

Data Sheet

Programmable controller, 6 relays

Type **MCX06C**

Electronic controller suitable for all HVAC/R software application needs.



MCX06C is an electronic controller that holds all the typical functionalities of MCX controllers in the 32 x 74 mm standard size:








- programmability
- connection to the CANbus local network
- Modbus RS485 serial interface

Features:

- 4 analog and 6 digital inputs
- 2 analog and 6 digital outputs
- Insulated power supply 20 / 60 V DC - 24 V AC
- 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 33 x 75 mm
- Panel mounting

Portfolio overview

Table 1: Portfolio overview

| MCX family | MCX06C | MCX06D | MCX061V | MCX08M2 | MCX152V | MCX15B2 | MCX20B2 |
|--|---|---|---|---|--|---|---|
| Product image |  |  |  |  |  |  |  |
| Power supply | 24 V | 24 V | 24 V or 110/230 V | 24 V or 110/230 V | 24 V or 110/230 V | 24/110/230 V | 24/110/230 V |
| Built-in display (optional) | LED | LCD | LCD | LCD | LCD | LCD | LCD |
| Analog Inputs | 4 | 4 | 7 | 8 | 14 | 10 | 16 |
| Digital Inputs | 6 | 8 | 8 | 8 | 18 | 22 | 22 |
| Analog Outputs | 2 | 3 | 3 | 4 | 6 | 6 | 6 |
| Digital Outputs | 6 | 6 | 6 | 8 | 15 | 15 | 20 |
| EXV driver embedded | | | 1 | | 2 | | |
| RS485 | 1 | 1 | 1 | 1 | 2 | 1 | 2 |
| CANbus | • | • | • | • | • | • | • |
| Ethernet / Web server | | | optional | | optional | • | • |
| USB/Memory Card | | | • | | • | • | • |
| Dimensions (1 DIN module = 17,5 mm) | 33 x 75 mm | 4 DIN | 8 DIN | 8 DIN | 16 DIN | 16 DIN | 16 DIN |

Product specification

General features

Table 2: 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 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: \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 | 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 II |
| Software class and structure | Class A |

Input/Output

Table 3: Analog inputs

| Type | Num | Specifications |
|---------------------------|-----|--|
| NTC 0 / 1 V 0 / 5 V | 2 | AI1, AI2 Analog inputs selectable via software between: <ul style="list-style-type: none"> • NTC temperature probes, default: 10 kΩ at 25 °C • Pressure transducers with 0/5 V output • 0/5V type: impedance is 18 kΩ |
| Universal | 2 | AI3, AI4 Universal analog inputs selectable via software between: <ul style="list-style-type: none"> • 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 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 18 k Ω 0/10V type: impedance is 2 k Ω |

Table 4: Digital inputs

| Type | Num | Specifications |
|----------------------|-----|--|
| Voltage free contact | 6 | DI1, DI2, DI3, DI4, DI5, DI6 Current consumption: 5 mA |

Table 5: Analog outputs

| Type | Num | Specifications |
|------------------------|-----|---|
| 0 / 10 V PWM PPM | 1 | AO1 Analog output selectable via software between: <ul style="list-style-type: none"> • pulsing output, synchronous with the line, at modulation of impulse position (PPM) or modulation of impulse width (PWM): <ul style="list-style-type: none"> ◦ open circuit voltage: 6.8 V ◦ minimum load: 1 kΩ • pulsing output, at modulation of impulse width (PWM) with range 100 – 500 Hz: <ul style="list-style-type: none"> ◦ open circuit voltage: 6.8 V ◦ minimum load: 1 kΩ • 0 / 10 V DC non optoinsulated output, referred to the ground <ul style="list-style-type: none"> ◦ minimum load 1 kΩ (10 mA) |
| PWM PPM | 1 | AO2 Analog output selectable via software between: <ul style="list-style-type: none"> • pulsing output, synchronous with the line, at modulation of impulse position (PPM) or modulation of impulse width (PWM): <ul style="list-style-type: none"> ◦ open circuit voltage: 6.8 V ◦ minimum load 1 kΩ (10 mA) • pulsing output, at modulation of impulse width (PWM) with range 100 – 500 Hz: <ul style="list-style-type: none"> ◦ open circuit voltage: 6.8 V ◦ minimum load 1 kΩ (10 mA) |

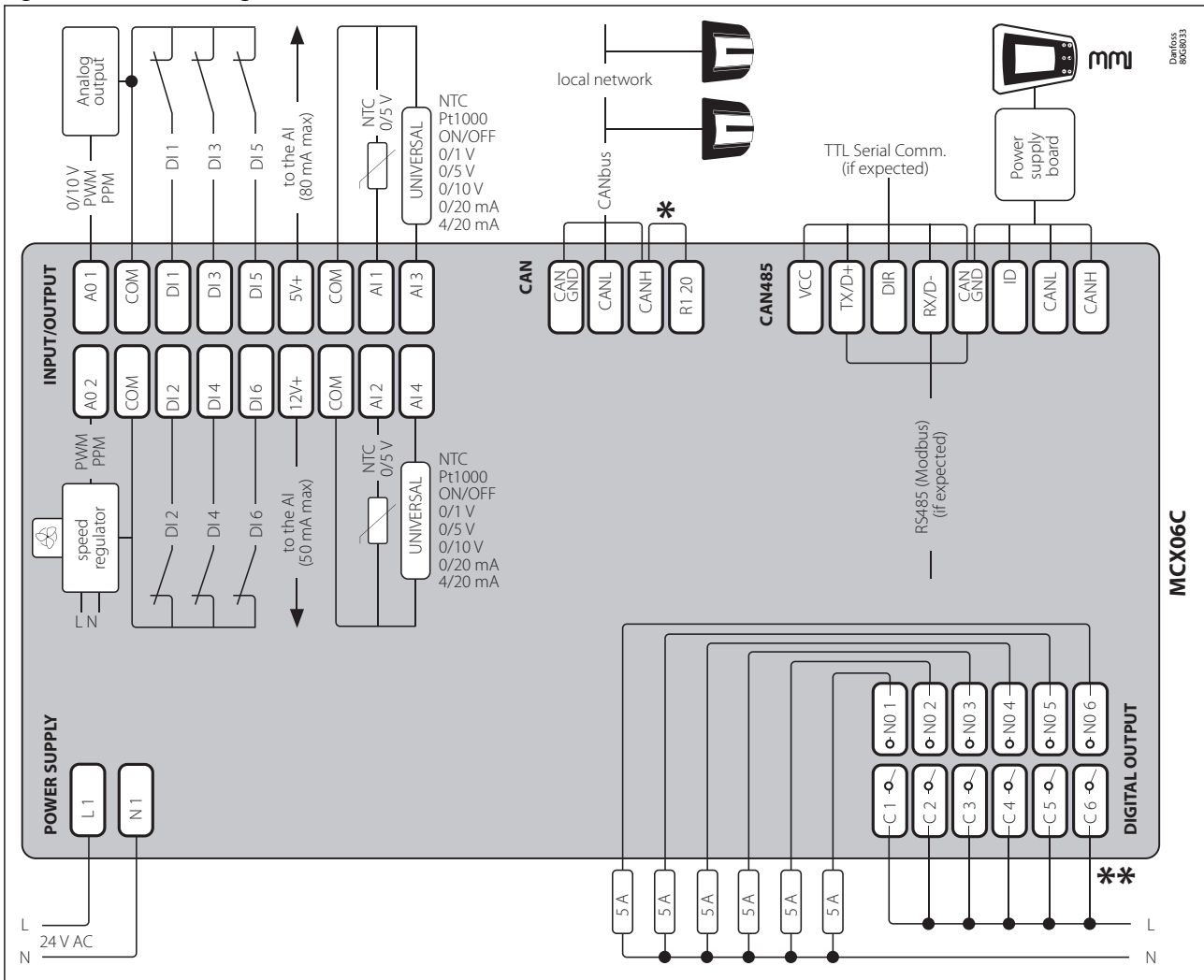
Programmable controller, 6 relays, type MCX06C

Table 6: Digital outputs

| Type | Num | Specifications |
|-------|-----|---|
| 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: <ul style="list-style-type: none"> • 4 A 30 V DC / 250 V AC for resistive load - 100.000 cycles • 0.7 A 250 V AC for inductive load - 100.000 cycles with cos(phi) = 0.5 • UL: 240 V AC - 1 A resistive - 1.0 FLA - 6.0 LRA - 96 V A pilot duty 30.000 cycles |

Connection diagram

Figure 1: 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.

** C1, C2, C3, C4, C5, C6 internally connected between themselves.

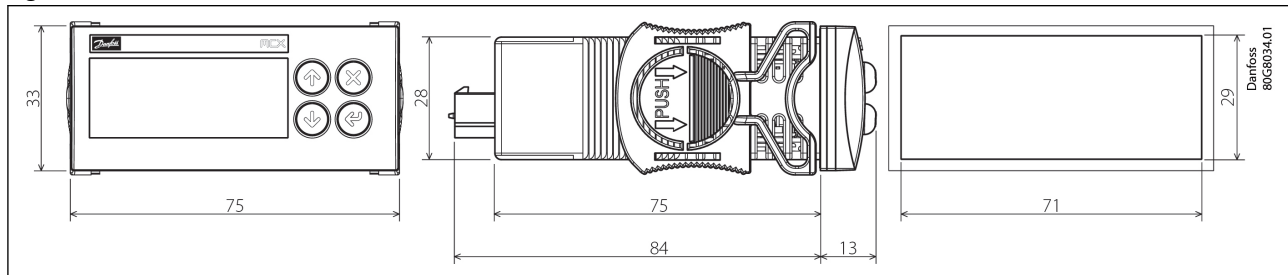
Connection

Table 7: Connection

| Connectors | Type | Dimensions |
|------------------------------|---|--|
| Input and output connector | 18 way Molex Microfit type (43025-1800) crimping contact type | <ul style="list-style-type: none"> 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 | <ul style="list-style-type: none"> 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 | <ul style="list-style-type: none"> 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 | <ul style="list-style-type: none"> 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 | <ul style="list-style-type: none"> 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

Figure 2: Dimensions



User interface

Figure 3: Display

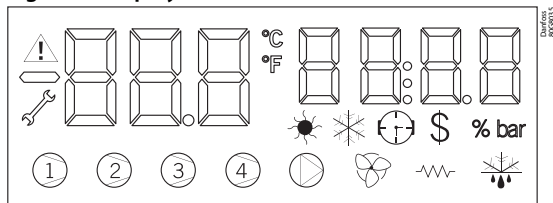


Table 8: User interface

| Type | Features | Description |
|-------------|---------------------------------|-------------------------------------|
| LCD display | Digits | Green colour |
| | Alarm/warning icons | Red colour |
| | Other icons | Yellow / amber colour |
| | Meaning of the icons and digits | Settled by the application software |
| | Dimensions | 45 x 17 mm |
| Keyboard | Number of keys | 4 |
| | Keys function | Set by the application software |

Ordering

Product part numbers

Table 9: Product part numbers

| Description | Code No. |
|--|----------|
| MCX06C, 24 V, LED, RS485, RTC, S | 080G0066 |
| MCX06C, 24 V, LED, RS485, RTC, I (36 pieces) | 080G0107 |

i NOTE:

Single pack codes (S) don't include standard kit connectors, industrial pack codes (I) don't include standard kit connectors.

Accessories part number

Table 10: Accessories part number

| Description | Code No. |
|--|----------|
| MCX06C Connectors Kit | 080G0175 |
| ACCCNX, Wired Connectors Kit for MCX06C, 1 m Cable | 080G0081 |
| ACCCNX, Wired Connectors Kit for MCX06C, 2 m Cable | 080G0082 |

Certificates, declarations, and approvals

The list contains all certificates, declarations, and approvals for this product type. Individual code number may have some or all of these approvals, and certain local approvals may not appear on the list.

Some approvals may change over time. You can check the most current status at danfoss.com or contact your local Danfoss representative if you have any questions.

Table 11: Certificates, declarations, and approvals

| File name | Document type | Document topic | Approval authority |
|-------------|---------------------------------|--|--------------------|
| 080R2097.01 | EU Declaration of conformity | EMC directive 2014/30/EU: EN61000-6-3: 2007 +A1:2011 EN61000-6-2: 2005 LVD directive 2014/35/EU: EN60730-1: 2011 EN60730-2-9: 2010 RoHS directive 2011/65/EU and 2015/863/EU: EN 50581: 2012 | Danfoss |
| UL E31024 | Electrical - Safety Certificate | - | UL |

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