

Multipurpose controllers for variable voltage 3 ~ fans

Ucontrol

PXDM6..35



1 Data sheet

1.1 Examples of application

- Speed controller with manual adjustment of output voltage at the unit or via external signal, 2-step operation
- Temperature control for: extraction systems, warm-air heaters, air curtain installations, liquid-cooling, chillers
- Pressure control refrigeration technology (with input for refrigerant) for: condensers, two circuit condensers
- Pressure control refrigeration technology (with input for refrigerant) for: condensers, two circuit condensers
- Volume control air conditioning, together with centrifugal fans by means of a measuring device in the inlet duct (setting K-factor)
- Air velocity control (constant air volume) for: clean room systems, laminarflow-work benches

1.2 Equipment / Function

- Integrated process controller (PID free programmable)
- 2x Analog Input (0-10 V, 0-20 mA, 4-20 mA, temperature sensor KTY81-210 or PT1000)
Analog 1 for setting or sensor signal.
Analog 2 function programmable for:
external set point, difference value to sensor 1, comparison value (dual-circuit condenser), averaging, setpoint lowering depending on outdoor temperature
- 1 x output 0 - 10 V, Function programmable: Fixed voltage, proportional level control, proportional input signal, group control, drive 2
- 2x Digital-Input, function programmable: enable (ON / OFF), external fault, limit output, input 1/2, setpoint 1/2, setting internal / external, automatic control / speed manual, reverse control function ("heating" / "cooling"), motor-heating ON/OFF

- 2 x relay outputs, Function programmable: Status signals, alarm indications, external malfunctions at the digital input, level-control threshold, input signal threshold, offset threshold (deviation between current and target value), group control
- Motor protection is possible by connecting thermostats “TB” or thermistors “TP”
- Interface system with RS485 Interface (MODBUS) or optional with LON® possible
- USB-interface e.g. for software update
- Unit temperature monitoring
- Internal LEDs for operation and fault
- **Option**, Add-on module type Z-Modul-B Part-No. 380052 0-10 V input for external set point. Programmable functions for three digital inputs, two relays and one analog output (0-10 V).

1.3 Possible settings

- Quick start-up by preprogrammed modes
- Setpoint 1, Setpoint 2, Manual mode
- Control range (P-component), I- / D-component, run-up / run-down time
- Min. and max. output voltage, limitation e.g. for night operation
- Group control (via relay or 0 - 10 V signal output)
- Limits: Modulation, input signal, offset (deviation set-actual)
- Set protection, save of made settings
- Readout events memory (checking the fault log)
- Suppression of up to three speed ranges
- Minimum rate of air ON / OFF, voltage motor-heating
- Menu language: English, German, Italian, Swedish, ...
- Inverting: inputs analog and digital, analog output, Relays

1.4 Technical data

The name plate data refer to a maximum ambient temperature of 40 °C (version with internal semiconductor fuses) or 50 °C (version without internal semiconductor fuses).

Version: housing IP54, internal semiconductor fuses (“A” = with display, “Q” = with main switch)

Type	Part.-No.	Rated current for 40 °C	Line fuse max.	Integrated semicon- ductor fuse	Heat dissipation max. approx.	Weight
		{1}	{2}	{3}	{1}	
		[A]	[A]	[Part.-No.]	[W]	[kg]
Line voltage 3 ~ 208...415 V, (-10 %...+ 6 %) 50/60 Hz						
PXDM6	304620	6	10	FF20 A 6x32 mm (00089798)	30	2.2
PXDM6A	304594	6	10		30	2.25
PXDM6AQ	304614	6	10		30	2.55
PXDM10	304621	10	16		50	2.7
PXDM10A	304595	10	16		50	2.75
PXDM10AQ	304615	10	16		50	3.05
PXDM12A	304596	12	16	FF30 A 10x38 mm (00155987)	75	3.65
PXDM12AQ	304616	12	16		75	4.0
PXDM15A	304597	15	20		100	4.95
PXDM15AQ	304617	15	20		100	5.3
PXDM20A	304598	20	25	30 A 10 x 38 mm gRL (00155984)	200	5.5
PXDM25A	304599	25	35	FF50 A D02 (00091006)	270	11.1
PXDM25AQ	304618	25	35		270	11.4
PXDM35A	304600	35	50	FF63 A D02 (00089795)	440	11.15
PXDM35AQ	304619	35	50		440	11.45

{1} for mains voltage 400 V / 50 Hz, values for different specifications on request

{2} Max. supply side line fuse according to DIN EN 60204-1 classification VDE0113 chapter 1.

{3} Integrated semiconductor fuse in device (no line safety switch).

Version: housing IP54, without internal semiconductor fuses ("A" = with display)

Type	Part.-No.	Rated current for 50 °C {1}	Line fuse max. {2}	Semiconduc- tor fuse on site {3}	Heat dissipa- tion max. ap- prox. {1}	Weight
		[A]	[A]	[Part.-No.]	[W]	[kg]
Line voltage 3 ~ 208...415 V, (-10 %...+ 6 %) 50/60 Hz						
PXDM6AZ	304607	6	10	FF20 A 6x32 mm (00089798)	25	2.25
PXDM10AZ	304608	10	16		45	2.75
PXDM12AZ	304609	12	16	FF30 A 10x38 mm (00155987)	70	3.65
PXDM15AZ	304610	15	20		95	4.95
PXDM20AZ	304611	20	25	30 A 10 x 38 mm gRL (00155984)	190	5.50
PXDM25AZ	304612	25	35	FF50 A D02 (e.g. fuse kits 349030)	260	11.10
PXDM35AZ	304613	35	50	FF63 A D02 (e.g. fuse kits 349031)	430	11.15

{1} for mains voltage 400 V / 50 Hz, values for different specifications on request

{2} Max. supply side line fuse according to DIN EN 60204-1 classification VDE0113 chapter 1.

{3} Semiconductor fuse not in the scope of supply, as accessories available. For protection of damages in the case of short-circuits installation on site recommended.

Version: housing IP20, for switch cabinet mounting without semiconductor fuses ("A" = with display)

Type	Part.-No.	Rated current for 50 °C {1}	Line fuse max. {2}	Semiconduc- tor fuse on site {3}	Heat dissipa- tion max. ap- prox. {1}	Weight
		[A]	[A]	[Part.-No.]	[W]	[kg]
Line voltage 3 ~ 208...415 V, (-10 %...+ 6 %) 50/60 Hz						
PXDM25AE	304624	25	35	FF50 A D02 (e.g. fuse kits 349030)	260	7.65
PXDM35AE	304625	35	50	FF63 A D02 (e.g. fuse kits 349031)	430	7.75

{1} for mains voltage 400 V / 50 Hz, values for different specifications on request

{2} Max. supply side line fuse according to DIN EN 60204-1 classification VDE0113 chapter 1.

{3} Semiconductor fuse not in the scope of supply, as accessories available. For protection of damages in the case of short-circuits installation on site recommended.

Maximum cross section for line and motor connection	<ul style="list-style-type: none"> • PXDM6...20: 2.5 mm² • PXDM25/35: 10 mm² • PXDM25/35E: 10 mm²
Stepless controlled output voltage	approx. 20...100 % of connected line voltage
Min. motor current	for PXDM6: 0.2 A, for PXDM10..35: 0.5 A
Input resistance for sensor or signal set for the rotational speed	for 0 - 10 V input: R _i >100 kΩ for 4 - 20 mA input: R _i = 250 Ω
Voltage supply e.g. for sensors	+24 V ± 20 %, I _{max} 120 mA (for connection to an external AXG terminal minus approx. 50 mA)
Output (0 - 10 V)	I _{max} 10 mA (short-circuit-proof)
Contact rating of the internal relay	max. AC 250 V 2 A
Max. permissible ambient temperature depending on version	<ul style="list-style-type: none"> • for controller with internal fuses type PXDM: 40 ° C (up to 55 ° C with derating) • for controllers without internal fuses type PXDM...E and PXDM...Z: 50 ° C (up to 55 ° C with derating)
Min. permissible ambient temperature	0 ° C (if mains voltage is not switched off up to -20 ° C)
Max. permissible installation height	0...4000 m amsl above 1000 m amsl the rated current is to be reduced by 5 % / 1000 m
Permissible rel. humidity	85 % no condensation
Electromagnetic compatibility for the standard voltage 230 / 400 V according to DIN IEC 60038	Interference emission EN 61000-6-3 (domestic household applications)
	Interference immunity EN 61000-6-2 (industrial applications)
Max. leakage current according to the defined networks of DIN EN 60990	< 3.5 mA
Harmonics current	For devices ≤ 16A According EN 61000-3-2 (for a "professional device") ☞ Electrical installation / harmonics current
	For devices > 16 A and ≤ 75 A according EN 61000-3-12 (☞ Electrical installation / harmonics current and line impedance)
	Please ask Ziehl-Abegg for the individual harmonic oscillation levels of the current as a percentage of the fundamental oscillation of the rated current.

1.4.1 Versions type-lines Ucontrol

Housing version IP54 for wall mounting, internal semiconductor fuses

- **PXDM...:** external terminal type AXG-1A(E), for start-up and setting necessary.
- **PXDM...A:** internal LCD-Multifunction display with plain language text.
- **PXDM...AQ:** internal LCD-Multifunction display and main switch with bypass function.

Housing version IP54 for wall mounting, semiconductor fuses construction site

- **PXDM...Z:** external terminal type AXG-1A(E), for start-up and setting necessary.
- **PXDM...AZ:** internal LCD-Multifunction display with plain language text.

IP20 for switch cabinet mounting, semiconductor fuses construction site

- **PXDM...E:** external terminal type AXG-1A(E), for start-up and setting necessary.
- **PXDM...AE:** internal LCD-Multifunction display with plain language text.

1.4.2 Performance reduction during elevated ambient temperatures

The maximum permissible ambient temperature for the device is 40 °C or 50 °C depending on version. Up to this temperature, loading (maximum continuous current) with the specified rated current is possible.

The removal of heat in the unit due to power dissipation is dependent on the ambient temperature, so the maximum load has to be reduced if the ambient temperature is higher than 40 °C or 50 °C! For each degree higher the load has to be reduced approx. 2.2%.

The average value measured during a 24 h period must be 5 K under the max. ambient temperature. For installation in a switch cabinet, the device's dissipation and its possible affect on the ambient temperature must be taken into consideration (☞ Technical data)!

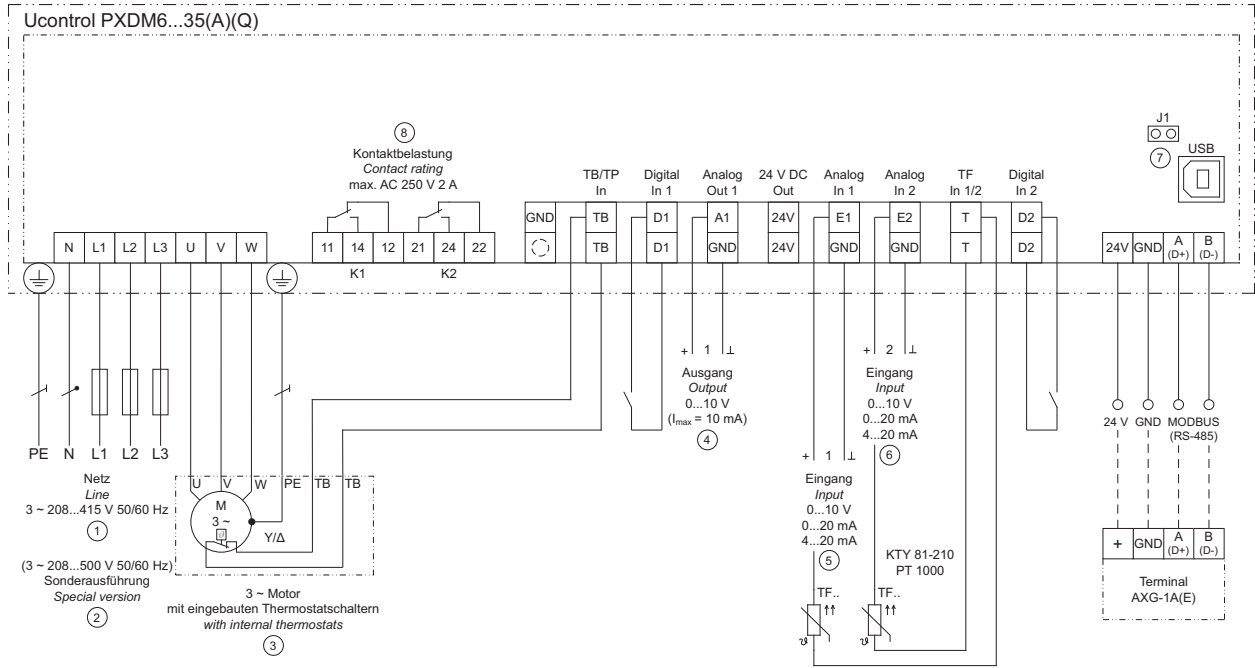
Maximum load for ambient temperatures higher 40 °C for versions with internal fuses

Type	Part.-No.	Rated current for 40 °C	max. current load for 45 °C	max. current load for 50 °C	max. current load for 55 °C
		[A]	[A]	[A]	[A]
PXDM6	304620	6	5.5	5.0	4.5
PXDM6A	304594	6	5.5	5.0	4.5
PXDM6AQ	304614	6	5.5	5.0	4.5
PXDM10	304621	10	10,0	9.0	8.0
PXDM10A	304595	10	10,0	9.0	8.0
PXDM10AQ	304615	10	10,0	9.0	8.0
PXDM12A	304596	12	11.0	10.0	9.0
PXDM12AQ	304616	12	11.0	10.0	9.0
PXDM15A	304597	15	13.5	12.0	10.0
PXDM15AQ	304617	15	13.5	12.0	10.0
PXDM20A	304598	20	20.0	18.0	16.0
PXDM20A	305596	20	20.0	18.0	16.0
PXDM25A	304599	25	25.0	22.5	22.5
PXDM25AQ	304618	25	25.0	22.5	22.5
PXDM35A	304600	35	35.0	35.0	31.5
PXDM35AQ	304619	35	35.0	35.0	31.5

Maximum load for ambient temperatures higher 50 °C for versions without internal fuses

Type	Part.-No.	Rated current for 50 °C	max. current load for 55 °C
		[A]	[A]
PXDM6AZ	304607	6.0	5.5
PXDM10AZ	304608	10.0	9.0
PXDM12AZ	304609	12.0	10.0
PXDM15AZ	304610	15.0	12.0
PXDM20AZ	304611	20.0	18.0
PXDM25AZ	304612	25.0	22.5
PXDM35AZ	304613	35.0	35.0
PXDM25AE	304624	25.0	22.5
PXDM35AE	304625	35.0	31.5

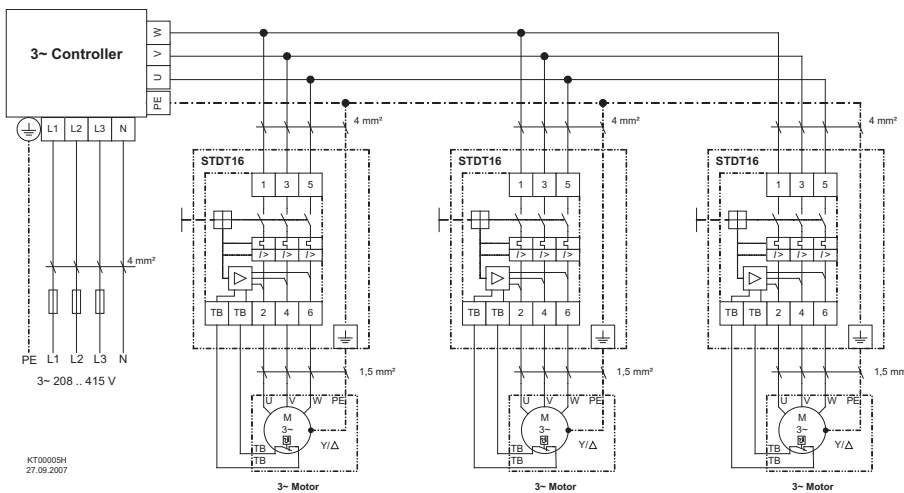
1.5 Connection diagram



- 1 Line 3 ~ 208...415 V, 50/60 Hz
- 2 Special version for line 3 ~ 208...500 V, 50/60 Hz
- 3 3~ Motor with internal thermostats
- 4 Output 0...10 V ($I_{max} = 10 \text{ mA}$)
- 5 Input 1: 0...10 V, 0...20 mA, 4...20 mA, TF...(KTY)
- 6 Eingang 2: 0...10 V, 0...20 mA, 4...20 mA, TF...(KTY)
- 7 USB-interface
- 9 Contact rating max. AC 250 V 5 A

1.5.1 Connection suggestion for several motors with motor protection unit type STDT

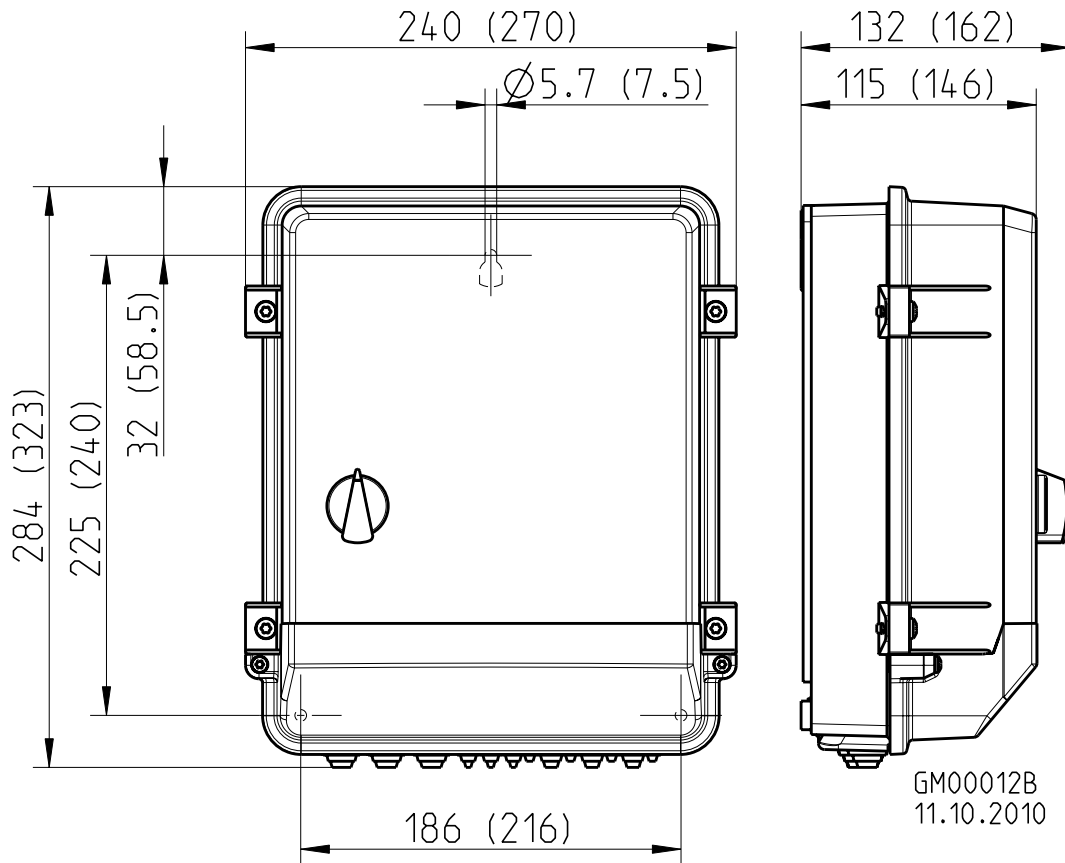
- Full motor protection by switch-off when activating the attached thermostat switches “TB”. Reset after malfunction by key press.
- Line protection: A thermal over current sensor and a magnetic short circuit releasing elements are the parts of the integral line protection. Adjustment to the thermal overcurrent sensor to the max. permissible current of the connected cable (max. line fuse 80 A).
- No cut-off if the mains supply is interrupted



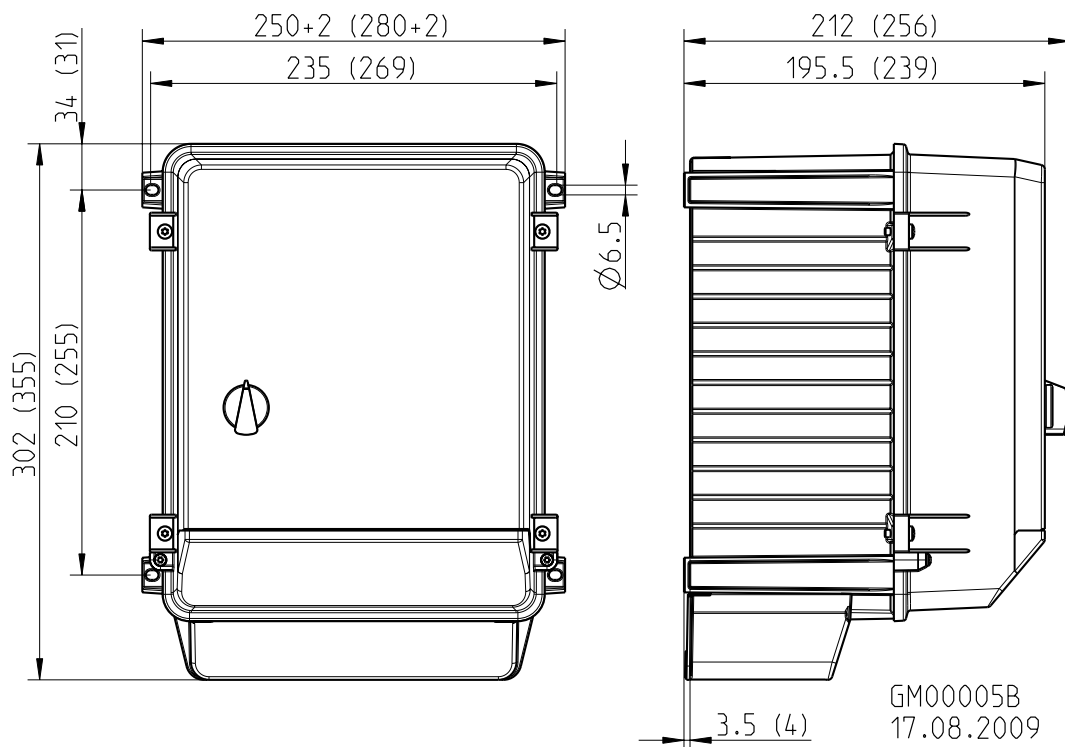
Consider max. terminal load Operating Instructions!
 (General example, data for the connection of the controller dependent on the used type of device)

1.6 Dimensions [mm]

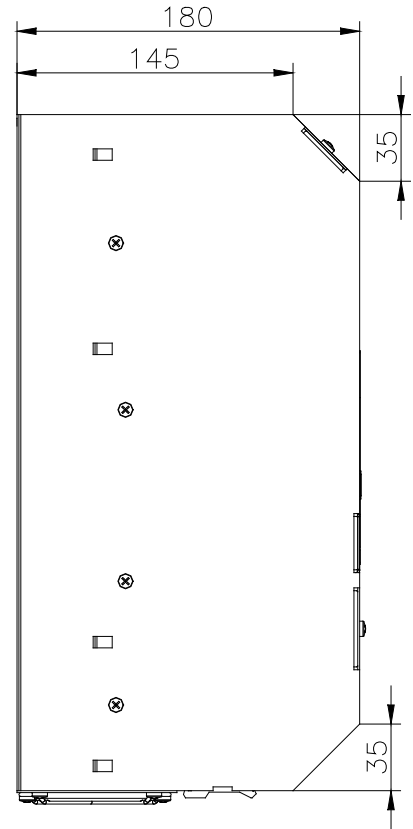
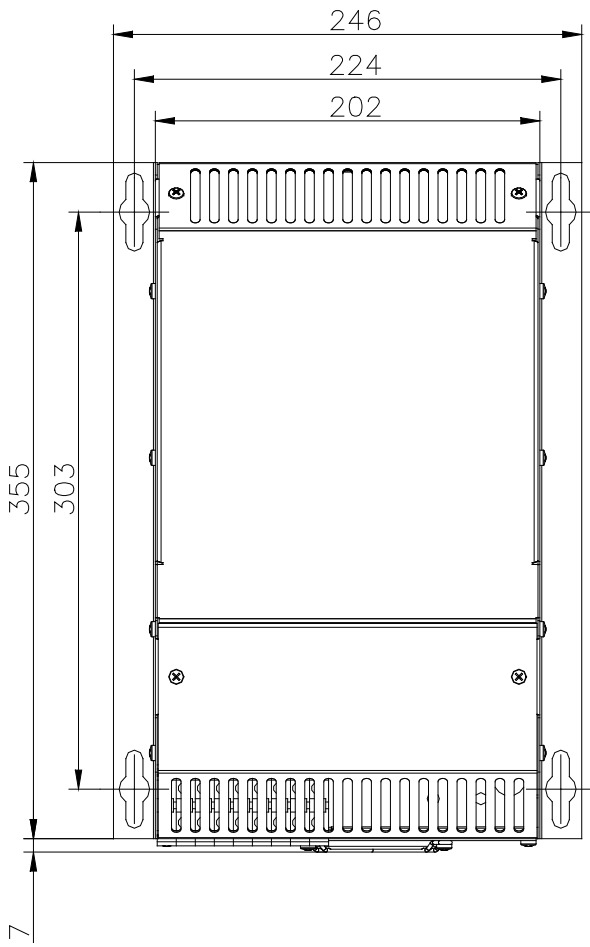
PXDM6/10 (PXDM12/15)



PXDM20 (PXDM25/35)



PXDM25/35E



SR031X30

1.7 Manufacturer reference

Our products are manufactured in accordance with the relevant international regulations. If you have any questions concerning the use of our products or plan special uses, please contact:

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