

## CARATTERISTICHE GENERALI

MCX06D è disponibile nelle versioni con display LCD grafico o senza display. E' un controllo elettronico programmabile sviluppato nelle dimensioni compatte di 4 moduli DIN che racchiude al suo interno tutte le funzionalità tipiche dei controlli MCX: programmabilità, possibilità di collegamento in rete locale CANbus e seriale di comunicazione Modbus RS485.

		MCX06D
<b>INGRESSI ANALOGICI</b>		
NTC, 0/1 V, 0/5 V, configurabili da software		2
Universali NTC, Pt1000, 0/1 V, 0/5 V, 0/10 V, ON/OFF, 0/20 mA, 4/20 mA, configurabili da software		2
<b>Numero totale</b>		<b>4</b>
<b>INGRESSI DIGITALI</b>		
Contatto pulito		8
<b>Numero totale</b>		<b>8</b>
<b>USCITE ANALOGICHE</b>		
0/10 V DC, PWM, PPM configurabili da software		2
PWM, PPM configurabili da software		1
<b>Numero totale</b>		<b>3</b>
<b>USCITE DIGITALI</b>		
SPST relè 5 A (contatti normalmente aperti)		5
SPDT relè 8 A (contatti in scambio)		1
<b>Numero totale</b>		<b>6</b>
<b>VARIE</b>		
Alimentazione isolata 20/60 V DC / 24 V AC		-
Connessione per chiave di programmazione		-
Connessione per terminale tastiera remoto		-
Buzzer		-
CANbus		-
Orologio RTC		-
Seriale Modbus RS485		-
Dimensioni (moduli DIN)		4
Montaggio		Barra DIN



## DATI TECNICI

## ALIMENTAZIONE

- 20/60 V DC e 24 V AC  $\pm$  15% 50/60 Hz SELV. Massima potenza assorbita: 6 W, 9 VA
- Isolamento garantito dall'alimentazione rispetto alla bassissima tensione funzionale

I/O	TIPO	NUMERO	CARATTERISTICHE
Uscite digitali	Relè	6	<ul style="list-style-type: none"> <li>Isolamento tra i relè da 1 a 5: funzionale</li> <li>Isolamento tra i relè 6 e gli altri relè: rinforzato</li> <li>Isolamento tra i relè e la bassissima tensione: rinforzato</li> <li>Carico massimo totale contemporaneo: 33 A</li> <li><b>C1-N01, C2-N02, C3-N03, C4-N04, C5-N05</b></li> <li>Relè da 5 A con contatto normalmente aperto: <ul style="list-style-type: none"> <li>- caratteristiche di carico di ogni relè: <ul style="list-style-type: none"> <li>5 A 30 V DC / 250 V AC per carichi resistivi - 100.000 cicli</li> <li>0,7 A 250 V AC per carichi induttivi - 100.000 cicli con <math>\cos(\phi) = 0,5</math></li> <li>UL: 250 V AC - 3 A resistivo - 1,5 FLA - 90 LRA - 144 VA pilot duty 30.000 cicli</li> </ul> </li> </ul> </li> <li><b>NC6-C6-N06</b></li> <li>Relè da 8 A con contatto in scambio: <ul style="list-style-type: none"> <li>- caratteristiche di carico di ogni relè: <ul style="list-style-type: none"> <li>8 A 250 V AC per carichi resistivi - 100.000 cicli</li> <li>4 A 250 V AC per carichi induttivi - 100.000 cicli con <math>\cos(\phi) = 0,6</math></li> <li>UL: 240 V AC - 6 A resistivo - 4,9 FLA - 29,4 LRA - 470 VA pilot duty 30.000 cicli</li> </ul> </li> </ul> </li> </ul>
Ingressi digitali	Contatto pulito	8	<ul style="list-style-type: none"> <li><b>D11, D12, D13, D14, D15, D16, D17, D18</b></li> <li>Corrente di chiusura riferita a massa: 5 mA</li> </ul>

I/O	TIPO	NUMERO	CARATTERISTICHE
Uscite analogiche	0/10 V, PWM, PPM	2	<ul style="list-style-type: none"> <li><b>AO1, AO2</b></li> <li>Uscita configurabile da software tra: <ul style="list-style-type: none"> <li>- impulsiva, sincrona con la rete, a modulazione di posizione di impulso (PPM) o di larghezza di impulso (PWM): <ul style="list-style-type: none"> <li>tensione a vuoto: 6,8 V</li> <li>carico minimo 1K<math>\Omega</math> (10 mA)</li> </ul> </li> <li>- impulsiva, a modulazione di larghezza di impulso (PWM) nel range da 100 Hz a 500 Hz: <ul style="list-style-type: none"> <li>tensione a vuoto: 6,8 V</li> <li>carico minimo 1K<math>\Omega</math> (10 mA)</li> </ul> </li> <li>- 0/10 V DC non optoisolata riferita a massa: <ul style="list-style-type: none"> <li>carico minimo 1K<math>\Omega</math> (10 mA)</li> </ul> </li> </ul> </li> </ul>
	PWM, PPM	1	<ul style="list-style-type: none"> <li><b>AO3</b></li> <li>Uscita configurabile da software tra: <ul style="list-style-type: none"> <li>- impulsiva, sincrona con la rete, a modulazione di posizione di impulso (PPM) o di larghezza di impulso (PWM): <ul style="list-style-type: none"> <li>tensione a vuoto: 6,8 V</li> <li>carico minimo 1K<math>\Omega</math> (10 mA)</li> </ul> </li> <li>- impulsiva, a modulazione di larghezza di impulso (PWM) nel range da 100 Hz a 500 Hz: <ul style="list-style-type: none"> <li>tensione a vuoto: 6,8 V</li> <li>carico minimo 1K<math>\Omega</math> (10 mA)</li> </ul> </li> </ul> </li> </ul>
Ingressi analogici	NTC, 0/1 V, 0/5 V	2	<ul style="list-style-type: none"> <li><b>A11, A12</b></li> <li>Ingressi analogici configurabili da software per: <ul style="list-style-type: none"> <li>- sonde di temperatura NTC, default: 10 k<math>\Omega</math> a 25 °C</li> <li>- trasduttori di pressione con uscita in tensione 0/5 V</li> <li>- 0/5V type: l'impedenza è di 18K<math>\Omega</math></li> </ul> </li> </ul>
	Universali	2	<ul style="list-style-type: none"> <li><b>A13, A14</b></li> <li>Ingressi analogici universali configurabili da software tra: <ul style="list-style-type: none"> <li>- ON/OFF (corrente: 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> a 25 °C)</li> <li>- RT100</li> </ul> </li> <li>12 V+ uscita alimentazione 12 V DC, 50 mA max per trasmettitore 4/20 mA (tot. uscite)</li> <li>5 V+ uscita alimentazione 5 V DC, 80 mA max per trasmettitore 0/5 V (tot. uscite)</li> <li>0/5V type: l'impedenza è di 18K<math>\Omega</math></li> <li>0/10V type: l'impedenza è di 2K<math>\Omega</math></li> </ul>

## SMALTIMENTO DEL PRODOTTO

- L'apparecchiatura (o il prodotto) deve essere oggetto di raccolta separata in conformità alle vigenti normative locali in materia di smaltimento.

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## Foglio istruzioni

Controllo elettronico  
MCX06D

AN21628643146201-000601



3106000400

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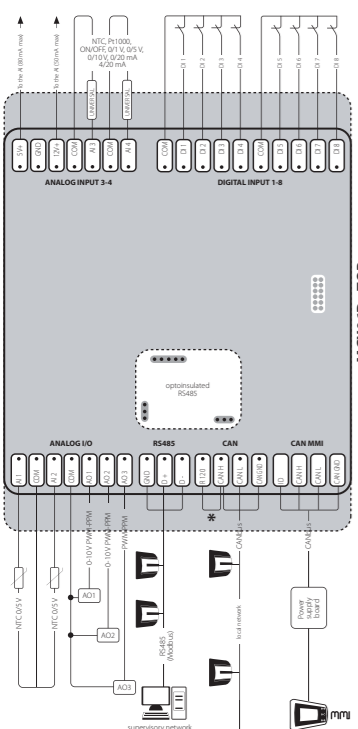
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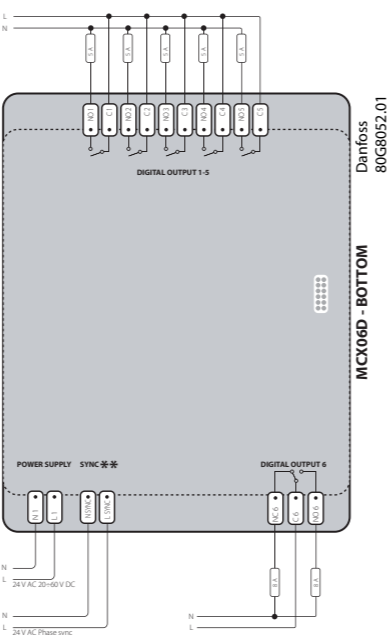
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## SCHEMA DI COLLEGAMENTO

## SCHEMA SUPERIORE



## SCHEMA INFERIORE



\*NOTA: collegamento da effettuare sui due strumenti posti all'estremità della rete locale, la connessione deve essere realizzata il più vicino possibile al connettore

\*\*NOTA: quando AO viene usato come uscita sincronizzata, l'ingresso di sincronismo deve essere in fase con il carico su AO

## Foglio istruzioni

Controllo elettronico  
MCX06D

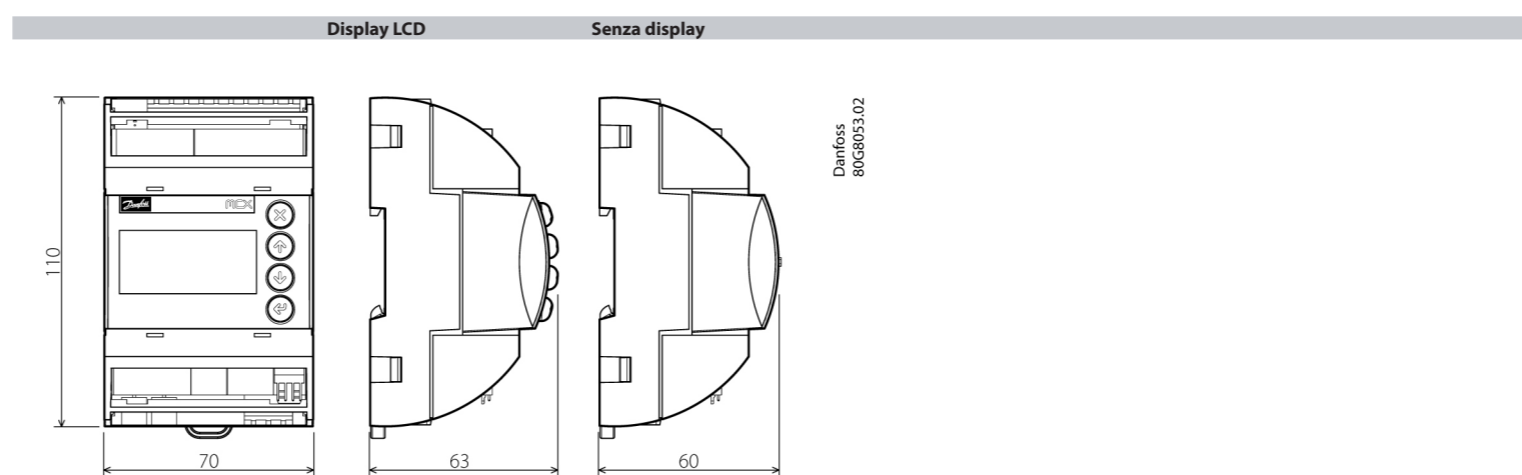
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## DIMENSIONI

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80C8053.02

## INTERFACCIA UTENTE

- DISPLAY LCD**
  - tipo: grafico STN blu trasmissivo
  - retroilluminazione: a LED bianchi con intensità regolabile da software
  - risoluzione: 128x64 punti
  - area visibile attiva: 58x29 mm
  - contrasto: regolabile da software
- TASTIERA**
  - numero di tasti: 4
  - la funzione dei tasti è impostabile da software
- REGOLAZIONE DELLE IMPOSTAZIONI DEI DISPLAY LCD**
  - Le impostazioni dei display LCD potrebbero richiedere di essere regolate a causa di fattori ambientali esterni. A tale scopo premere contemporaneamente i tasti X ed INVIO all'accensione per accedere al menù del BIOS e selezionare la voce di menù DISPLAY. Usare i tasti freccia SU e GIU' per regolare il contrasto e la luminosità del display al livello desiderato.

## CODICI IDENTIFICATIVI PRODOTTO

CODICE	DESCRIZIONE
080G0111	MCX06D, 24V, LCD, Single Pack
080G0112	MCX06D, 24V, LCD, RS485, RTC, Single Pack
080G0115	MCX06D, 24V, RS485, RTC, Single Pack
080G0166	MCX06D, 24V, LCD, Industrial Pack (32 pieces)
080G0167	MCX06D, 24V, LCD, RS485, RTC, Industrial Pack (32 pieces)
080G0169	MCX06D, 24V, RS485, RTC, Industrial Pack (32 pieces)



GENERAL FEATURES

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 serial communication interface.

		MCX06D
<b>ANALOG INPUTS</b>		
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
<b>Total number</b>		<b>4</b>
<b>DIGITAL INPUTS</b>		
Voltage free contact		8
<b>Total number</b>		<b>8</b>
<b>ANALOG OUTPUTS</b>		
0/10 V DC, PWM, PPM selectable via software		2
PWM, PPM selectable via software		1
<b>Total number</b>		<b>3</b>
<b>DIGITAL OUTPUTS</b>		
SPST relay 5 A (normally open contacts)		5
SPDT relay 8 A (changeover contacts)		1
<b>Total number</b>		<b>6</b>
<b>OTHERS</b>		
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 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

OTHER FEATURES

- Operating conditions CE -20/60 / UL: 0T55, 90% RH non-condensing
- Storage conditions: -30/70, 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 use in environments with degree of pollution 2
- Category of resistance to heat and fire: D
- Immunity against voltage surges: category II
- Software class and structure: class A

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 2014/53/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

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 condense, 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 Fieldbus Installation Guide for the kind of cable to be used and setup recommendations
- Reduce the path of the probe and digital inputs 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 nearly 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



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TECHNICAL SPECIFICATIONS

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

I/O	TYPE	NUMBER	SPECIFICATIONS
Digital outputs	Relay	6	<ul style="list-style-type: none"> <li>Insulation between relays 1 to 5: functional</li> <li>Insulation between relay 6 and the other relays: reinforced</li> <li>Insulation between relays and the extra-low voltage parts: reinforced</li> <li>Total current load limit: 33 A</li> <li><b>C1-NO1, C2-NO2, C3-NO3, C4-NO4, C5-NO5</b></li> <li>Normally open contact relays 5 A:</li> <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 loads - 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 VA pilot duty 30,000 cycles</li> </ul> </li> <li><b>NC6-C6-NO6</b></li> <li>Changeover contacts relay 8 A:</li> <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 VA pilot duty 30,000 cycles</li> </ul> </li> </ul>
Digital inputs	Voltage free contact	8	<ul style="list-style-type: none"> <li><b>DI1, DI2, DI3, DI4, DI5, DI6, DI7, DI8</b></li> <li>Current consumption: 5 mA</li> </ul>

I/O	TYPE	NUMBER	SPECIFICATIONS
Analog outputs	0/10 V, PWM, PPM	2	<ul style="list-style-type: none"> <li><b>AO1, AO2</b></li> <li>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 1 k<math>\Omega</math> (10 mA)</li> </ul> </li> <li>- pulsing output, at modulation of impulse width (PWM) with range 100 Hz to 500 Hz:                                     <ul style="list-style-type: none"> <li>open circuit voltage: 6.8 V</li> <li>minimum load 1 k<math>\Omega</math> (10 mA)</li> </ul> </li> <li>- 0/10 V DC non optoisolated output, referred to the ground:                                     <ul style="list-style-type: none"> <li>minimum load 1 k<math>\Omega</math> (10 mA)</li> </ul> </li> </ul> </li> </ul>
	PWM, PPM	1	<ul style="list-style-type: none"> <li><b>AO3</b></li> <li>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 1 k<math>\Omega</math> (10 mA)</li> </ul> </li> <li>- pulsing output, at modulation of impulse width (PWM) with range 100 Hz to 500 Hz:                                     <ul style="list-style-type: none"> <li>open circuit voltage: 6.8 V</li> <li>minimum load 1 k<math>\Omega</math> (10 mA)</li> </ul> </li> </ul> </li> </ul>
Analog inputs	NTC, 0/1 V, 0/5 V	2	<ul style="list-style-type: none"> <li><b>AI1, AI2</b></li> <li>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>- 0/5 V type: impedance is 18k <math>\Omega</math></li> </ul> </li> </ul>
	Universal	2	<ul style="list-style-type: none"> <li><b>AI3, AI4</b></li> <li>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> </li> <li>12 V+ power supply 12 V DC, 50 mA max for 4/20 mA transmitter (total on all outputs)</li> <li>5 V+ power supply 5 V DC, 80 mA max for 0/5 V transmitter (total on all outputs)</li> <li>0/5 V type: impedance is 18k <math>\Omega</math></li> <li>0/10 V type: impedance is 2k <math>\Omega</math></li> </ul>

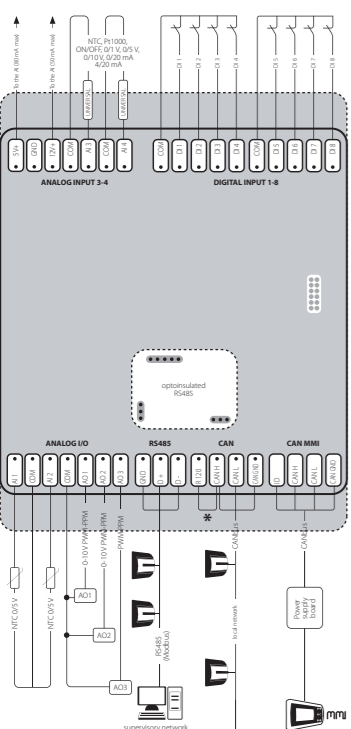
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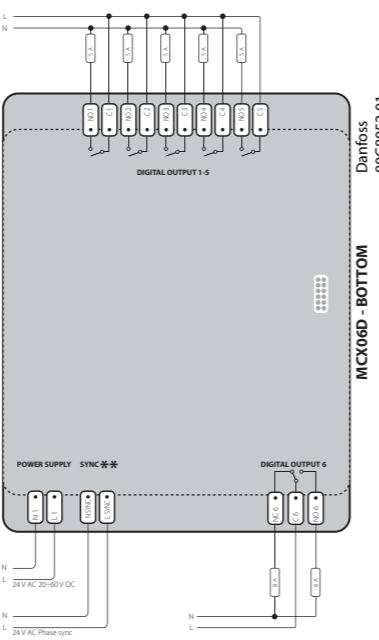
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CONNECTION DIAGRAM

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



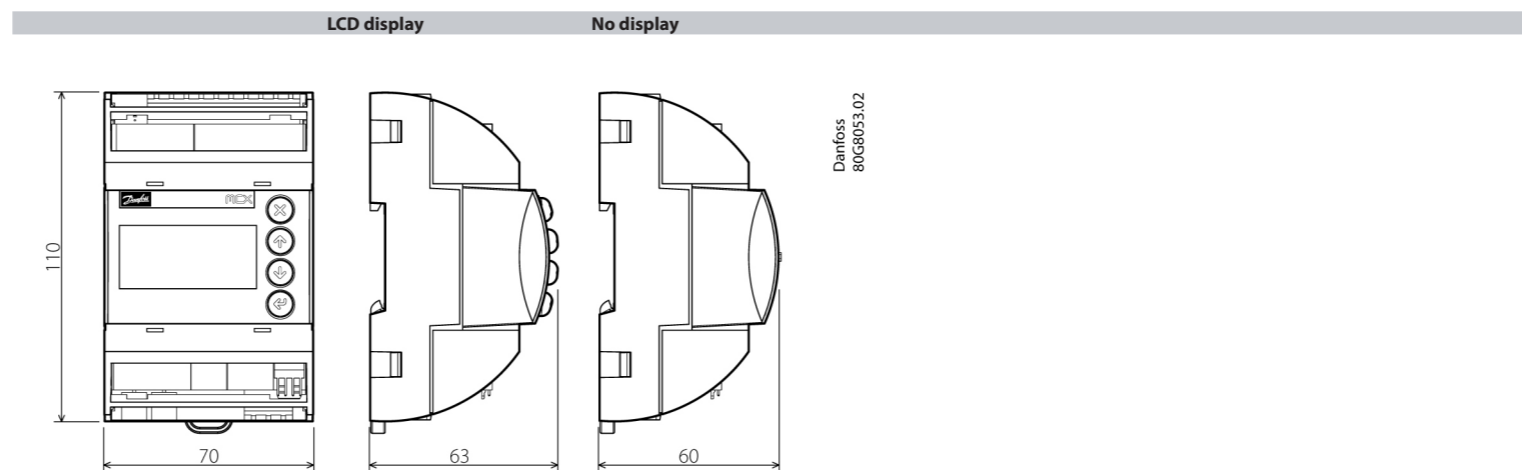
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DIMENSIONS



USER INTERFACE

DISPLAY LCD

- display mode: STN blue transmissive
- backlight: white LED backlight adjustable via software
- display format: 128x64 dots
- active visible area: 58x29 mm
- contrast: adjustable via software

KEYBOARD

- number of keys: 4
- keys function is settled by the application software

DISPLAY SETTINGS ADJUSTMENT

- Setting of the LCD display like contrast and brightness might need to be adjusted due to external ambient factors. Press and release simultaneously the Enter and X key after power ON to access the BIOS menu and select the DISPLAY menu. Use UP and DOWN arrow keys to adjust the contrast or the brightness of the display at the desired level.

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
080G0166	MCX06D, 24V, LCD, Industrial Pack (32 pieces)
080G0167	MCX06D, 24V, LCD, RS485, RTC, Industrial Pack (32 pieces)
080G0169	MCX06D, 24V, RS485, RTC, Industrial Pack (32 pieces)