

Data sheet

# MCX06D

## Programmable controller



MCX06D is fitted with 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 opto-insulated serial interface

### Features MCX06D

- 4 analog and 8 digital inputs
- 3 analog and 6 digital outputs
- Power supply 20 / 60 V DC - 24 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
- Modbus RS485 opto-insulated serial interface
- Available with graphic LCD display or without display for showing the desired information
- Dimensions 4 DIN modules

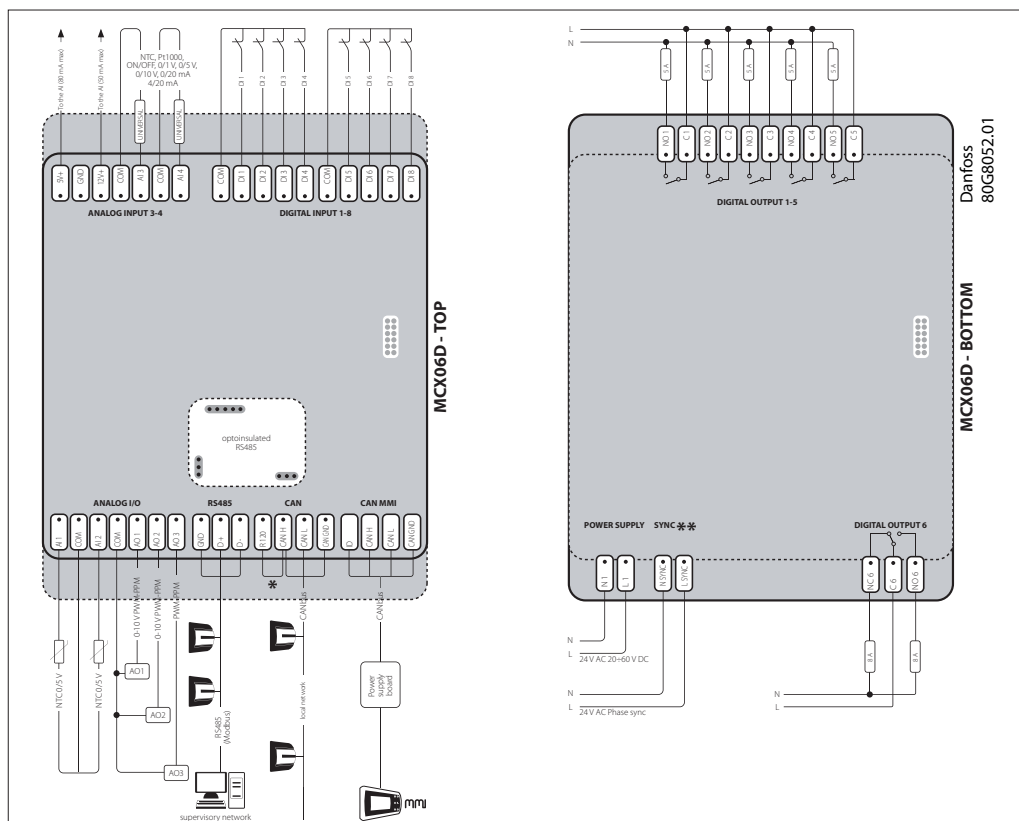
**General features**

FEATURES	DESCRIPTION
Power supply	20 / 60 V DC and 24 V AC $\pm$ 15% 50/60 Hz SELV Maximum power consumption: 6 W, 9 V A
	Insulation between power supply and the extra-low voltage: functional
Plastic housing	DIN rail mounting complying with EN 60715
	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: $\geq$ 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 I
Software class and structure	Class A
Approvals	CE mark This product is designed to comply with the following EU standards: <ul style="list-style-type: none"> <li>• Low voltage directive LVD 2014/35/EU: <ul style="list-style-type: none"> <li>– EN60730-1: 2011 (Automatic electrical control for household and similar use. General requirements)</li> <li>– EN60730-2-9: 2010 (Particular requirements for temperature sensing controls)</li> </ul> </li> <li>• Electromagnetic compatibility EMC directive 2014/30/EU: <ul style="list-style-type: none"> <li>– EN 61000-6-3: 2007 +A1: 2011 (Emission standard for residential, commercial and light-industrial environments)</li> <li>– EN 61000-6-2: 2005 (Immunity for industrial environments)</li> </ul> </li> <li>• RoHS directive 2011/65/EU and 2015/863/EU: <ul style="list-style-type: none"> <li>– EN50581: 2012</li> </ul> </li> </ul>
	UL approval: <ul style="list-style-type: none"> <li>• UL file E31024</li> </ul>

## Input/output

I/O	TYPE	NUM	SPECIFICATIONS
Analog inputs	NTC 0 / 1 V 0 / 5 V	2	<b>AI1, AI2</b> Analog inputs selectable via software between: <ul style="list-style-type: none"> <li>• NTC temperature probes, default: 10 k<math>\Omega</math> at 25 °C</li> <li>• pressure transducers with 0 / 5 V output</li> <li>• 0/5V type: impedance is 18K <math>\Omega</math></li> </ul>
	Universal	2	<b>AI3, AI4</b> Universal analog inputs selectable via software between: <ul style="list-style-type: none"> <li>• ON/OFF (current: 20 mA)</li> <li>• 0 / 1 V, 0 / 5 V, 0 / 10 V</li> <li>• 0 / 20 mA, 4 / 20 mA</li> <li>• NTC (10 k<math>\Omega</math> at 25 °C)</li> <li>• Pt1000</li> </ul> 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) 0/5V type: impedance is 18K $\Omega$ 0/10V type: impedance is 2K $\Omega$
Digital input	Voltage free contact	8	<b>DI1, DI2, DI3, DI4, DI5, DI6, DI7, DI8</b> Current consumption: 5 mA
Analog outputs	0 / 10 V PWM PPM	2	<b>AO1, AO2</b> Analog outputs selectable via software between: <ul style="list-style-type: none"> <li>• pulsing output, synchronous with the line, at modulation of impulse position (PPM) or modulation of impulse width (PWM):               <ul style="list-style-type: none"> <li>– open circuit voltage: 6.8 V</li> <li>– minimum load 1K <math>\Omega</math> (10 mA)</li> </ul> </li> <li>• pulsing output, at modulation of impulse width (PWM) with range 100 – 500 Hz:               <ul style="list-style-type: none"> <li>– open circuit voltage: 6.8 V</li> <li>– minimum load 1K <math>\Omega</math> (10 mA)</li> </ul> </li> <li>• 0 / 10 V DC non optoinsulated output, referred to the ground               <ul style="list-style-type: none"> <li>– minimum load 1K <math>\Omega</math> (10 mA)</li> </ul> </li> </ul>
	PWM, PPM	1	<b>AO3</b> Analog output selectable via software between: <ul style="list-style-type: none"> <li>• pulsing output, synchronous with the line, at modulation of impulse position (PPM) or modulation of impulse width (PWM):               <ul style="list-style-type: none"> <li>– open circuit voltage: 6.8 V</li> <li>– minimum load 1K <math>\Omega</math> (10 mA)</li> </ul> </li> <li>• pulsing output, at modulation of impulse width (PWM) with range 100 – 500 Hz:               <ul style="list-style-type: none"> <li>– open circuit voltage: 6.8 V</li> <li>– minimum load 1K <math>\Omega</math> (10 mA)</li> </ul> </li> </ul>
Digital output	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 <b>C1-NO1, C2-NO2, C3-NO3, C4-NO4, C5-NO5</b> Normally open contact relays 5 A <ul style="list-style-type: none"> <li>• characteristics of each relay:               <ul style="list-style-type: none"> <li>– 5 A 30 V DC / 250 V AC for resistive loads - 100.000 cycles</li> <li>– 0.7 A 250 V AC for inductive load - 100.000 cycles with <math>\cos(\phi) = 0.5</math></li> <li>– UL: 250 V AC - 3 A resistive - 1.5 FLA - 9.0 LRA - 144 V A pilot duty 30.000 cycles</li> </ul> </li> </ul> <b>NC6-C6-NO6</b> Changeover contacts relay 8 A <ul style="list-style-type: none"> <li>• characteristics of each relay:               <ul style="list-style-type: none"> <li>– 8 A 250 V AC for resistive loads - 100.000 cycles</li> <li>– 4 A 250 V AC for inductive loads - 100.000 cycles with <math>\cos(\phi) = 0.6</math></li> <li>– UL: 240 V AC - 6 A resistive - 4.9 FLA - 29.4 LRA - 470 V A pilot duty 30.000 cycles</li> </ul> </li> </ul>

Connection diagram



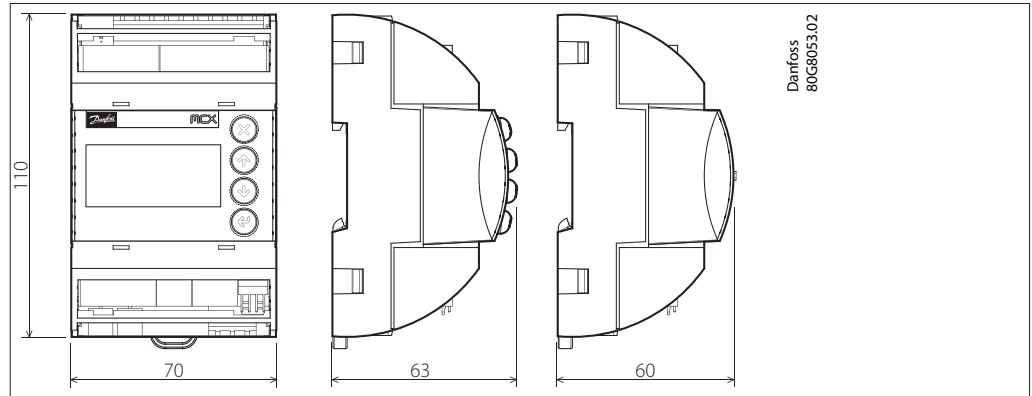
\*NOTE: connection has to be made on the first and last local network units, make the connection as close as possible to the connector

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

Connection

CONNECTORS	TYPE	DIMENSIONS
<b>TOP BOARD</b>		
Analog input 3-4 connector	7 way screw plug-in connector type	<ul style="list-style-type: none"> <li>pitch 3.5 mm</li> <li>section cable 0.08 – 1.5 mm<sup>2</sup></li> </ul>
Digital input 1-8 connector	10 way screw plug-in connector type	<ul style="list-style-type: none"> <li>pitch 3.5 mm</li> <li>section cable 0.08 – 1.5 mm<sup>2</sup></li> </ul>
Analog I/O connector	7 way screw plug-in connector type	<ul style="list-style-type: none"> <li>pitch 3.5 mm</li> <li>section cable 0.08 – 1.5 mm<sup>2</sup></li> </ul>
RS485 connector	3 way screw plug-in connector type	<ul style="list-style-type: none"> <li>pitch 3.5 mm</li> <li>section cable 0.08 – 1.5 mm<sup>2</sup></li> </ul>
CAN connector	4 way screw plug-in connector type	<ul style="list-style-type: none"> <li>pitch 3.5 mm</li> <li>section cable 0.08 – 1.5 mm<sup>2</sup></li> </ul>
CAN MMI connector	4 way Connection 2515 Series type (2515-2041) crimping contact type: Connection (2500-2001) instrument for the crimp type 1190-1298	<ul style="list-style-type: none"> <li>section cable AWG22-28 (0.32 – 0.08 mm<sup>2</sup>)</li> </ul>
<b>BOTTOM BOARD</b>		
Digital output 1-5 connector	10 way screw plug-in connector type	<ul style="list-style-type: none"> <li>pitch 5 mm</li> <li>section cable 0.2 – 2.5 mm<sup>2</sup></li> </ul>
Power supply connector	2 way screw plug-in connector type	<ul style="list-style-type: none"> <li>pitch 3.5 mm</li> <li>section cable 0.08 – 1.5 mm<sup>2</sup></li> </ul>
Sync connector	2 way screw plug-in connector type	<ul style="list-style-type: none"> <li>pitch 3.5 mm</li> <li>section cable 0.08 – 1.5 mm<sup>2</sup></li> </ul>
Digital output 6 connector	3 way screw plug-in connector type	<ul style="list-style-type: none"> <li>pitch 5 mm</li> <li>section cable 0.2 – 2.5 mm<sup>2</sup></li> </ul>

## Dimensions



## User interface

TYPE	TYPE FEATURES	DESCRIPTION
LCD display	Display	STN blue transmissive
	Backlight	White LED backlight adjustable via software
	Contrast	Adjustable via software
	Format	98 x 64 dots
	Active visible area	29.4 x 19.2 mm
Keyboard	Number of keys	4
	Keys function	Set by the application software

## Product part numbers

DESCRIPTION	CODE NO.
MCX06D, 24V, LCD, S	080G0111
MCX06D, 24V, LCD, RS485, RTC, S	080G0112
MCX06D, 24V, RS485, RTC, S	080G0115
MCX06D, 24V, LCD, I (32 pieces)	080G0166
MCX06D, 24V, LCD, RS485, RTC, I (32 pieces)	080G0167
MCX06D, 24V, RS485, RTC, I (32 pieces)	080G0169

*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.
MCX06D/EXC06D CONNECTORS KIT	080G0179