

GENERAL FEATURES

MCX06D is fitted with LED display, graphic LCD display, or without display. It is an electronic controller that holds all the typical functionalities of MCX controllers in the compact size of 4 DIN modules: programmability, connection to the CANbus local network, Modbus RS485 serial communication interface.

MCX06D	
ANALOG INPUTS	
NTC, 0/1 V, 0/5 V, selectable via software	2
Universal NTC, Pt1000, 0/1 V, 0/5 V, 0/10 V, ON/OFF, 0/20 mA, 4/20 mA, selectable via software	2
Total number	4
DIGITAL INPUTS	
Voltage free contact	8
Total number	8
ANALOG OUTPUTS	
0/10 V DC, PWM, PPM selectable via software	2
PWM, PPM selectable via software	1
Total number	3
DIGITAL OUTPUTS	
SPST relay 5 A (normally open contacts)	5
SPDT relay 8 A (changeover contacts)	1
Total number	6
OTHERS	
Insulated power supply 20/60 V DC - 24 V AC	-
Connection for programming key	-
Connection for remote display and keyboard	-
Buzzer	-
CANbus	-
RTC clock	-
Modbus RS485 serial interface	-
Dimensions (DIN modules)	4
Mounting	DIN rail



GENERAL FEATURES AND WARNINGS

- PLASTIC HOUSING FEATURES**
- DIN rail mounting complying with EN 60715
 - Self-extinguishing I0 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
- OTHER FEATURES**
- Operating conditions CE -20/60 / UL: 0T55, 90% RH non-condensing
 - Storage conditions: -30/180, 90% RH non-condensing
 - To be integrated in Class I and/or II appliances
 - Index of protection: IP40 only on the front cover
 - Period of electric stress across insulating parts: long
 - Suitable for using in a normal pollution environment
 - Category of resistance to heat and fire: D
 - Immunity against voltage surges: category I
 - Software class and structure: class A
- 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

- GENERAL WARNINGS**
- Every use that is not described in this manual is considered incorrect and is not authorised by the manufacturer
 - Verify that the installation and operating conditions of the device respect the ones specified in the manual, specially concerning the supply voltage and environmental conditions
 - This device contains live electrical components therefore all the service and maintenance operations must be performed by qualified personnel
 - The device can't be used as a safety device
 - Liability for injury or damage caused by the incorrect use of the device lies solely with the user

- INSTALLATION WARNINGS**
- Mounting position recommended: vertical
 - The installation must be executed according to the local standards and legislation of the country
 - Always operate on the electrical connections with the device disconnected from the main power supply
 - Before carrying out any maintenance operations on the device, disconnect all the electrical connections
 - For safety reasons the appliance must be fitted inside an electrical panel with no live parts accessible
 - Don't expose the device to continuous water sprays or to relative humidity greater than 90%
 - Avoid exposure to corrosive or pollutant gases, natural elements, environments where explosives or mixes of flammable gases are present, dust, strong vibrations or shock, large and rapid fluctuations in ambient temperature that in combination with high humidity can condensate, strong magnetic and/or radio interference (e.g. transmitting antennae)
 - When connecting loads beware of the maximum current for each relay and connector
 - Use cable ends suitable for the corresponding connectors. After tightening the screws of connectors, slightly tug the cables to check their tightness
 - Use appropriate data communication cables. Refer to the Installation Guide "MCX hardware network specification" for the kind of cable to be used and setup recommendations
 - Reduce the path of the probe and digital input cables as much as possible, and avoid spiral paths enclosing power devices. Separate from inductive loads and power cables to avoid possible electromagnetic noises
 - Avoid touching or nearby touching the electronic components fitted on the board to avoid electrostatic discharges

- DISPOSAL INSTRUCTION**
- Equipment containing electrical components may not be disposed together with domestic waste. It must be separately collected with electrical and electronic waste according to local and valid legislation.

Instruction sheet

Electronic controller MCX06D



DKRCC.PI.RI0.B3.1U



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TECHNICAL SPECIFICATIONS

POWER SUPPLY

- 20/60 V DC and 24 V AC $\pm 15\%$ 50/60 Hz, Maximum power consumption 6 W, 9 VA
- Insulation between power supply and the extra-low voltage: functional

I/O	TYPE	NUMBER	SPECIFICATIONS
Digital outputs	Relay	6	Insulation between relays 1 to 5: functional Insulation between relay 6 and the other relays: reinforced Insulation between relays and the extra-low voltage parts: reinforced Total current load limit: 33 A C1-NO1, C2-NO2, C3-NO3, C4-NO4, C5-NO5 Normally open contact relays 5 A: - characteristics of each relay: 5 A 30 V DC / 250 V AC for resistive loads - 100,000 cycles 0.7 A 250 V AC for inductive load - 100,000 cycles with $\cos(\phi) = 0.5$ UL: 250 V AC - 3 A resistive - 1.5 FLA - 9.0 LRA - 144 VA pilot duty 30,000 cycles NC6-C6-NO6 Changeover contacts relay 8 A: - characteristics of each relay: 8 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 - 6 A resistive - 4.9 FLA - 29.4 LRA - 470 VA pilot duty 30,000 cycles
Digital inputs	Voltage free contact	8	DI1, DI2, DI3, DI4, DI5, DI6, DI7, DI8 Current consumption: 5 mA

I/O	TYPE	NUMBER	SPECIFICATIONS
Analog outputs	0/10 V, PWM, PPM	2	AO1, AO2 Analog outputs 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 k Ω - pulsing output, at modulation of impulse width (PWM) with range 100 Hz to 500 Hz; open circuit voltage: 6.8 V minimum load: 1 k Ω - 0/10 V DC non optoisolated output, referred to the ground: 10 mA maximum loads
	PWM, PPM	1	AO3 Analog outputs 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 k Ω - pulsing output, at modulation of impulse width (PWM) with range 100 Hz to 500 Hz; open circuit voltage: 6.8 V minimum load: 1 k Ω
Analog inputs	NTC, 0/1 V, 0/5 V	2	AI1, AI2 Analog inputs selectable via software between: - NTC temperature probes, default: 10 k Ω 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 k Ω at 25 °C) - Pt1000 12 V+ power supply 12 V DC, 50 mA max for 4/20 mA transmitter (total on all outputs) 5 V+ power supply 5 V DC, 80 mA max for 0/5 V transmitter (total on all outputs)

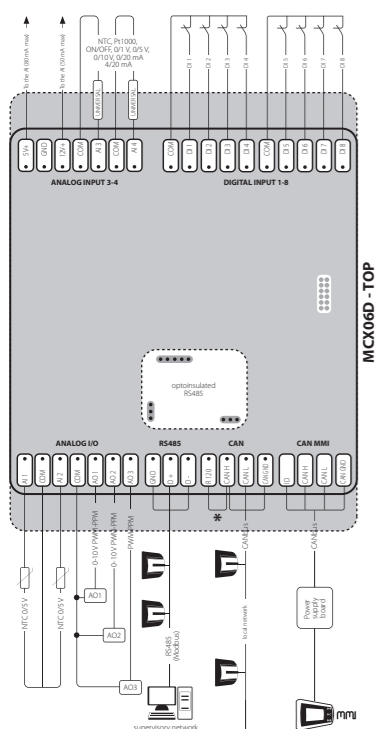
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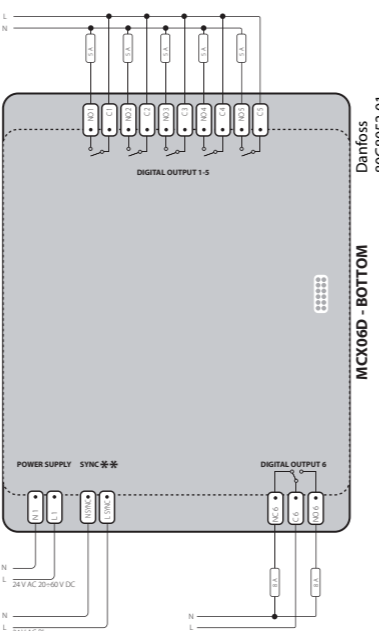
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CONNECTION DIAGRAM

TOP BOARD



BOTTOM BOARD



*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: when AO is used as synchronised output, the sync input must be in phase with the load on AO

Instruction sheet

Electronic controller MCX06D



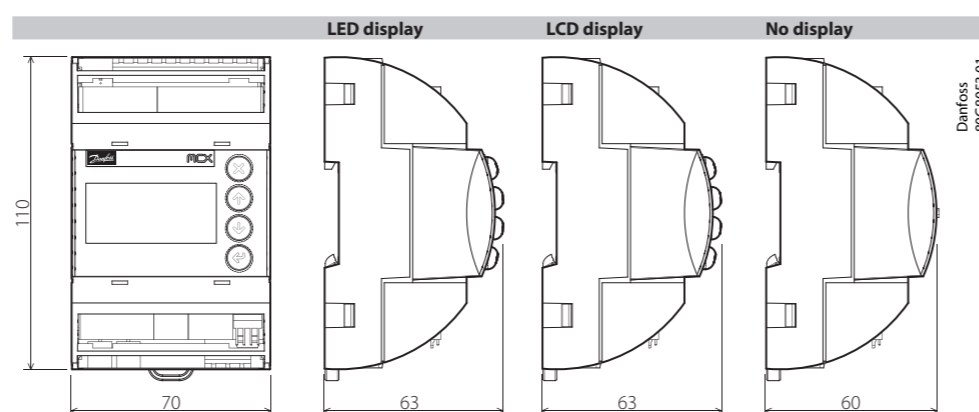
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DIMENSIONS



USER INTERFACE

- LED DISPLAY**
- type: LED display with two groups of digits and 18 icons
 - colour of digits: green
 - colour of the alarm/warning icons: red
 - colour of the other icons: yellow/amber
 - the meaning of the icons is settled by the application software
 - dimensions: 45x17 mm
- LCD DISPLAY**
- display mode: STN blue transmissive
 - backlight: white LED backlight adjustable via software
 - display format: 98x64 dots
 - active visible area: 29.4x19.2 mm
 - contrast: adjustable via software
- KEYBOARD**
- number of keys: 4
 - keys function is settled by the application software

PRODUCT PART NUMBERS

CODE	DESCRIPTION
080G0111	MCX06D, 24V, LCD, Single Pack
080G0112	MCX06D, 24V, LCD, RS485, RTC, Single Pack
080G0115	MCX06D, 24V, RS485, RTC, Single Pack
080G0165	MCX06D, 24V, LED, RS485, RTC, Industrial Pack (32 pieces)
080G0166	MCX06D, 24V, LCD, Industrial Pack (32 pieces)
080G0167	MCX06D, 24V, LCD, RS485, RTC, Industrial Pack (32 pieces)
080G0168	MCX06D, 24V, Industrial Pack (32 pieces)
080G0169	MCX06D, 24V, RS485, RTC, Industrial Pack (32 pieces)