



Program. controller, 6 relays

MCX061V

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

Description

MCX061V is a standard MCX electronic controller with one integrated electronic expansion valve driver. It is available in the version with graphic LCD display and 110 / 230 V AC or 24 V AC power supply.

It holds all the typical functionalities of MCX controllers in the compact size of 8 DIN modules: Programmability; Connection to the CANbus local network; Modbus RS485 serial communication interface.

It is moreover fitted with a slot for memory card SD / MMC and Ethernet connection. The memory card assures SW download and datalogging function; the Ethernet port allows the SW download, monitoring with web pages, datalogging and the alarms warning.

Features & Benefits

- Inputs: 7 analog and 8 digital; Outputs: 3 analog and 6 digital
- Power supply 24 V AC and 110 V / 230 V AC
- Drives bipolar and unipolar electronic expansion valves
- SD / MMC card slot for easy software upload and datalogging
- Remote access to data through CANbus connection for additional display and keyboard
- RTC clock for managing weekly time programs and data logging information
- Ethernet / WebServer option
- Modbus RS485 opto-insulated serial interface
- Available with graphic LCD display for showing the desired information
- Dimensions 8 DIN modules

Ordering

Product code numbers








Product Type	Material Description	Real time clock	Packing format	Quantity per packing format	Code number
MCX061V	MCX061V Elect.Control 230V LCD RS485 S	Yes	Single pack	1	080G0250
MCX061V	MCX061V Elect.Control 24V LCD RS485 S	Yes	Single pack	1	080G0251
MCX061V	MCX061V Elect.Control 24V LCD RS485 ETH	Yes	Single pack	1	080G0255

Note: Single pack codes (S) include standard kit connectors.

Overview

Product portfolio

Table: 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 details

General data

Table: General features

Features	Description
Power supply	85 – 265 V AC, 50/60 Hz. Maximum power consumption: 18 W, 27 V A Insulation between power supply and the extra-low voltage: reinforced
	24 V AC \pm 15% 50/60 Hz SELV. Maximum power consumption: 18 W, 22 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: -20T55, 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 II
Software class and structure	Class A

Input/Output

Table: Analog inputs

Type	Num	Specifications
		Max 15 V input voltage Do not connect voltage sources without current limitation (overall 80 mA) to analog inputs while unit is not powered Open circuit HW diagnostics available for voltage input on: AI1,2,3,4,6
0 / 1 V 0 / 5 V 0 / 10 V	7	AI1, AI2, AI3, AI4, AI5, AI6, AI7 0 / 1 V, 0 / 5 V, 0 / 10 V AI1, AI2, AI3, AI4, AI6 impedance is 33 k Ω (by software can be set greater than 1 M Ω) AI7 impedance is greater than 1 M Ω
NTC	5	AI1, AI2, AI3, AI4, AI6 NTC temperature probes, default: 10 k Ω at 25 °C
0 / 20 mA 4 / 20 mA	6	AI1, AI2, AI3, AI4, AI5, AI6 0 / 20 mA; 4 / 20 mA
Pt1000	4	AI1, AI2, AI3, AI7 Pt1000
Differential input	1	AI5(-), AI6(+) Differential input, DM Voltage 0.300 mV; CM voltage max 14 V
Auxiliary Supplies	2	15 V+ and 5 V+ 5 V+ max: 70 mA 15 V+ max: 100 mA

Table: Digital inputs

Type	Num	Specifications
Voltage free contacts	8	DI1 Frequency input: 200 Hz Max (pulse time about 2.5 ms) DI2, DI3, DI4, DI5, DI6, DI7, DI8 Frequency input: 5 Hz Max (pulse time about 100 ms)

Table: Analogue outputs

Type	Num	Specifications
0 / 10 V DC	2	AO1, AO2 Minimum load 1 k Ω (10 mA)
0 / 10 V PWM PPM	1	AO3 Minimum load 1 k Ω (10 mA) <ul style="list-style-type: none"> 0 / 10 V pulse output, synchronous with mains, at modulation of impulse position (PPM) or modulation of impulse width (PWM): 6.8 V open circuit pulse output, PWM with range from 1 – 1000 Hz: 6.8 V open circuit

Table: Digital outputs

Type	Num	Specifications
Relay	6	C1-NO1, C2-NO2, C3-NO3, C4-NO4, C5-NO5 Functional Isolation Normally open contact relays 5 A Characteristics of each relay: <ul style="list-style-type: none"> 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: 3 A, 250 V AC, resistive, 50.000 cycles 1 / 10 hp, 240 V AC, motor, 30.000 cycles 1.5 FLA, 9.0 LRA, 240 V AC, 30.000 cycles 144 VA, pilot duty, 240 V AC, 30.000 cycles C1-NO1 Optionally it can be solid state relays Characteristics of each relay: <ul style="list-style-type: none"> 15-280 Vrms, 1 A UL: 1 A resistive, 240 V AC, 30.000 cycles C6-NO6 Functional Isolation Normally open contact relays 5 A Characteristics of each relay: <ul style="list-style-type: none"> 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: 3 A, 250 V AC, resistive, 50.000 cycles 1 / 10 hp, 240 V AC, motor, 30.000 cycles 1.5 FLA, 9.0 LRA, 240 V AC, 30.000 cycles 144 VA, pilot duty, 240 V AC, 30.000 cycles Reinforced isolation (with respect to DO1..DO5)

Table: Stepper motor

Type	Num	Specifications
Bipolar and unipolar stepper motor driver	1	ST1, ST2, ST3, ST4 Bipolar and unipolar stepper motor output: Danfoss ETS / KVS / ETSC Valves (green, red, black, white) Saginomyia UKV / SKV / VKV / PKV / ETS6 (black, red, yellow, orange) Other valves: Drive mode 1/8 microstep Peak phase current: 650 mA (RMS 460 mA) Max. drive voltage 30 V Max. output power 6.5 W Max. speed 200 steps/sec Max. distance between valve and MCX: 30 m (suggested: 10 m)

Table: Battery backup

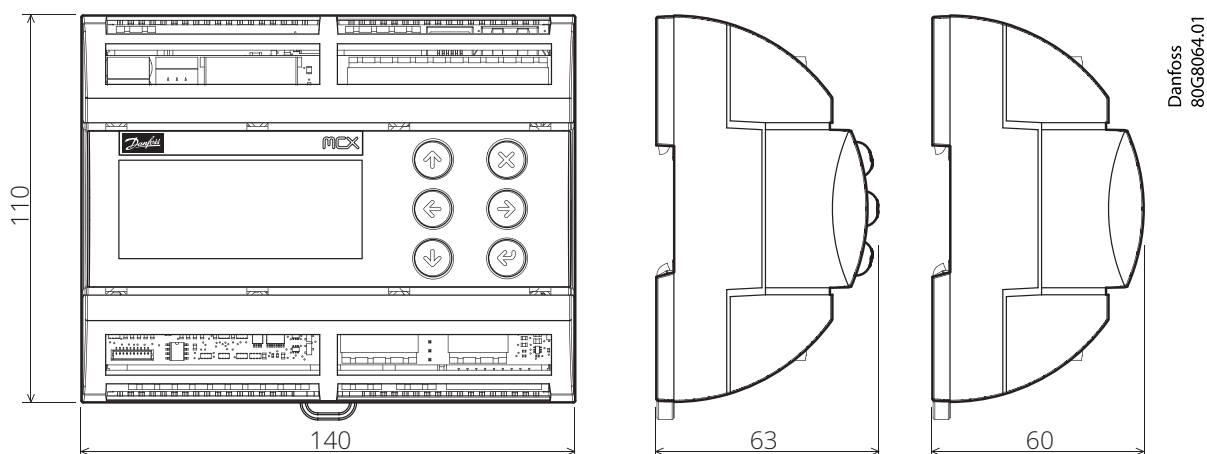
Type	Num	Specifications
	1	BATT 18 – 24 V DC: <ul style="list-style-type: none"> leakage current max 12 μA max battery current: 0.5 A at 18 V

Table: Memory card

Type	Num	Specifications
SD/MMC	1	SD/MMC <ul style="list-style-type: none"> for data logging make sure that the memory card is firm in place avoid installations with vibrations

Dimensions & weights

Figure: Dimensions



User interface

Table: User interface

Type	Features	Description
LCD display	Display	STN blue transmissive
	Backlight	White LED backlight adjustable via software
	Contrast	Adjustable via software
	Format	128 x 64 dots
	Active visible area	58 x 29 mm
Keyboard	Number of keys	4
	Keys function	Set by the application software

Connections

Figure: Top Board

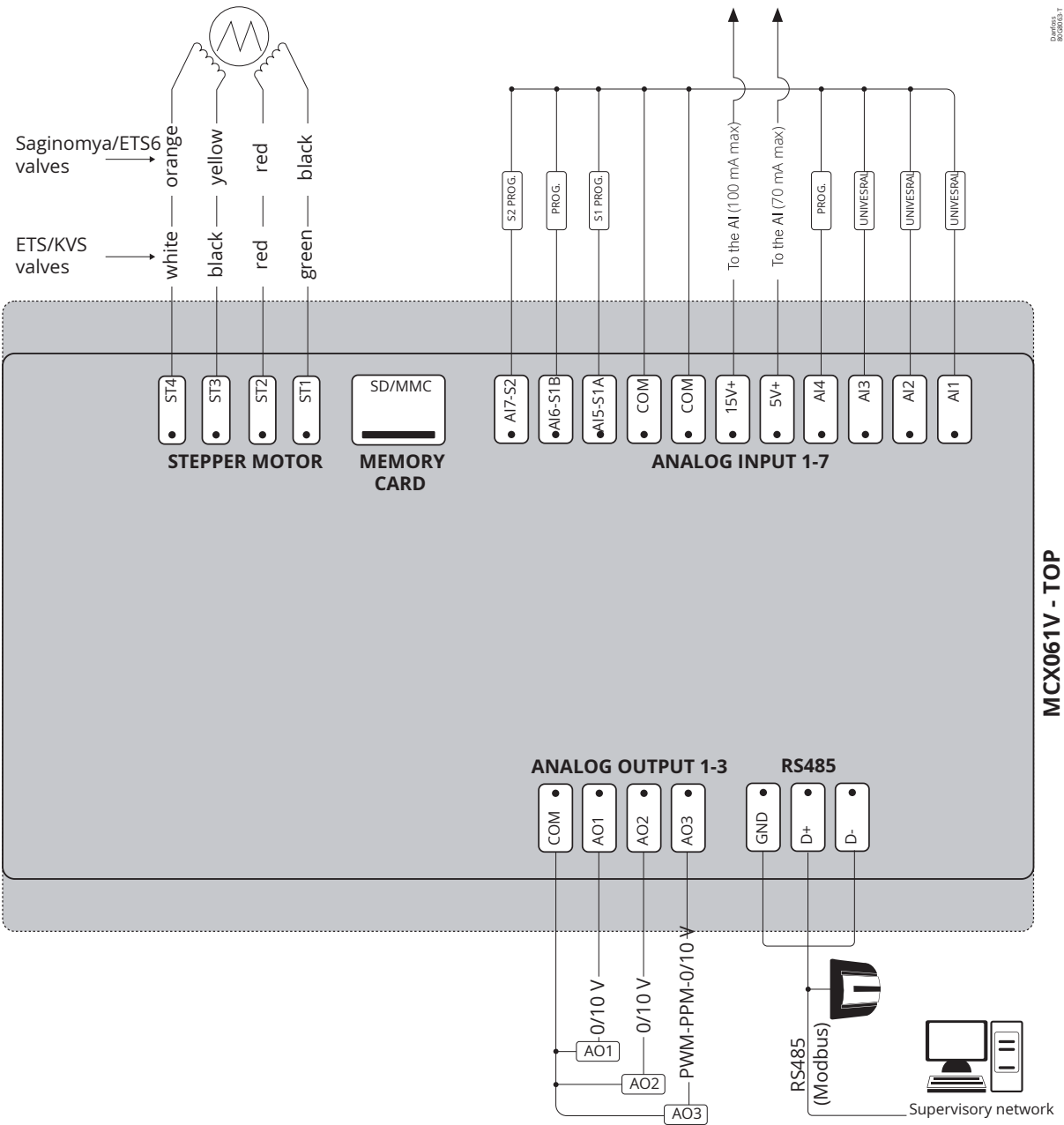
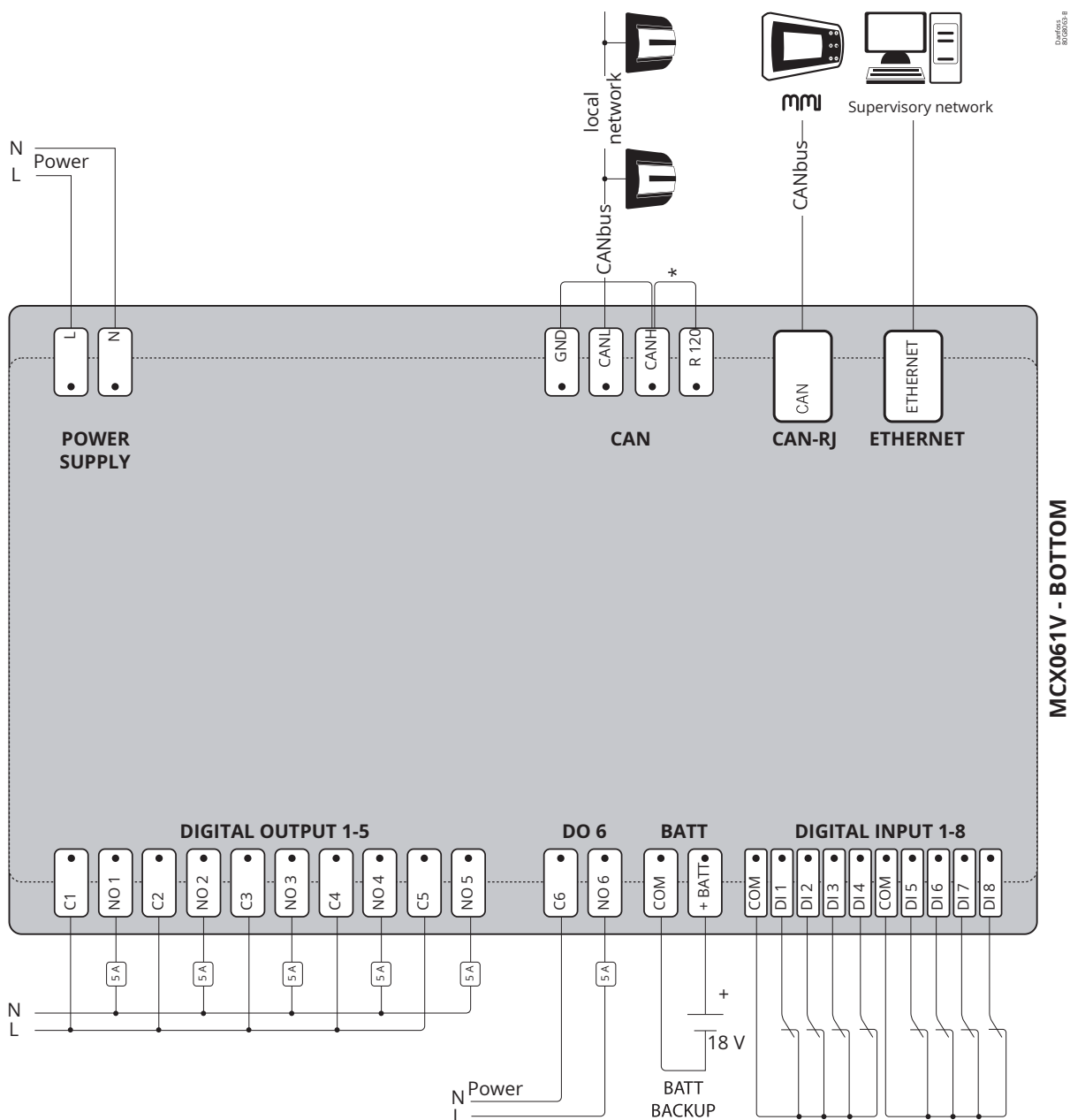


Figure: Bottom Board

**Note:**

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

Table: Top Board

Connectors	Type	Dimensions
Stepper motor connector	4 way spring-cage plug-in connector type	<ul style="list-style-type: none"> pitch 2.5 mm section cable 0.2 – 0.5 mm²
Memory card connector	SD / MMC card slot	
Analog input 1-7 connector	11 way screw plug-in connector type	<ul style="list-style-type: none"> pitch 5 mm section cable 0.2 – 2.5 mm²
Analog output 1-3 connector	4 way screw plug-in connector type	<ul style="list-style-type: none"> pitch 5 mm section cable 0.2 – 2.5 mm²
RS485 connector	3 way screw plug-in connector type	<ul style="list-style-type: none"> pitch 5 mm section cable 0.2 – 2.5 mm²

Table: Bottom Board

Connectors	Type	Dimensions
Power supply connector	2 way screw plug-in connector type	<ul style="list-style-type: none"> pitch 5 mm section cable 0.2 – 2.5 mm²
CAN connector	4 way screw plug-in connector type	<ul style="list-style-type: none"> pitch 5 mm section cable 0.2 – 2.5 mm²
CAN-RJ connector	6/6 way telephone RJ12 plug type	
Ethernet connector	8/8 way RJ45 plug type	
Digital output 1-5 connector	10 way screw plug-in connector type	<ul style="list-style-type: none"> pitch 5 mm section cable 0.2 – 2.5 mm²
Digital output 6 connector	2 way screw plug-in connector type	<ul style="list-style-type: none"> pitch 5 mm section cable 0.2 – 2.5 mm²
Batt connector	2 way screw plug-in connector type	<ul style="list-style-type: none"> pitch 5 mm section cable 0.2 – 2.5 mm²
Digital output 1-8 connector	10 way spring-cage plug-in connector type	<ul style="list-style-type: none"> pitch 2.5 mm section cable 0.2 – 0.5 mm²

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.

When you click on the link you will be directed to the latest version of the 'Declaration of Conformity'. Products developed and sold before this date of issue conform to the directives/standards in force at the time of their sale.

Approval type	Title	Certification body	Approval topic
EAC Declaration	EAC KZ 7100841.13.12.01062	EAC - Eurasian Customs Union	EMC
Export Control Declaration	MCX programmable controllers	Danfoss	
Manufacturer's Declaration	Danfoss MD 080R4002.01	Danfoss	China RoHS
EU-UK Declaration	Danfoss EU-UK 080R1224.02	Danfoss	EMC
Manufacturer's Declaration	Danfoss MD 080R1240.00	Danfoss	EU RoHS
UA Declaration	Danfoss UA 9032	Danfoss	UA RoHS
UA Declaration	Danfoss UA 8537	Danfoss	UA RoHS
Electrical Safety Certificate	EAC KZ 7100841.01.01.01245	EAC - Eurasian Customs Union	EMC
Electrical Safety Certificate	UL E31024	UL - Underwriters Laboratories inc.	
Export Control Declaration	MCX Programmable Controllers (w. WIFI/BT)	Danfoss	

Contact details

Online support

Danfoss offers a wide range of support along with our products, including digital information, software, mobile apps and expert guidance. See the possibilities below.



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