

Data sheet

MCX061V

Programmable controller



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 MCX061V

- 7 analog and 8 digital inputs
- 3 analog and 6 digital outputs
- 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

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 ± 15% 50/60 Hz. 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: ≥ 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 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"> • Low voltage directive LVD 2014/35/EU: <ul style="list-style-type: none"> – 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 2014/30/EU: <ul style="list-style-type: none"> – EN 61000-6-4: 2007 +A1: 2011 (Emissions standard for industrial environments) – EN 61000-6-2: 2005 (Immunity for industrial environments) • RoHS directive 2011/65/EU: <ul style="list-style-type: none"> – EN50581: 2012
	UL approval: <ul style="list-style-type: none"> • UL file E31024

Input/output

I/O	TYPE	NUM	SPECIFICATIONS
Analog inputs			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 / 10V	7	AI1, AI2, AI3, AI4, AI5, AI6, AI7 0 / 1 V, 0 / 5 V, 0 / 10 V
	NTC	5	AI1, AI2, AI3, AI4, AI6 NTC temperature probes, default: 10 kΩ at 25 °C
	0 / 20 mA 4 / 20 mA	6	AI1, AI2, AI3, AI4, 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
Digital inputs	Voltage free contacts	8	DI1 (Frequency input) min. pulse time 2.5 ms DI2, DI3, DI4, DI5, DI6, DI7, DI8 Min pulse time 100 ms
Analog outputs	0 / 10 V DC	2	AO1, AO2 Current max: 10 mA
	0 / 10 V PWM PPM	1	AO3 Current max: 10 mA • 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 Hz to 1000 Hz: 6.8 V open circuit
Digital output	Relay	6	C1-NO1, C2-NO2, C3-NO3, C4-NO4, C5-NO5 Functional Isolation 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: 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: • 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: • 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)

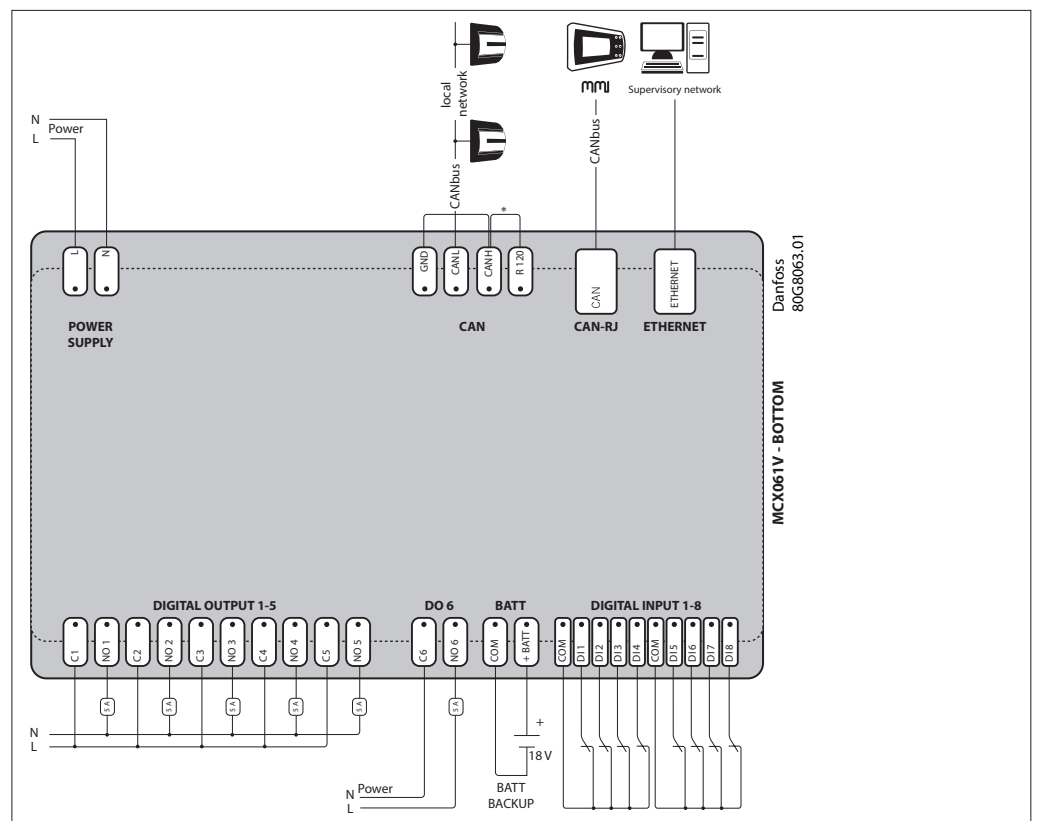
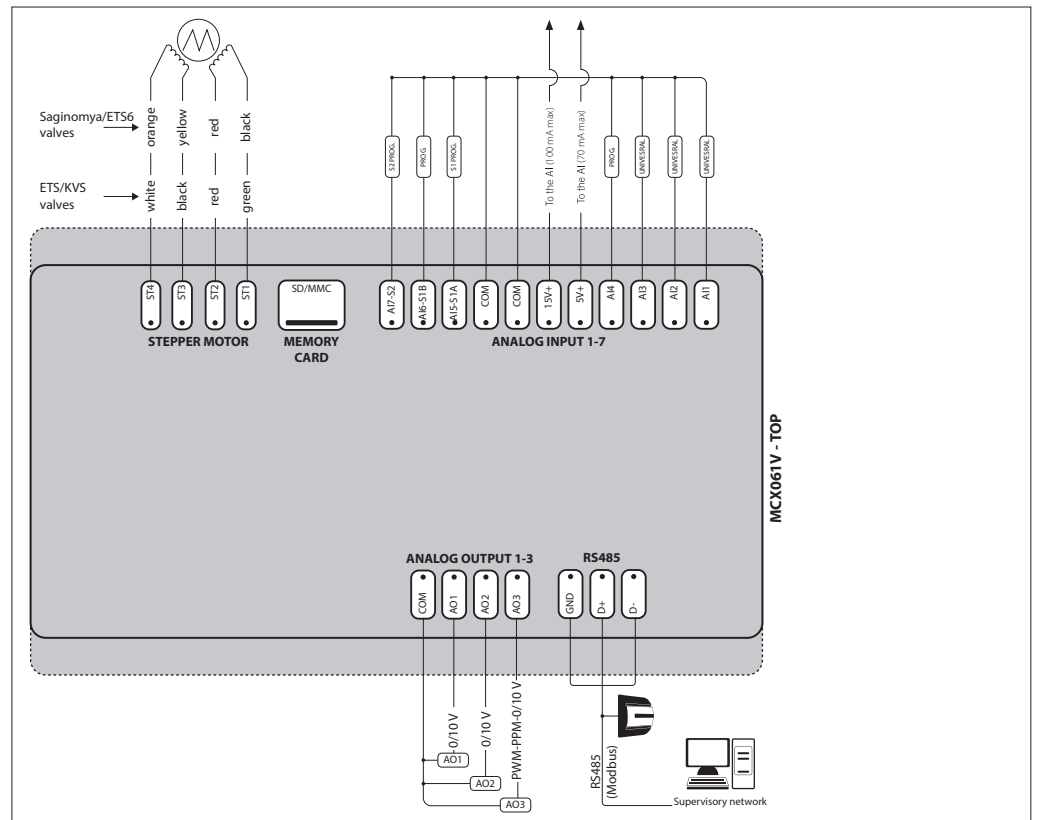
Input/output

I/O	TYPE	NUM	SPECIFICATIONS
Stepper motor		1	ST1, ST2, ST3, ST4 Bipolar and unipolar stepper motor output: <ul style="list-style-type: none"> • Danfoss ETS / KVS Valves (green, red, black, white) • Saginomyia UKV / SKV / VKV / PKV / ETS6 (black, red, yellow, orange) • other Valves: <ul style="list-style-type: none"> – drive mode 1/8 microstep – peak phase current: 650 mA – max drive voltage 30 V – max output power 7 W Max distance between valve and MCX: 30 m (suggested: 10 m)
Battery backup		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
Mem. card		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

Connection

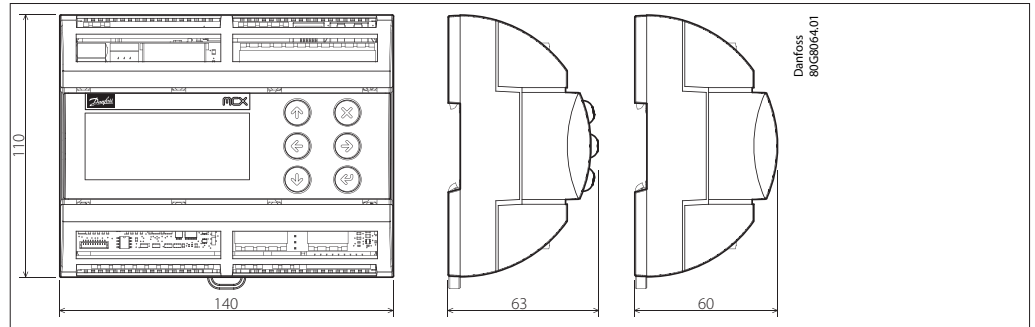
CONNECTORS	TYPE	DIMENSIONS
TOP BOARD		
Stepper motor connector	4 way spring-cage plug-in connector type	<ul style="list-style-type: none"> • pitch 2.5 mm • section cable 0.2-0.5 mm²
Memory card connector	SD / MMC card slot	
Analog input 1-7 connector	11 way screw plug-in connector type	<ul style="list-style-type: 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
BOTTOM BOARD		
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 RJ11 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

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

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	128x64 dots
	Active visible area	58x29 mm
Keyboard	Number of keys	6
	Keys function	Set by the application software

Product part numbers

DESCRIPTION	CODE NO.
MCX061V, 230V, LCD, RS485, RTC, S	080G0250
MCX061V, 24V, LCD, RS485, RTC, S	080G0251
MCX061V, 24V, LCD, RS485, RTC, ETH, S	080G0255

Note: single pack codes (S) include standard kit connectors

Accessories part numbers

DESCRIPTION	CODE NO.
MCX061V CONNECTORS KIT	080G0268