Danfoss

Technical brochure

Programmable controller MCX06C

Danfoss' range of universal MCX programmable controllers offers the functionality and reliability you need to get the best out of your heating, ventilation, air-conditioning and refrigeration (HVAC/R) equipment. With the MCX range, Danfoss is widening the concept of programmability and applying it to as many environments as possible

MCX06C is an electronic controller that holds all the typical functionalities of MCX controllers in the 32x74 mm standard size: programmability, connection to the CANbus local network, Modbus RS485 serial interface

Features MCX06C

- 4 analog and 6 digital inputs
- 2 analog and 6 digital outputs
- Insulated power supply 20/60 Vdc - 24 Vac
- Easy upload of application software through CANbus connection for programming key
- 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
- Modbus RS485 serial interface
- Display LED with 2 groups of digits for showing the desired information in one screen
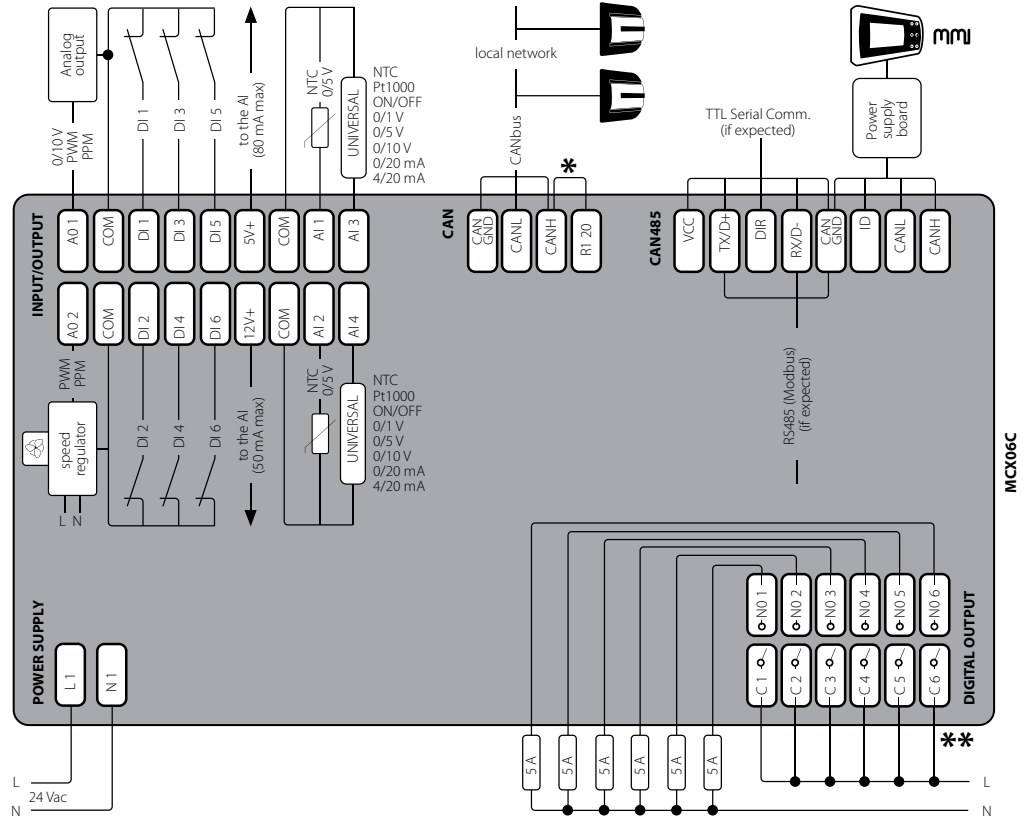- Dimensions 33x75mm
- Panel mounting

Programmable	Protection degree	CAN bus	MYK connection	Modbus RS485
PRG	IP64	CAN		485

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General features

FEATURES	DESCRIPTION
Power supply	20/60 Vdc and 24 Vac ±15% 50/60 Hz. Maximum power consumption: 6 W, 9 VA
	Insulation between power supply and the extra-low voltage: functional
Plastic housing	Self extinguishing V0 according to IEC 60695-11-10 and glowing/hot wire test 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	IP64 ~ NEMA3R 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 I
Software class and structure	Class A

Approvals	CE compliance:
	This product is designed to comply with the following EU standards:
	- Low voltage guideline: 73/23/EEC
	- Electromagnetic compatibility EMC: 89/336/EEC and with the following norms:
	  • EN61000-6-1, EN61000-6-3
	    (immunity for residential, commercial and light-industrial environments)
	  • EN61000-6-2, EN61000-6-4
	    (immunity and emission standard for industrial environments)
	  • EN60730 (Automatic electrical controls for household and similar use)

	UL approval: - UL file E31024

Inputs/outputs

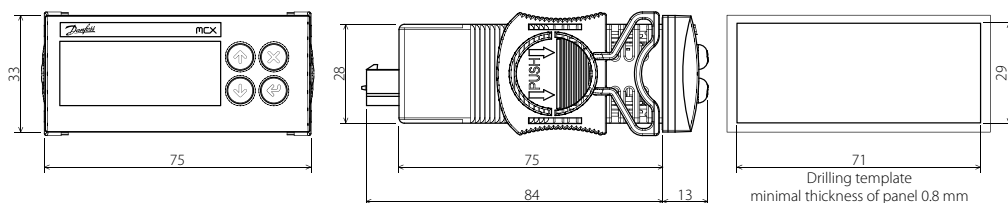| I/O	TYPE	NUM	SPECIFICATIONS
Analog inputs	NTC, 0/1 V, 0/5 V	2	AI1, AI2 Analog inputs selectable via software between: - NTC temperature probes, default: 10 kΩ at 25 °C - pressure transducers with 0/5 V output
	Universal	2	AI3, AI4 Universal analog inputs selectable via software between: - ON/OFF (current: 20 mA) - 0/1 V, 0/5 V, 0/10 V - 0/20 mA, 4/20 mA - NTC (10 kΩ at 25 °C) - Pt1000 12 V+ power supply 12 Vdc, 50 mA max for 4/20 mA transmitter (total on all outputs) 5 V+ power supply 5 Vdc, 80 mA max for 0/5 V transmitter (total on all outputs)
Digital input	Voltage free contact	6	DI1, DI2, DI3, DI4, DI5, DI6 Current consumption: 5 mA

Analog outputs	0/10 V, PWM, PPM	1	AO1
			Analog output selectable via software between:
			- pulsing output, synchronous with the line, at modulation of impulse position (PPM) or modulation of impulse width (PWM):
			  • open circuit voltage: 6.8 V
			  • minimum load: 1 kΩ
			- pulsing output, at modulation of impulse position (PPM) with range from 100 Hz to 500 Hz:
			  • open circuit voltage: 6.8 V
			  • minimum load: 1 kΩ
			- 0/10 Vdc non optoinsulated output, referred to the ground
			  • 10 mA maximum loads

	PWM, PPM	1	AO2
			Analog output selectable via software between:
			- pulsing output, synchronous with the line, at modulation of impulse position (PPM) or modulation of impulse width (PWM):
			  • open circuit voltage: 6.8 V
			  • minimum load: 1 kΩ
			- pulsing output, at modulation of impulse position (PPM) with range from 100 Hz to 500 Hz:
			  • open circuit voltage: 6.8 V
			  • minimum load: 1 kΩ

Digital output	Relay	6	Insulation between relays: functional (common lines internally connected)
			Insulation between relays and the extra-low voltage parts: reinforced
			Total current load limit: 6 A
			C1-NO1, C2-NO2, C3-NO3, C4-NO4, C5-NO5, C6-NO6
			Normally open contact relays
			- characteristics of each relay:
			  • 4 A 30 Vdc / 250 Vac for resistive load - 100.000 cycles
			  • 0,7 A 250 Vac for inductive load - 100.000 cycles with cos(phi) = 0,5
			  • UL: 240 Vac - 1 A resistive - 1.0 FLA - 6.0 LRA - 96 VA pilot duty 30.000 cycles

Connection diagram
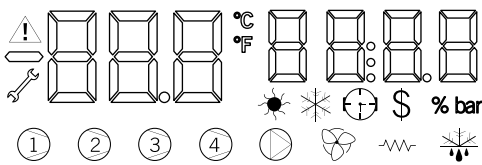

*NOTE: connection has to be made on the first and last local network units, make the connection as close as possible to the connector
**NOTE: C1, C2, C3, C4, C5, C6 internally connected between themselves

Connection

CONNECTORS	TYPE	DESCRIPTION
Input and output connector	18 way Molex Microfit type (43025-1800) crimping contact type	- Molex: (43030-0001) section cable AWG20-24 (0.52-0.20 mm²) - Molex: (43030-0004) section cable AWG26-30 (0.13-0.05 mm²) - Instrument for the Molex crimp code 69008-0982 (20-24 AWG) - Instrument for the Molex crimp code 69008-0983 (26-30 AWG)
CAN connector	4 way Molex Wire-to-board type (87369-0400) crimping contact type	- Molex: (50212-8000) section cable AWG24-30 (0.20-0.05 mm²) - Instrument for the Molex crimp code 63811-1200
CAN/485 connector	8 way Molex Wire-to-board type (87369-0800) crimping contact type	- Molex: (50212-8000) section cable AWG24-30 (0.20-0.05 mm²) - Instrument for the Molex crimp code 63811-1200
Power supply connector	2 way Molex KK type (09-50-8021) crimping contact type	- Molex: (08-50-0105) section cable AWG18-24 (0.82-0.20 mm²) - Molex: (08-50-0107) section cable AWG22-26 (0.32-0.13 mm²) - Instrument for the Molex crimp code 69008-0953
Digital output 1-6 connector	12 way Molex Minifit Jr. type (39-01-2125) crimping contact type	- Molex: (39-00-0077) section cable AWG16 (1.30 mm²) - Molex: (39-00-0038) section cable AWG18-24 (0.82-0.20 mm²) - Molex: (39-00-0046) section cable AWG22-28 (0.32-0.08 mm²) - Instrument for the Molex crimp code 69008-0724

Dimensions

Drilling template
minimal thickness of panel 0.8 mm

User interface

TYPE	FEATURES	DESCRIPTION
LED display	Display	LED display with two groups of digits and 18 icons
	Digits	Green colour
	Allarm/warning icons	Red colour
	Other icons	Yellow/amber colour
	Meaning of the icons and digits	Settled by the application software
	Dimensions	45x17 mm
Keyboard	Number of keys	4
	Keys function	Set by the application software

Ordering

DESCRIPTION	CODE NR.
MCX06C, 24V, LED, S	080G0065
MCX06C, 24V, LED, RS485, RTC, S	080G0066

(S): Single Pack
Note: Single pack do not include standard kit connectors
Industrial pack codes are avaliable on request (these do not include standard kit connectors)

Accessories

DESCRIPTION	CODE NR.
MCX06C CONNECTORS KIT	080G0175
ACCCNX, WIRED CONNECTORS KIT FOR MCX06C, 1m CABLE	080G0081
ACCCNX, WIRED CONNECTORS KIT FOR MCX06C, 2m CABLE	080G0082
ACCCNX, WIRED CONNECTORS KIT FOR MCX06C, 1m MARKED CABLE	080G0170
ACCCNX, WIRED CONNECTORS KIT FOR MCX06C, 2m MARKED CABLE	080G0171