

Data sheet

MCX20B

Programmable controller



MCX20B is fitted with or without graphic LCD display. It is an electronic controller that stands on the top of the MCX range, thanks to the large number of its inputs and outputs. It holds all the typical functionalities of MCX controllers:

- · programmability
- · connection to the CANbus local network
- up to two Modbus RS485 opto-insulated serial interface

Furthermore it is available in two models, powered at 110 / 230 V AC or 24 V AC.

Features MCX20B

- 16 analog and 22 digital inputs
- 6 analog and 20 digital outputs
- Power supply 24 V AC / 20/60 V DC and 110 V / 230 V AC
- Remote access to data through CANbus connection for additional display (LCD available) and keyboard
- RTC clock for managing weekly time programs and data logging information
- Up to two Modbus RS485 opto-insulated serial interface
- Available with graphic LCD display and without display for showing the desired information
- Dimensions 16 DIN modules



General features

FEATURES	DESCRIPTION		
Power supply	85 – 265 V AC, 50/60 Hz Maximum power consumption: 31 V A Insulation between power supply and the extra-low voltage: reinforced 20 – 60 V DC or 24 V AC ± 15%, 50/60 Hz SELV Maximum power consumption: 17 W, 25 V A Insulation between power supply and the extra-low voltage: functional Note: check the product number to determine the power supply type		
Plastic housing	DIN rail mounting complying with EN 60715 Self extinguishing V0 according to IEC 60695-11-10 and glowing / hot wire tes at 960 °C according to IEC 60695-2-12		
Ball test	125 °C according to IEC 60730-1 Leakage current: ≥ 250 V according to IEC 60112		
Operating conditions	CE: -20T60 / UL: 0T55, 90% RH non-condensing		
Storage conditions	-30T80, 90% RH non-condensing		
Integration	In Class I and / or II appliances		
Index of protection	IP40 only on the front cover		
Period of electric stress across insulating parts	Long		
Resistance to heat and fire	Category D		
Immunity against voltage surges	Category II		
Software class and structure	Class A		
Approvals	CE mark This product is designed to comply with the following EU standards: • Low voltage directive LVD 2014/35/EU: - EN60730-1: 2011 (Automatic electrical control for household and similar use. General requirements) - EN60730-2-9: 2010 (Particular requirements for temperature sensing controls) • Electromagnetic compatibility EMC directive 2014/30/EU: - EN 61000-6-3: 2007 +A1: 2011 (Emission standard for residential, commercial and light-industrial environments) - EN 61000-6-2: 2005 (Immunity for industrial environments) • RoHS directive 2011/65/EU and 2015/863/EU: - EN50581: 2012 UL approval: • UL file E31024		

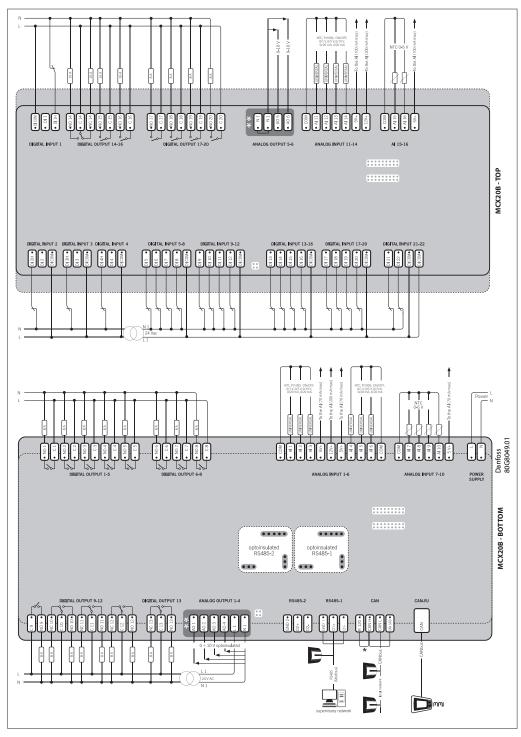


Input/output

I/O	TYPE	NUM	CDECIFICATIONS		
Analog	NTC	6	SPECIFICATIONS AI7, AI8, AI9, AI10, AI15, AI16		
inputs	0/1V		Inputs selectable via software between:		
	0/5V		• NTC temperature probes, default: 10 k Ω at 25 °C		
			pressure transducers with 0 / 5 V output		
		10	0/5V type: impedance is 18K Ω Also Also Also Also Also Also Also Also		
	Universal	10	AI1, AI2, AI3, AI4, AI5, AI6, AI11, AI12, AI13, AI14 Universal analog inputs selectable via software between:		
			ON/OFF (current: 20 mA)		
			• 0/1V,0/5V,0/10V		
			• 0/20 mA, 4/20 mA		
			 NTC (10 kΩ at 25 °C) Pt1000 		
			12 V+ power supply 12 V DC, 400 mA max for 4 / 20 mA transmitter		
			(total on all outputs)		
			5 V+ power supply 5 V DC, 410 mA max for 0 / 5 V transmitter (total on all outputs)		
			$0/5V$ type: impedance is $18K\Omega$		
Digital	24 V	22	0/10V type: impedance is 2K Ω DI1, DI2, DI3, DI4, DI5, DI6, DI7, DI8, DI9, DI10, DI11, DI12, DI13, DI14, DI15, DI16,		
inputs	optoins.	22	D117, D128, D13, D14, D13, D10, D17, D18, D19, D110, D111, D112, D113, D114, D113, D110,		
·	'		Inputs optoinsulated, 24 V AC / 50/60 Hz or 24 V DC		
			Rated current: 5 mA		
	230 V AC	4	DIH1, DIH2, DIH3, DIH4		
	optoins.		Inputs optoinsulated, 230 V AC / 50/60 Hz Basic insulation		
			Rated current: 2 mA at 230 V AC; 1 mA at 110 V AC		
			NOTE: when the 230 V AC DH1 input is used, the corresponding 24 V DI1 input is not available anymore; the same for the couple of inputs DIH2 and DI2, DIH3 and		
			DI3, DIH4 and DI4		
Analog	0/10V	6	AO1, AO2, AO3, AO4, AO5, AO6		
outputs			Analog outputs optoinsulated 0 / 10 V DC minimum load 1K Ω (10 mA) for each		
			output:		
			40 mA max totally on 6 outputs External power supply 24 V AC / V DC		
Digital	Relay	20	Concerning the insulation distance there are three groups of relays:		
output	liciay		• group 1: relays 1 to 8		
			• group 2: relays 9 to 13		
			group 3: relays 14 to 20 In relation to the company of the company of the street in relationship.		
			Insulation between relays of the same group: functional Insulation between relays of different groups: reinforced		
			Insulation between relays and the extra-low voltage parts: reinforced		
			Total current load limit: 123 A		
			C1-NO1, C2-NO2, C3-NO3, C4-NO4, C5-NO5, C6-NO6, C7-NO7, C8-NO8, C9-NO9,		
			C17-NO17, C18-NO18, C19-NO19, C20-NO20 Normally open contact relays 8 A		
			characteristics of each relay:		
			- 6 A 250 V AC for resistive loads - 100.000 cycles		
			- 4 A 250 V AC for inductive loads - 100.000 cycles with cos(phi) = 0.6		
			 UL: 240 V AC - 4 A resistive - 3.6 FLA - 21.6 LRA - 346 V A pilot duty 30.000 cycles C10-NO10-NC10, C11-NO11-NC11, C12-NO12-NC12, C13-NO13-NC13 		
			Changeover contacts relay 8 A		
			characteristics of each relay:		
			- 6 A 250 V AC for resistive loads - 100.000 cycles		
			- 4 A 250 V AC for inductive loads - 100.000 cycles with cos(phi) = 0.6		
			 UL: 240 V AC - 4 A resistive - 3.6 FLA - 21.6 LRA - 346 V A pilot duty 30.000 cycles C15-NO15, C16-NO16 		
			High inrush current (80 A - 20 ms) normally open contact relays 16 A		
			characteristics of each relay:		
			- 7 A 250 V AC for resistive loads - 100.000 cycles		
			 3.5 A 230 V AC for inductive loads - 230.000 cycles with cos(phi) = 0.5 UL: 240 V AC - 6 A resistive - 4.9 FLA - 29.4 LRA - 470 V A pilot duty 30.000 cycles 		
			C14-NO14-NC14		
			High inrush current (80 A - 20 ms) changeover contacts relay 16 A		
			characteristics of each relay:		
			- 7 A 250 V AC for resistive loads - 100.000 cycles		
			 3.5 A 230 V AC for inductive loads - 230.000 cycles with cos(phi) = 0.5 UL: 240 V AC - 6 A resistive - 4.9 FLA - 29.4 LRA - 470 V A pilot duty 30.000 cycles 		
			Using of device in case of Tamb = 70 °C has to be according to following		
			requirements:		
			- maximum load admitted for 8 A relay: 4 A 250 V AC		
			– maximum load admitted for 16 A relay: 5 A 250 V AC		



Connection diagram



*NOTE: connection has to be made on the first and last local network units, make the connection as close as possible to the connector
**NOTE: optoinsulated analog outputs voltages are referenced to contact N1

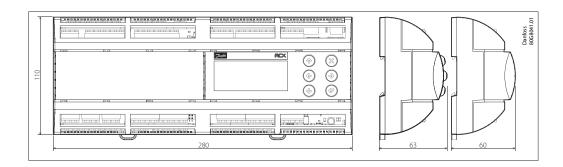


Connection

CONNECTORS	TYPE	DIMENSIONS
TOP BOARD		
Digital input 1	3 way screw plug-in connector type	• pitch 5 mm
connector	a may construct plants and an administration of the	• section cable 0.2 – 2.5 mm ²
Digital output	7 way screw plug-in connector type	• pitch 5 mm
14-16 connector		• section cable 0.2 – 2.5 mm ²
Digital output	8 way screw plug-in connector type	• pitch 5 mm
17-20 connector		• section cable 0.2 – 2.5 mm ²
Analog output 5-6 connector	4 way screw plug-in connector type	 pitch 5 mm section cable 0.2 – 2.5 mm²
Analog input	7 way screw plug-in connector type	• pitch 5 mm
11-14 connector	, way serew plug in connector type	• section cable 0.2 – 2.5 mm ²
Analog input	4 way screw plug-in connector type	• pitch 5 mm
15-16 connector		• section cable 0.2 – 2.5 mm ²
Digital input 2	3 way screw plug-in connector type	• pitch 5 mm
connector		• section cable 0.2 – 2.5 mm ²
Digital input 3	3 way screw plug-in connector type	pitch 5 mm
connector		• section cable 0.2 – 2.5 mm ²
Digital input 4	3 way screw plug-in connector type	• pitch 5 mm
connector		• section cable 0.2 – 2.5 mm ²
Digital input	5 way screw plug-in connector type	• pitch 5 mm
5-8 connector		• section cable 0.2 – 2.5 mm ²
Digital input 9-12 connector	5 way screw plug-in connector type	• pitch 5 mm
		• section cable 0.2 – 2.5 mm ²
Digital input 13-16 connector	5 way screw plug-in connector type	• pitch 5 mm
	Curan again alua in anna atautura	• section cable 0.2 – 2.5 mm ²
Digital input 17-20 connector	5 way screw plug-in connector type	 pitch 5 mm section cable 0.2 – 2.5 mm²
Digital input	4 way screw plug-in connector type	• pitch 5 mm
21-22 connector	way screw plag in connector type	• section cable 0.2 – 2.5 mm ²
BOTTOM BOARD		
Digital output	10 way screw plug-in connector type	• pitch 5 mm
1-5 connector	, , , , , , , , , , , , , , , , , , , ,	• section cable 0.2 – 2.5 mm ²
Digital output	6 way screw plug-in connector type	• pitch 5 mm
6-8 connector		• section cable 0.2 – 2.5 mm ²
Analog input	11 way screw plug-in connector type	• pitch 5 mm
1-6 connector		• section cable 0.2 – 2.5 mm ²
Analog input	6 way screw plug-in connector type	pitch 5 mm
7-10 connector		• section cable 0.2 – 2.5 mm ²
Power supply	2 way screw plug-in connector type	• pitch 5 mm
connector		• section cable 0.2 – 2.5 mm ²
Digital output 9-12 connector	11 way screw plug-in connector type	• pitch 5 mm
		• section cable 0.2 – 2.5 mm²
Digital output 13 connector	3 way screw plug-in connector type	 pitch 5 mm section cable 0.2 – 2.5 mm²
Analog output	6 way screw plug-in connector type	• pitch 5 mm
1-4 connector	o way screw plug in connector type	• section cable 0.2 – 2.5 mm ²
RS485 -2	3 way screw plug-in connector type	• pitch 5 mm
connector	, , , , , , , , , , , , , , , , , , , ,	• section cable 0.2 – 2.5 mm ²
RS485-1	3 way screw plug-in connector type	• pitch 5 mm
connector		• section cable 0.2 – 2.5 mm ²
CAN connector	4 way screw plug-in connector type	• pitch 5 mm
		• section cable 0.2 – 2.5 mm ²
CAN-RJ	6/6 way telephone RJ12 plug type	
connector		



Dimensions



User interface

TYPE	FEATURES	DESCRIPTION	
LCD	Display STN blue transmissive		
display	Backlight	White LED backlight adjustable via software	
	Contrast	Adjustable via software	
	Format	128 x 64 dots	
	Active visible area	58 x 29 mm	
Keyboard	Number of keys	6	
	Keys function	Set by the application software	

Product part numbers

DESCRIPTION	CODE NO.
MCX20B, 230V, LCD, RS485, RTC, S	080G0045
MCX20B, 24V, LCD, 2XRS485, RTC, S	080G0057
MCX20B, 24V, 2XRS485, RTC, S	080G0059
MCX20B, 230V, LCD, RS485, RTC, I (12 pieces)	080G0139
MCX20B, 24V, RTC, I (12 pieces)	080G0142

Note: single pack codes (S) include standard kit connectors, industrial pack codes (I) don't include standard kit connectors

Accessories part numbers

DESCRIPTION	CODE NO.
MCX20B CONNECTORS KIT	080G0182

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