BOPP & REUTHER MESSTECHNIK

CONTROLLER FOR DOSING TECHNOLOGY MID–MDS SERIES, MID–TERMINAL AND MDS–PLC

1. IDENTIFICATION

Manufacturer	Bopp & Reuther Messtechnik Am Neuen Rheinhafen 4 67346 Speyer / Germany Phone : +49 6232 657-0 Fax : +49 6232 657-505
Product type	Controller, Visualization
Product name	MID-MDS series, MID-Terminal, MDS-PLC

2. AREA OF APPLICATION

The area of application for all controllers includes the controlling of dosing / filling processes. They are applied in dosing / filling machines of varying designs, e.g. linear fillers or rotary fillers. They measure the flow rate and control the valves.

3. PRINCIPLE OF OPERATION AND SYSTEM DESIGN

3.1 MID–MDS System 30/49/84

The MID-MDS system consists of a rack and different plug-in cards.
The cards have the following functions:
- DR11 master card (controls all processes)
- LS23 valve card (controls the valves)
- UV12 measuring card (converts the measuring signal of the MIDs into pulses)
- QBxxx-cards (for connecting the cables)

MDS 30: up to 6 channels (control panel enclosure)
MDS 49: up to 12 channels (control panel enclosure or 19"rack)
MDS 84: up to 18 channels (19" rack)

Racks can be interconnected to achieve a larger number of channels (up to 548).

3.2 MID–Terminal

The MID-Terminal configures the MID-MDS system and displays the programmed data and measured values. If desired by the machine manufacturer, this function can also be assumed by the PLC that controls the machine.
The visualization is available in various languages.

3.3 MDS–PLC

The MDS-PLC can control up to 4 measuring instruments and 4 valves. The parameters are configured and displayed via the MDS-PLC. The visualization is available in various languages.

It is possible to connect magnetic-inductive flow meters, series MID in conjunction with the UV14 converter module, mass flow meters series FMD, oval wheel meters series OD and other measuring instruments with pulse output.

MID-MDS

MID-Terminal

MDS-PLC

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4. INPUTS AND OUTPUTS

4.1 Inputs

MID-MDS: up to 548 measuring signal inputs for magnetic-inductive flow meters, series MID, mass flow meter FMD or oval wheel meter Od
status inputs „External Start", „CIP", „Fault": 24 VDC ±15 %, (>10 VDC high level, <5 VDC low level)

MID-Terminal: none

MDS-PLC: pulse inputs 24 VDC, 100 kHz
4 status inputs „External Start": 24 VDC ±15 %, (>10 VDC high level, <5 VDC low level
4 status inputs „External Stop": 24 VDC ±15 %, (10 VDC high level, <5 VDC low level)
1 status input „CIP": 24 VDC ±15 %, (>10 VDC high level, <5 VDC low level)

4.2 Outputs

MID-MDS: status outputs „Tolerance", „Valve open/closed": 24 VDC ±15 %, (>10 VDC high level, <5 VDC low level)

MID-Terminal: none

MDS-PLC: 4 status outputs „Valve open/closed": 24 VDC ±15 %, (>10 VDC high level, <5 VDC low level
4 status outputs „Tolerance": 24 VDC ±15 %, (10 VDC high level, <5 VDC low level)
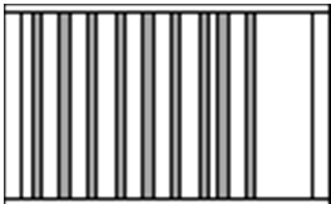4 status output „Valve closed": 24 VDC ±15 %, (>10 VDC high level, <5 VDC low level)

5. COMMUNICATION

5.1 Interface

MID-MDS:	RS232 (linear filler), RS485 (rotary filler)	For protocols, see operation manual
MID-Terminal:	RS232 (only internal)	
MDS-PLC:	none	

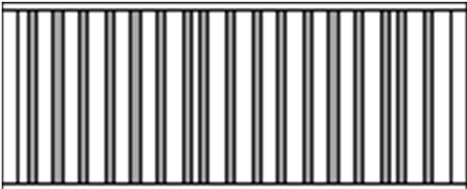## 6. CONSTRUCTION DETAILS

6.1 Design / dimensions / weights

Type : MID-MDS 30 Control panel enclosure 30 TE		with cards	without cards
Dimensions (mm)	**width**	192	192
	height	144	144
	depth	275*	275*
Weight (kg)		3.0	1.7

*without front door 240
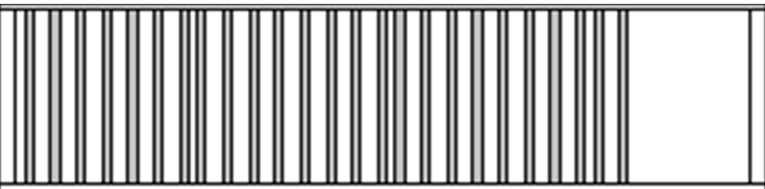
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Type : MID-MDS 49 Control panel enclosure 49 TE		with cards	without cards
Dimensions in (mm)	width	288	288
	height	144	144
	depth	275*	275*
Weight (kg)		4.2	2.3
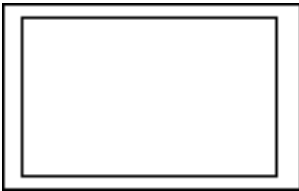
*without front door 240
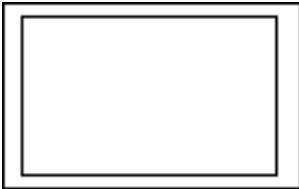
Type : MID-MDS 49 19" rack 49 TE		with cards	without cards
Dimensions in (mm)	width	287 / 305*	287 / 305*
	height	133	133
	depth	240	240
Weight (kg)		3.7	1.8

*without / with bracket

Typ : MID-MDS 84 19" rack 84 TE		with cards	without cards
Dimensions (mm)	width	465 / 183*	465 / 183*
	height	133	133
	depth	240	240
Weight (kg)		4.4	2.5

*without / with bracket

Type : MID-Terminal		
Dimensions (mm)	width	197
	height	122
	depth	25
Weight (kg)		0.65

Type : MDS-PLC		
Dimensions (mm)	width	170
	height	135
	depth	80
Weight (kg)		1

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7. OPERATING CONDITIONS

7.1 Ingress protection

MID-MDS:	Control panel enclosure: IP 65 front / IP20 terminals, rack: IP20
MID-Terminal:	IP 65 front / IP20 terminals
MDS-PLC:	IP 65 front / IP20 terminals

Ingress protection for enclosure as per IEC 529 / EN 60529

7.2 Ambient temperature / humidity

Ambient temperature:	10 to +50°C
Ambient humidity:	< 50% annual average, condensation not permitted

7.3 Supply voltage

MID-MDS:	18 - 36 VDC and 24 VAC 50 Hz ±5% or 60 Hz ±5%
MID-Terminal:	19.2 - 30 VDC
MDS-PLC:	19.2 - 28.8 VDC

7.4 Power consumption

MID-MDS:	upon request (depending on the version)
MID-Terminal:	max. 7 W
MDS-PLC:	max. 27 W

7.5 Display

MID-MDS:	without
MID-Terminal:	Color touch panel, 800x480 pixel, 7"
MDS-PLC:	Color touch panel, 320x240 pixel, 5.7"

8. CERTIFICATES AND APPROVALS

EN 60529 types of protection via enclosure (IP code)

Directive 2014/30/EU (EMC Directive)
- **EN 61000-6-2**: Generic standards – Immunity for industrial environments
- **EN 61000-6-3**: Generic standards – Emission standard for residential, commercial and light-industrial environments

9. DOCUMENTATION

Operating Manuals
A-EN-05801 Operating Manual - Dosing System MID-MDS Linear Filler
A-EN-05802 Operating Manual - Dosing System MID-MDS 4 Start Inputs, Single Control
A-EN-05803 Operating Manual - Dosing System MID-MDS Rotary Filler
A-EN-05805 Operating Manual - MDS-PLC
A-EN-05821 Operating Manual - MID-Terminal