

dametric 

CMU-2X

Control Motor Unit
For 2-phase stepping motor



MANUAL

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1 General

The CMU-2X is a line of units for driving and controlling a 2-phase stepping motor. There are 3 different items separated by the input control voltage level, 24VDC, 115VAC or 230VAC. The models and article number are listed in a separate chapter.

The unit is used together with a stepping motor, CM-2NMHK and a cable, K-CM25K.

The CMU unit includes a driver module, CMD-DM2, which is controlled by the logic inputs. It also holds the parameters for desired speed and direction.

An IO interface from the PLC or DCS controls the CMU unit. Three inputs set direction and speed and an output will indicate the OK/Alarm status.

The unit also includes a display and pushbuttons. These are used to set up the necessary parameters to match the used refiner setting device specification.

Included modules are mounted on a metal plate with DIN-rails. All internal connections are completed and tested so only the external connections must be connected at installation.

- mains power supply
- control cables to and from the PLC/DCS system
- cable to control motor.

2 Document revision

- Sept. 5, 2019/BL First release.
- Oct. 7. 2019/JB Updated figures in 6.1 and 6.2.

3 Technical specification

3.1 External supply

Power supply	115 to 230 VAC, +5%/-10%, 48-62 Hz
Power consumption	Max. 20 VA

3.2 External signals

Digital input

Type	Active high			
Number	3 digital inputs			
	Model	CMU-21	CMU-24	CMU-25
Nominal input voltage		24VDC	230VAC	115VAC
Maximum input voltage		28,2VDC	253VAC	132VAC
Minimum input voltage		19,2VDC	184VAC	96VAC
Maximum input current		10 mA	4 mA	4 mA

All input relays are polarity protected

Digital output

Number	1 digital output
Type	Potential free closing relay contact
Maximum switching voltage	250V AC/DC
Minimum switching voltage	12V AC/DC
Limiting continuous current	6A
Maximum inrush current	30A
Minimum switching current	10 mA

3.3 Environment

Temperature range	0 to +70 °C
Enclosure / sealing class	None
Mounting plate	Stainless steel
Weight	2,0 kg
Connection	Breakable screw plinths, max 2.5mm ² cable area

3.4 Control unit

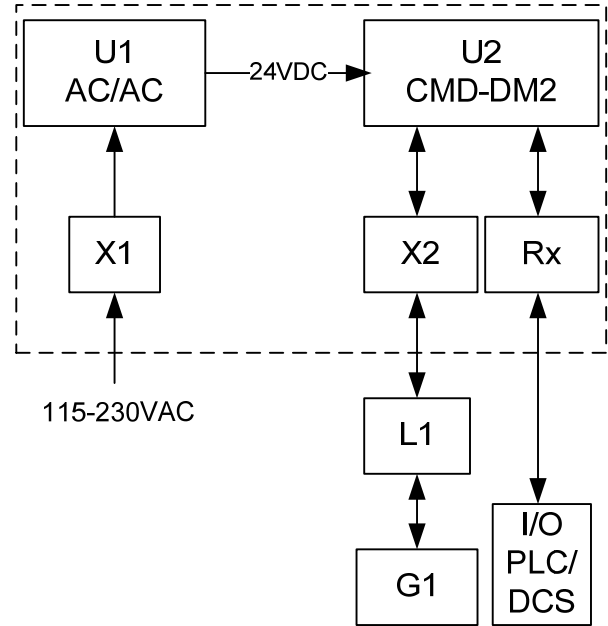
Internal supply voltage	24 VDC, ± 10 %
Power consumption	Nominal 0.4 A, max. 2A
Display	LCD type with backlight, 2 rows with 16 characters each
Buttons	6, PREV, PLUS, NEXT, MENU, MINUS and ENTER
Led indicator	ON, Green, indicates power supply
Led indicator	Alarm, Red, on if there is any alarm in the unit

3.5 Step motor data

Step motor type	CM-2NMHK
Step motor cable	K-CM25K
Motor output	2-phase, A+, A-, B+, B-
Phase current, RMS	max 1.5A
Phase current, peak	Max 2.3A

4 Block diagram/spare parts

- X1 Power supply connection
- RX IO Relays
- X2 Control motor connection
- U1 Power supply 115-230VAC/24VDC
VAL0187585
- U2 Driver unit CMD-DM2
VAL0427073
- L1 Cable, K-CM25K
SKC1267284 / VAL0221968
- G1 Control motor, CM-2NMHK
SKC1267270 / VAL0240564
- I/O Control input/output from PLC/DCS



5 Model designation

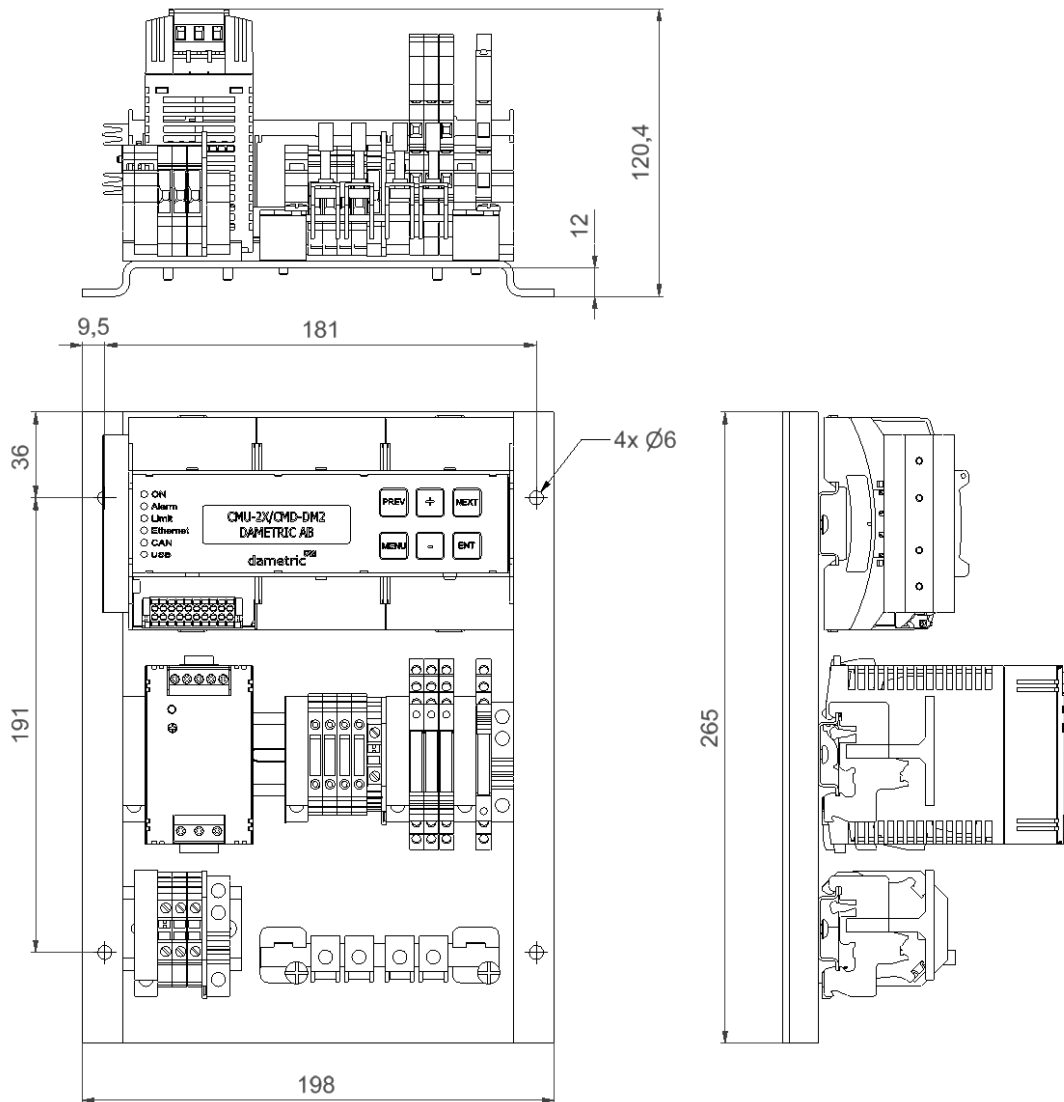
IO module	Dametric art. no	SKC art.no.	Valmet art.no
Control voltage			
5-32 VDC	CMU-21	SKC9952357	VAL0426988
230 VAC	CMU-24	SKC9952350	VAL0426991
115 VAC	CMU-25	SKC9952333	VAL0426989

6 Installation

6.1 Mounting

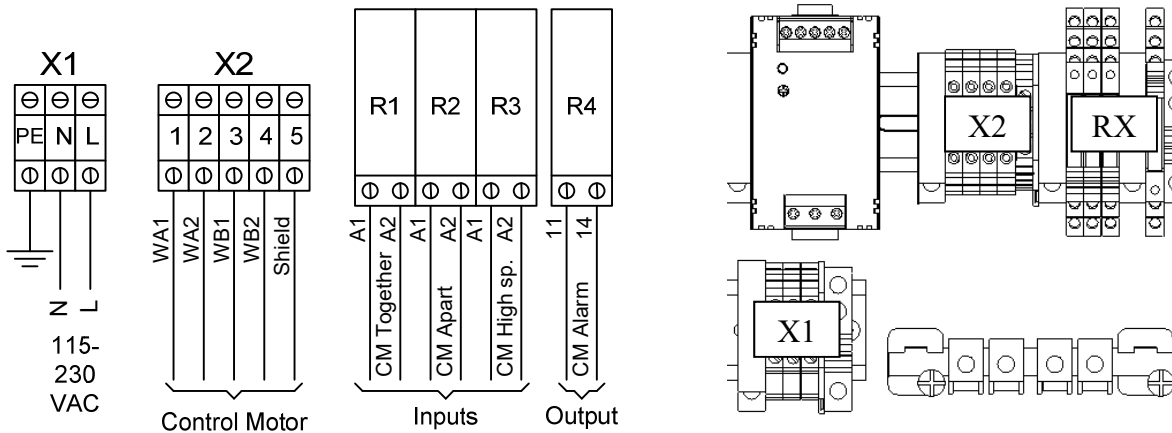
Mount the unit on a flat mounting plate.

Use the four mounting holes. Maximum screw diameter is 5 mm.



6.2 Connection method

The connections are done during installation by skilled and properly educated personnel.
 All internal connections are done and should not be changed during installation.
 All external connections are connected to screw plinths or direct to interface relays mounted on a DIN rail.



6.3 Plinth designation

X1 Mains power supply

- X1/PE Protective ground.
- X1/N Neutral, 115-230VAC
- X1/L Phase, 115-230VAC

X2 Control motor connection / Cable K-CM25K

- X2/1 Winding A1 / K-CM25K White
- X2/2 Winding A2 / K-CM25K Brown
- X2/3 Winding B1 / K-CM25K Green
- X2/4 Winding B2 / K-CM25K Yellow
- X2/5 Cable shield / K-CM25K Shield

R1-R3 Control inputs and outputs

- R1/A1 Control motor Close gap, positive
- R1/A2 Control motor Close gap, negative
- R2/A1 Control motor Open gap, positive
- R2/A2 Control motor Open gap, negative
- R3/A1 Control motor High Speed, positive
- R3/A2 Control motor High Speed, negative

R4 Control output

- R4/11 Control motor Alarm, normally closed
- R4/14 Control motor Alarm, common
- X3 Shield for control I/O cables
Internally connected to X1/PE.

7 Contact

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