPLE	B	NBS	+100 a 1800	+212 a 3272	-1700 a 1700	-3060 a 3060
	E	NBS	-100 a 1000	-148 a 1832	-1100 a 1100	-1980 a 1980
	J	NBS	-150 a 750	-238 a 1382	-900 a 900	-1620 a 1620
	K	NBS	-200 a 1350	-328 a 2462	-1550 a 1550	-2790 a 2790
	N	NBS	-100 a 1300	-148 a 2372	-1400 a 1400	-2520 a 2520
	R	NBS	0 a 1750	32 a 3182	-1750 a 1750	-3150 a 3150
	S	NBS	0 a 1750	32 a 3182	-1750 a 1750	-3150 a 3150
	T	NBS	-200 a 400	-328 a 752	-600 a 600	-1080 a 1080
	L	DIN	-200 a 900	-328 a 1652	-1100 a 1100	-1980 a 1980
	U	DIN	-200 a 600	-328 a 1112	-800 a 800	-1440 a 1440

Sensor mV	2 wires	Differential	Range
	-6 a 22 mV	-28 a 28 mV	1
	-10 a 100 mV	-110 a 110 mV	2
	-50 a 500 mV	-550 a 550 mV	3
Sensor Ω	**2 or 3 wires**	**Differential**	**Range**
	0 a 100 Ω	-100 a 100 Ω	4
	0 a 400 Ω	-400 a 400 Ω	5
	0 a 2000 Ω	-2000 a 2000 Ω	6