GHM Messtechnik GmbH – Sales Center International
Schloßstraße 6 ● 88453 Erolzheim ● Germany
Fon +49-7354-937233-0 ● Fax -88
www.ghm-messtechnik.de ● info@ghm-messtechnik.de

Weighing Instruments

Characteristics

System	DMS strain gauges (load cells), DMS amplifier
Evaluation	Transmitter, displays
Mounting	Switch panel case, DIN rail mounting TS35

Applications

- **Precision measurement for sales and table scales**
- **Industry applications like weighing bridges, big container, tanks and silos**
- **Wide range of applications like plate form, table scales, belt-, small container-, tank- and package weigher**

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Function

The DMS-Bridge devices are designed for measuring forces, pressure and torques with DMS bridges.
The devices offer a programmable bridge-supply 5/10 V DC; max. 120 mA output current. Measuring errors due to line resistance can be compensated by using a sense line.

Advantage

- Connection of all standard measuring cells
- Large range of application
- Support rail transducer with LCD display
- Panel meter with large 14.2mm LED display
- Weighing measuring cells for measuring ranges of 5 kg to 100 t
- Measuring transducer and weighing measuring cells also available in ex design

Device overview

Device	Type	Measuring range/input	Output	Page
Evaluation unit				
DMS50	DIN rail mounting TS35	0.100..5.000 mV/V	Analog signal 0/4..20 mA, 0..10 V DC max. 4 alarm output	3
DMS50Ex	DIN rail mounting TS35	0.500..5.000 mV/V	Analog signal 0/4..20 mA, 0..10 V DC max. 2 alarm output	5
DMS9648	Panelmeter DIN 96x48 mm	0.900..6.600 mV/V	Analog signal 0/4..20 mA, 0..10 V DC max. 4 alarm output	7
SBB1616 [1)]	DMS-amplifier, field mounting	Max. 6 load cells connectable	2..10V DC, bridge supply max. 200 mA	9
Load cells				
KR	Force and traction	50 kg..30 t	2 mV/V 350 Ω Bridge resistance	10
KS	Force	50 kg..100 t	2 mV/V 350/700 Ω Bridge resistance	11
PC22	Weight, force	5 kg..40 kg	2 mV/V 375 Ω bridge resistance	12
SB8	Weight, force	10 kg..500 kg	2 mV/V 400 Ω bridge resistance	13
ULB	Weight, force	0..5 t	2 mV/V 1100 Ω bridge resistance	14
RC3	Weight, force	7,5 t..100 t	2 mV/V 1150 Ω bridge resistance	15

1) If several same weighing cells are required to acquire forces or weights, the DMS measuring amplifiers SBB1616 are used. The prerequisite is that all cells have the same measuring range and also the same detection sensitivity (mV/V). Fluctuations of the detection sensitivity due to tolerance are considered by the arithmetic average of the detection sensitivity being calculated.

GHM Messtechnik GmbH – Location Martens
Kiebitzhörn 18 ● 22885 Barsbüttel ● Germany
Fon +49-40-670 73-0 ● Fax -288
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Transmitter DMS50

- **Weight – Force – Pressure – Torque with DMS-strain gauges**
- **Bridge sensitivity 0.100..5.000 mV/V**
- **Teach-in function**
- **Tare function**
- **Min- and Max peak storage (not voltage safe)**
- **Integrated bridge supply 2.5 V, 5 V, 10 V max. 120 mA**
- **Bus-interface Modbus / Profibus**

Characteristics

The DMS50 converts the output signal of standard strain gauges (DMS measuring bridges) into a standard signal 0/4..20 mA or 0/2..10 DC. The bridge supply and an external control input for the tare function are integrated.
If several strain gauges are required in an application, these must be connected parallel. The bridge current must not exceed 120 mA in this case. Where appropriate, a SBB1616 measuring amplifier is to be interposed for a feed current up to 200 mA.

Technical data

Power supply

Supply voltage	: 230 V AC ±10 %; 115 V AC ±10 % or 24 V DC ±15 %
Power consumption	: max. 7 VA
Operating temperature	: -10..+55 °C
CE- conformity	: EN 55022, EN 60555, EN 61326

Input

DMS

Bridge-supply	: 2.5 V/ 5 V/ 10 V DC ; programmable; max. 120 mA
Bridge sensitivity	: 0.100..5.000 mV/V
Sense line	: compensated line resistance of max. 10 Ω
Accuracy	: < 0.025 % ± 2 digit
Tare external	: ext. contact or 24 V DC signal
Display	: graphic LCD-Display 128x64 pixel, backlight white
Indicating range	: ±9999 Digit

Outputs

Relay SPDT, A1-A4	: < 250 V AC < 250 VA < 2 A cos φ ≥ 0.3 < 300 V DC < 40 W < 2 A
Analog output	: 0/4..20 mA burden ≤ 500 Ω; 0/2..10 V burden > 500 Ω, isolated output changes automatically
Accuracy	: 0.2 %; TK 0.01 %/K

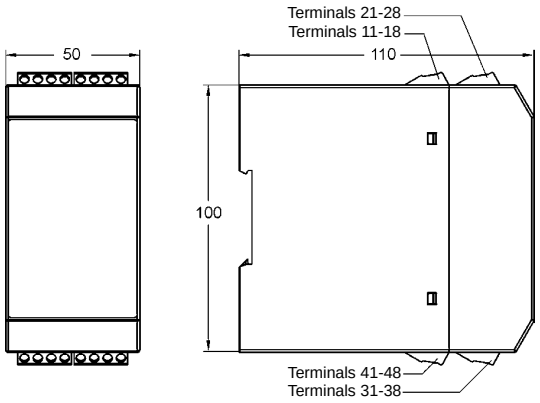
Fault indication at error in the DMS measuring circuit
→ Analog output 0 mA, < 3.6 mA or >21.5 mA, programmable
→ Alarm contact(s) min. or max. programmable

Bus system

Modbus	: RS485, RTU or ASCII max. 38400 Bd
Profibus	: Profibus DP
Connection	: 9 pole D-SUB plug in the front

Case	: Polyamide (PA) 6.6 , UL94V-0, acc. to DIN EN 60715, DIN rail TS35 DIN rail TS35
Weight	: approx. 450 g
Connection	: screw terminals 0.14..2.5 mm² AWG 26..AWG14
Protection class	: case IP30, terminals IP20 acc. to BGV A3

Dimensions



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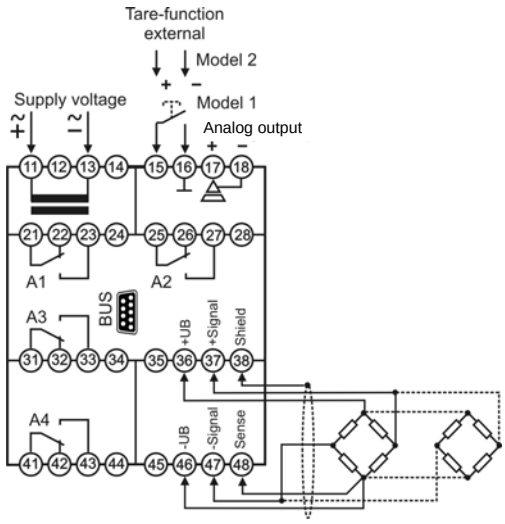
www.ghm-messtechnik.de ● info@martens-elektronik.de

Connection diagram

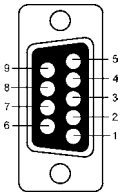


Bridge supply max. 120 mA

Bus connection

Modbus		
PIN	**Signal**	**EIA / TIA-485 name**
5	D1	B / B´
9	D0	A / A´
1	Common	C / C´
Profibus		
3	RxD / TxD-P	
5	DGND	
6	VP / +5V max 10 mA	
8	RxD / TxD-N	

9 pole D-Sub connector in the front



Ordering code

DMS50 - 1. [ ] - 2. [ ] - 3. [ ] - 4. [ ] - 5. [ ] - 6. [ ]

1.	**Model**	
	1	input DMS strain gauge, input ext. tare-function via contact
	2	as 1, but isolated input for external tare function via 24 V DC electronic signal
2.	**Alarm outputs**	
	00	not installed
	2R	2 relay outputs, A1, A2 SPDT
3.	**Alarm outputs/BUS configuration**	
	00	not installed
	2R	2 relay outputs, A3, A4 SPDT
	MB	Modbus RTU/ASCII, RS485
	PB	Profibus DP
4.	**Analog output**	
	AO	0/4..20 mA; 0/2..10 V DC
5.	**Supply voltage**	
	0	230 V AC, ± 10 % 50-60 Hz
	1	115 V AC, ± 10 % 50-60 Hz
	5	24 V DC, ± 15 %
6.	**Options**	
	00	without option

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Transmitter DMS50Ex

- **Weight – Force – Pressure – Torque with DMS strain gauges**
- **Bridge sensitivity 0.500..5.000 mV/V**
- **Teach-in function**
- **Tare function**
- **Min- and Max peak storage (not voltage safe)**
- **Integrated bridge supply 2.5 V, 5 V max. 40 mA**
- **Bus-interface Modbus / Profibus**

Characteristics

The DMS50Ex converts the output signal of standard strain gauges (DMS measuring bridges) into a standard signal 0/4..20 mA or 0/2..10 DC. The bridge supply and an external control input for the tare function are integrated.
If several strain gauges are required in an application, these must be connected parallel. The bridge current must not exceed 40 mA in this case.

Technical data

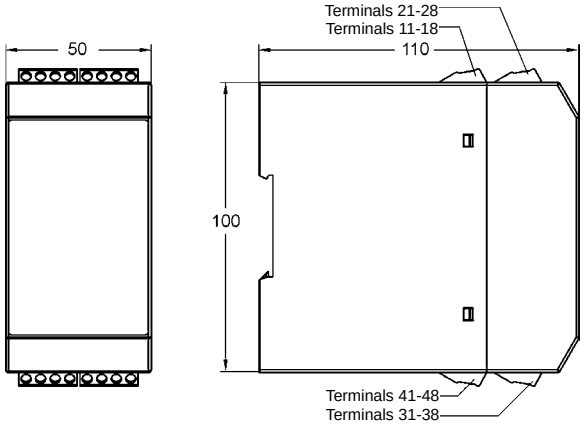
Power supply
Supply voltage : 230 V AC ±10 %; 115 V AC ±10 %
24 V DC ±15 %
Um = 253 V AC or 125 V DC
Power consumption : max. 5 VA
Operating temperature : -10..+55 °C
CE- conformity : ATEX- directive 94/9/EG
(certificate DMS50ATEX.001)
EN 60079-0:2006 EN 60079-11:2007
EN 61241-0:2006 EN 61241-11:2006
IEC 61326 05/2004, IEC 61000-4-2,
IEC 61000-4-3, IEC 61000-4-4,
IEC 61000-4-5, IEC 61000-4-6,
IEC 61000-4-8, IEC 61000-4-11,
CISPR16-1/16-2

Explosion protection
Certification : Ex II (1) G [Ex ia] IIC/IIB or
Ex II (1) D [Ex iaD]
Approval : TÜV 08 ATEX 554171
Input
DMS
Bridge supply : 2.5 V / 5 V DC programmable,
max. 40 mA
Bridge sensitivity : 0.500..5.000 mV/V
Sense line : compensated line resistance
of max. 10 Ω
Accuracy : < 0.025 % ±2 digit
Max. no load voltage U_0 : 14.5 V
Max. short circuit curr. I_0 : 163 mA
Max. power consump. P_0 : 590 mW

Explosion protection	**Ex ia / IIC**	**ia / IIB**
Max. external inductivity	: 100mH	100mH
Max. external capacity	: 25 µF	120 µF
Internal capacity	: negligible	
Internal inductivity	: negligible	
Tare-function	: external contact	

Display : graphic LCD-Display 128x64 pixel, with back-light white
Indicating range : ±9999 Digit
Outputs
Relay SPDT A1-A2 : < 250 V AC < 250 VA < 2 A
cos φ ≥ 0.3
< 300 V DC < 40 W <2 A
Analog output : 0/4..20 mA burden ≤ 500 Ω;
0/2..10 V burden > 500 Ω, isolated
output changes burden depending
Accuracy : 0.2 %; TK 0.01 %/K
Fault indication at error in the DMS measuring circuit
→ Analog output 0 mA, < 3.6 mA or >21.5 mA, programmable
→ Alarm contact(s) min. or max. programmable
Bus system
Modbus : RS485, RTU or ASCII max. 38400 Bd
Profibus : Profibus DP
Connection : 9 pole D-SUB connector in the front
Case : Polyamide (PA) 6.6 , UL94V-0,
acc. to DIN EN 60715, DIN rail TS35
Weight : approx. 450 g
Connection : screw terminals 0.14..2.5 mm²
AWG 26..AWG14
Protection class : case IP30,
terminals IP20 acc. to BGV A3

Dimensions



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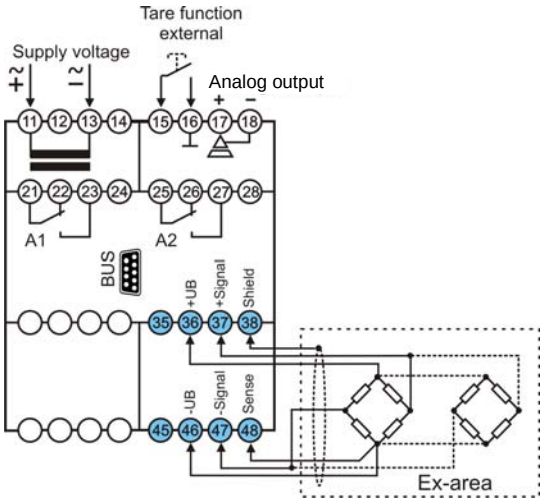
www.ghm-messtechnik.de ● info@martens-elektronik.de

Connection diagram

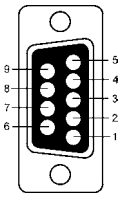


Bridge supply max. 40 mA

Bus connection

Modbus		
PIN	**Signal**	**EIA / TIA-485 name**
5	D1	B / B´
9	D0	A / A´
1	Common	C / C´
Profibus		
3	RxD / TxD-P	
5	DGND	
6	VP / +5V max 10 mA	
8	RxD / TxD-N	

9 pole D-Sub connector
in the front



Ordering code

DMS50Ex - 1. ☐ - 2. ☐ - 3. ☐ - 4. ☐ - 5. ☐ - 6. ☐

1.	**Model**	
	1	input DMS strain gauge, input external tare-function via contact, voltage free, intrinsically safe ATEX II (1) G [Ex ia] IIC/IIB ATEX II (1) D [Ex iaD]
2.	**Alarm outputs**	
	00	not installed
	2R	2 relay SPDT A1, A2
3.	**BUS configuration**	
	00	not installed
	MB	Modbus RS485 RTU, ASCII
	PB	Profibus DP
4.	**Analog output**	
	AO	0/4..20 mA; 0/2..10 V DC
5.	**Supply voltage**	
	0	230 V AC ±10 % 50-60 Hz
	1	115 V AC ±10 % 50-60 Hz
	5	24 V DC ±15 %
6.	**Options**	
	00	without option

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DMS Bridge Panelmeter DMS9648

- **Weight-force-pressure-torque with DMS bridges**
- **1- or 2-way action, pressure or traction programmable**
- **Bridge sensitivity programmable**
- **Max. 8 parameter sets programmable**
- **Max. 4 alarm outputs, relay or transistor**

Characteristics

The DMS Bridge Panelmeter DMS9648 is designed for measuring forces, pressure and torques with DMS bridges.
The device offers a programmable bridge supply 5/10 V DC; max. 50 mA output current. Measuring errors due to line resistance can be compensated by using a sense line.

Technical data

Power supply

Supply voltage	:	230 V AC ±10 %; 115 V AC ±10 %; 24 V AC ±10 % or 24 V DC ±15 %
Power consumption	:	max. 3.5 VA, with analog output 5 VA
Operating temperature	:	-10..+55 °C
CE- conformity	:	EN 55022, EN 60555, IEC 61000-4-3/4/5/11/13

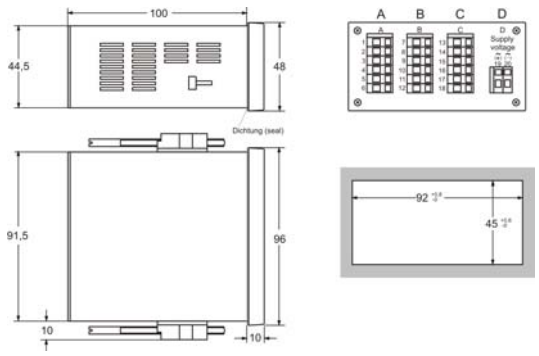
Input

Bridge supply	:	5 V DC or 10 V DC ; programmable; max. 50 mA
Bridge resistance	:	at 5 V min. 100 Ω; at 10 V min. 200 Ω
Bridge sensitivity	:	0.900..6.600 mV/V programmable
Sense line	:	compensated line resistance of max. 10 Ω
Accuracy	:	< 0.1 % ±2 Digit
Display	:	LED red, 14,2 mm
Indicating range	:	±9999(0) Digit
Additional display	:	LED 2 digit red, 7 mm (parameter - and status indicator)

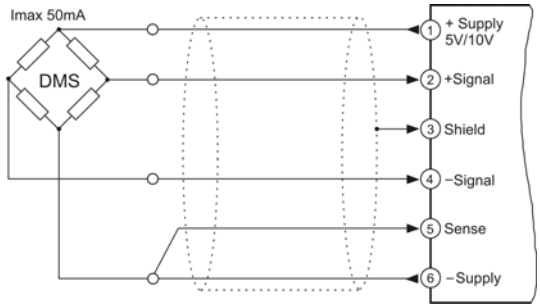
Output

Relay SPDT	:	< 250 V AC < 250 VA < 2 A, < 300 V DC < 50 W < 2 A
Transistor	:	max. 35 V AC/DC, 100 mA, with short-circuit-proof
Analog output	:	0/4..20 mA burden ≤ 500 Ω; 0/2..10 V burden > 500 Ω, isolated output changes automatically
- Accuracy	:	0.1 %; TK 0.01 %/K
Case	:	panel mounting DIN 96x48, material PA6-GF; UL94V-0
Dimensions	:	front 96x48 mm, mounting depth 100 mm
Weight	:	max. 390 g
Connection	:	clamp terminals, 0.08..1.5 mm² AWG28..AWG14
	:	front IP65, terminals IP20 acc. to BGV A3

Dimensions



Connection diagram



Ordering code

DMS9648 - 1. [ ] - 2. [ ] - 3. [ ] - 4. [ ] - 5. [ ] - 6. [ ] - 7. [ ]

1.	**Terminal strip A**		
	1	input DMS bridge, 1 parameter set	
	2	input DMS bridge, 8 parameter sets	
2.	**Terminal strip B**		
	00	not installed	
	2R	2 relay outputs	
	2T	2 electronic outputs	
3.	**Terminal strip C**		
	00	not installed	
	2R	2 relay outputs	
	2T	2 electronic outputs	
	AO	analog output 0/4..20 mA, 0/2..10 V	
4.	**Terminal strip D; supply voltage**		
	0	230 V AC	±10 % 50-60Hz
	1	115 V AC	±10 % 50-60Hz
	4	24 V AC	±10 % 50-60Hz
	5	24 V DC	±15 %
5.	**Options**		
	00	without option	
	01	min- and max- peak hold	
	07	display brightness programmable	
	08	analog output separately and independent from the indicating range programmable (only DMS9648-1)	
6.	**Unit** (appears in the unit field)		
7.	**Additional text** placed above the display (3x90 mm HxW)		

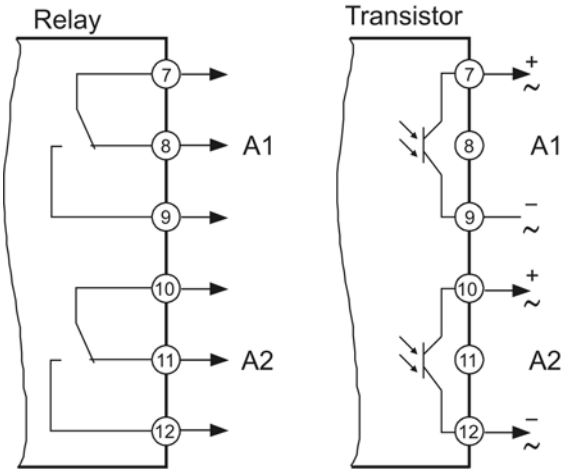
Connection diagram for terminal strips B-D see page 8

Connection Diagrams X9648, Terminals B-D

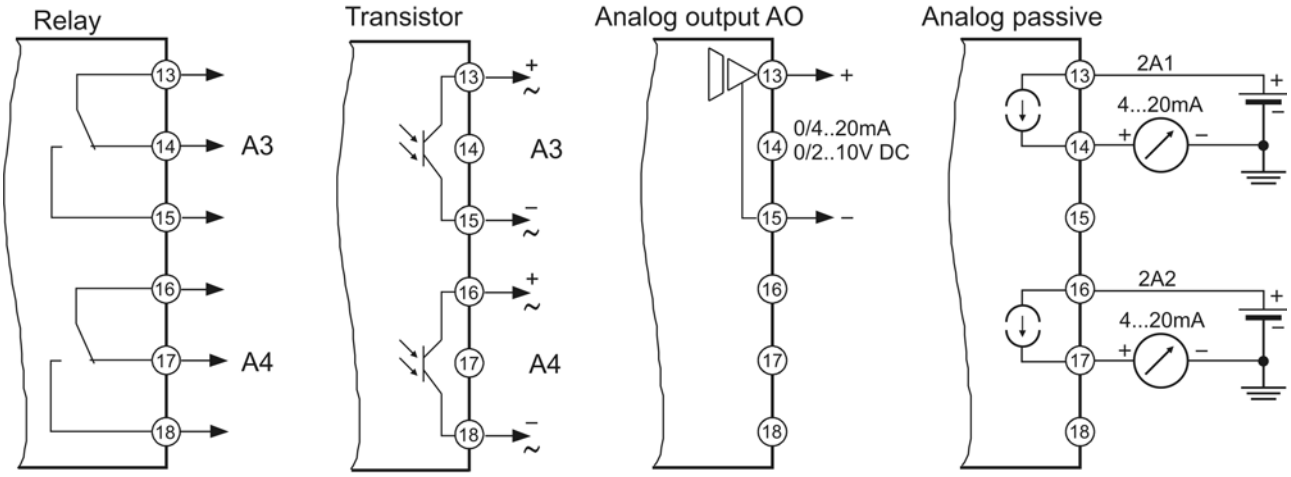
Terminal strips B, C, D

Terminal strip A belongs to each article.

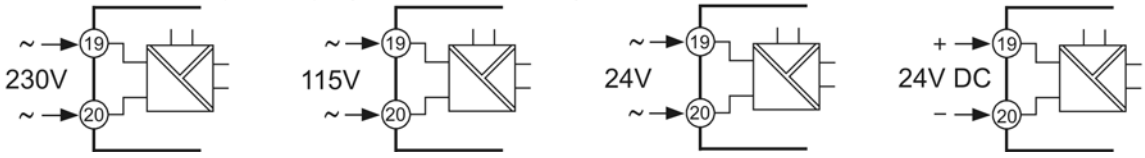
Ternminal strip B (varies with versions)
2 alarm outputs



Terminal strip C (varies with versions)
2 alarm outputs



Terminal strip D supply voltage (varies with version)



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DMS-Bridge Amplifier SBB1616

- **Bridge supply 2..10 V**
- **max. 6 DMS strain bridge sensors ≥ 300 Ω at 10 V**
- **Output current 200 mA max.**
- **Line compensation up to 1 V**
- **Protection class IP65**

Characteristics

Strain-Bridge-Amplifier SBB 1616 will be used if more than one strain bridge sensor (DMS sensor) is necessary. The device can supply max. 6 DMS sensors. The total force or weight, results from the sum of single loads or weights. It must be ensured, that all used DMS sensors have the same measuring range and sensitivity (mV/V). Tolerance-conditioned differences in sensitivities are considered, by operating with the arithmetic average value of the used DMS sensors.

Technical data

Power supply

Supply voltage	:	230 V AC ±10 %; 115 V AC ±10 %, 24 V AC ±10 % or 24 V DC ±15 %
Power consumption	:	max. 8 VA
Operating temp.	:	-10..+55 °C
CE- conformity	:	EN 55022, EN 60555, IEC 61000-3/4/5/11/13

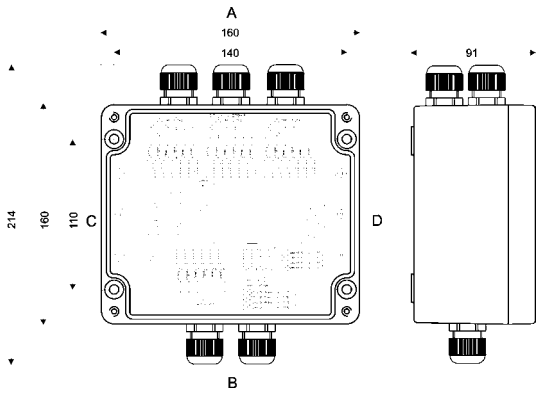
Input

Voltage	:	2..10 V DC (bridge voltage)
Difference voltage	:	input/output maximal 2 mV
Input resistance	:	10 kOhm
Number of bridges	:	max. 6 (300 Ω each) at 10 V
Connection	:	3 sensors direct, with 6 sensors 2 parallel under a common terminal (see connection diagram)

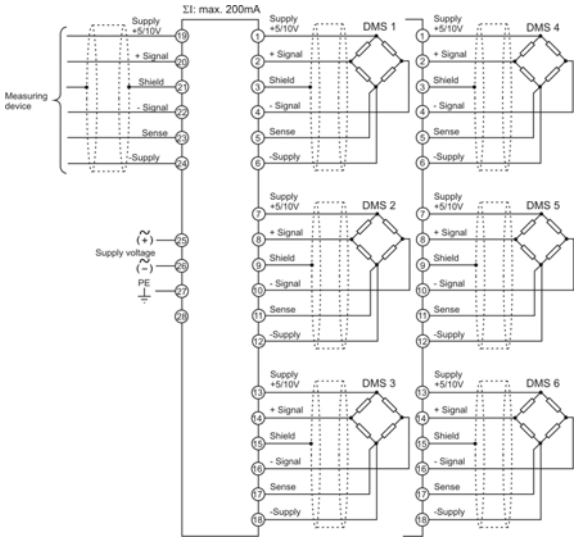
Output

Bridge voltage	:	2..10 V DC amplified bridge voltage from the measuring device
Voltage reserve for line compensation	:	max. 1 V
Output current	:	max. 200 mA, with short circuit proof
Case	:	Aluminum, field mounting
Dimensions	:	160 x 160 x 91 mm (WxHxD)
Weight	:	max. 1900 g
Connection	:	clamp terminals, 2 mm² single wire, 1.5 mm² flexi wire, AWG14 5 or 8 cable glands M16x1.5
Protection class	:	IP65, terminals IP20, finger safe acc. to BGV A3

Dimensions



Connection diagram



Ordering code

SBB1616 - 1. - 2.

1.	**Power supply**	
	0	230 V AC ±10 %
	1	115 V AC ±10 %
	4	24 V AC ±10 %
	5	24 V DC ±15 %
2.	**Options**	
	00	without option
	01	3 additional cable glands M16x1.5 on side A

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Load Cell Series KR

- **Measuring ranges from 50 kg up to 30 t**
- **Operating temperature -15..+75 °C**
- **Accuracy 0.2 %**
- **Protection class IP65**

Characteristics

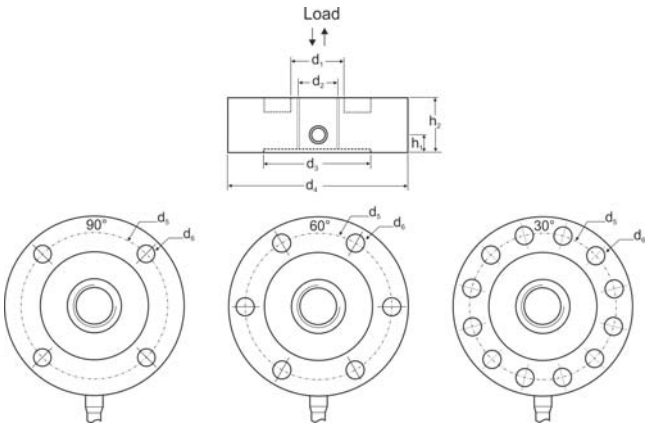
The cell is specified for industry applications like tanks, silos, and weighing bridges for force and traction loads up to 30 t.

Technical data

Power supply

Bridge supply	: max. 20 V DC, 10 V DC recommended
Max. operating temperature	: -20..70 °C
Bridge sensitivity	: 350 Ohm
Output signal	: 2 mV/V, exact sensitivity on the type plate
Insulation resistance	: > 5000 MOhm
Accuracy	: 0.2 %
Repeatability	: <0.07 %
Zero unbalanced	: ± 2 %
Max. overload	: ± 150 %
Breaking load	: 300%
Connection cable	: 2 m 6-pole shielded, AWG26
Protection class	: IP67

Dimensions



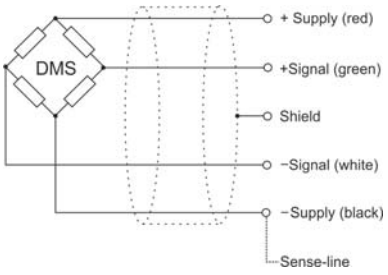
Design 01 Design 02/03 Design 04

Dimension table [mm]

Design	ød1	ød2	ød3	ød4	ød5	d6	h1	h2	N
01	10	M 6	60	78	69	4.5	9.5	27	4
02	20	M12x1	70	99	85	6.5	9.5	27	6
03	30	M20x1.5	80	118	98	8.5	9.5	35	6
04	72	M56x4	122	177	149	16.5	13	55	12

N=number of mounting holes

Connection diagram



The sense line is used to compensate line resistance from load cell to DMS transmitter. For distances more than 5 m it is recommended to use the sense line.

Ordering code

KR - 1. [ ] - 2. [ ] - 3. [ ]

1.	**Design** (see dimensions)	
	01	nominal load 50 / 100 / 200 kg
	02	nominal load 200 / 500 / 1000 kg
	03	nominal load 2 / 3 t
	04	nominal load 5 / 10 / 30 t
2.	**Measuring range** [kg or t]	
	please state in clear text	
3.	**Options**	
	00	without option

GHM Messtechnik GmbH – Location Martens
Kiebitzhörn 18 ● 22885 Barsbüttel ● Germany
Fon +49-40-670 73-0 ● Fax -288
www.ghm-messtechnik.de ● info@martens-elektronik.de

Load Cell Series KS

- **Measuring ranges from 50 kg up to 100 t**
- **Operating temperature -15..+75 °C**
- **Accuracy 0.2 %**
- **Protection class IP65**

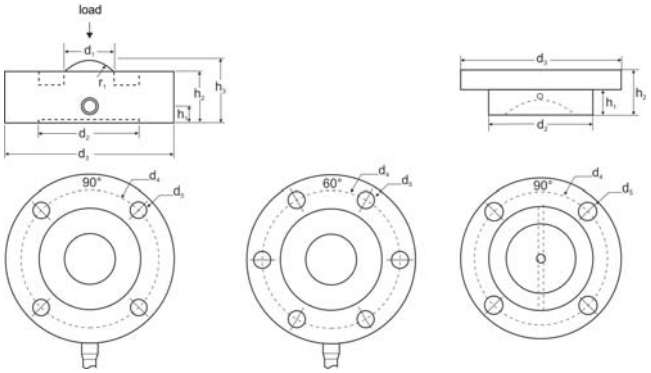
Characteristics

The cell is specified for industry applications like tanks, lorries, silos, and weighing bridges for force loads up to 100 t.

Technical data

Power supply	
Bridge supply	: max. 20 V DC, 10 V DC recommended
Max. operating temperature	: -20..70 °C
Bridge resistance	: 350 (model 1-3)/700 Ohm (model 4)
Output signal	: 2 mV/V, exact sensitivity on the type plate
Insulation resistance	: > 5000 MOhm
Accuracy	: 0.2 %
Repeatability	: <0.07 %
Zero unbalanced	: ± 2 %
Max. overload	: ± 150 %
Breaking load	: 300%
Connection cable	: 2 m 6-pole shielded, AWG26
Protection class	: IP67
Material	:

Dimensions

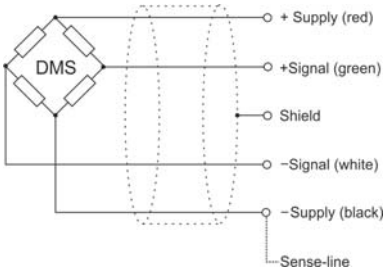


Design 01/02/03 Design 04 Mounting saddle MS01..04

Dimension table [mm]

Design	ød1	ød2	ød3	ød4	ød5	h1	h2	h3	r1	N
01	10	60	78	69	4.5	9.5	27	29	7	4
02	20	70	99	85	6.5	9.5	27	31	15	6
03	30	80	118	98	8.5	9.5	35	42	20	4
04	72	122	177	149	16.5	13	55	78	40	4
Mounting saddle										N = Number of mounting holes
MS-01	-	16	38	27	4.5	9	15	-	-	4
MS-02	-	40	78	60	8.5	15	25	-	-	4
MS-03	-	40	78	60	8.5	15	25	-	-	4
MS-04	-	110	177	149	16.5	33	50	-	-	4

Connection diagram



The sense line is used to compensate line resistance from load cell to DMS transmitter. For distances more than 5 m it is recommended to use the sense line.

Ordering code

KS - 1. [ ] - 2. [ ] - 3. [ ]

1.	**Design** (see dimensions)	
	01	nominal load 50 / 100 / 200 / 500 kg
	02	nominal load 1 / 2 / 5 t
	03	nominal load 5 / 10 t
	04	nominal load 20 / 50 / 100 t
2.	**Measuring range** [kg or t]	
	please state in clear text	
3.	**Options**	
	00	without option

Accessories
Mounting saddle
MS-01 for design 01
MS-02 for design 02
MS-03 for design 03
MS-04 for design 04

GHM Messtechnik GmbH – Location Martens
Kiebitzhörn 18 ● 22885 Barsbüttel ● Germany
Fon +49-40-670 73-0 ● Fax -288
www.ghm-messtechnik.de ● info@martens-elektronik.de

Load-Cell Series PC22

- **Standard- or Ex-devices**
- **Measuring range from 5..40 kg**
- **Operating temperature -20..+60 °C**
- **Accuracy 0.02 %**
- **Protection class IP67**

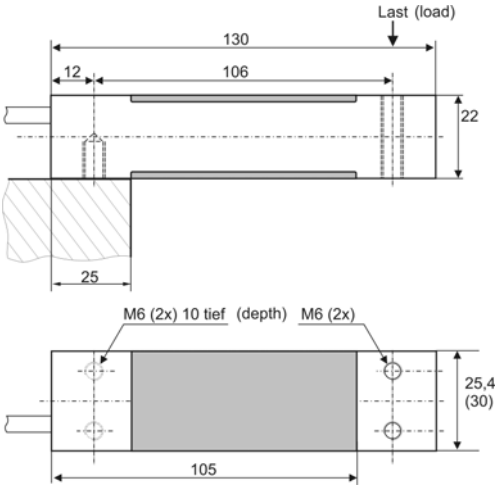
Characteristics

The precision cell type PC22 is a single Point load-cell of aluminum with an effective moist protection. The fields of applications lie in the section of sales and table scales.
The load cell was conceived for nominal loads of 5 kg up to 40 kg

Technical data

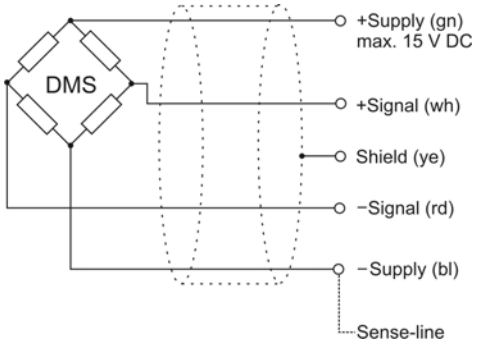
Power supply		
Bridge supply	:	max. 15 V DC, 10 V DC recommended
Operating temperature	:	-20..+60 °C max. -10..+40 °C, compensated range
Approvals	:	ATEX- approval for Ex-area Zone 0, 1, 2, 20, 21 and 22 FM approval
Bridge resistance	:	400 Ω
Output signal	:	2 mV/V, exact sensitivity on the type plate
Isolation resistance	:	>5000 MΩ
Accuracy	:	0.02 %
Repeatability	:	<0.01 %
Zero unbalance	:	<5 %
Max. over-load	:	150 %
Breaking load	:	300 %
Connection cable	:	0.5 m, 6 pole shielded, AWG26
Protection class	:	IP67
Case material	:	Aluminum
Weight	:	1 kg inclusive package

Dimensions



Mounting screws M6 quality 8.8; tightening torque 10 Nm.
Grease the screw threads before mounting!

Connection diagram



The sense line is used to compensate line resistance from load cell to DMS transmitter. For distances more than 5 m it is recommended to use the sense line.

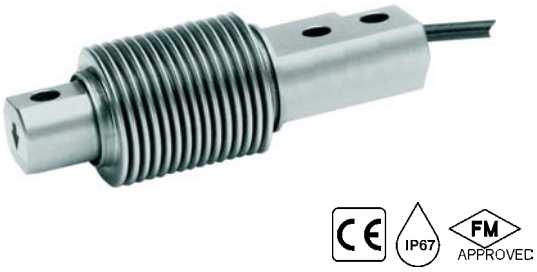
Ordering code

PC22 - 1. - 2. - 3. - 4.

1.	**Design**	
	00	standard for non-Ex applications
	Ex	Ex applications acc. to KEMA 02ATEX 1123X
2.	**Frame size** (see dimensions)	
	01	width 25.4 mm, nominal load 5 kg
	02	width 30 mm, nominal load 10..40 kg
3.	**Nominal load**	
	05	5 kg
	10	10 kg
	20	20 kg
	30	30 kg
	40	40 kg
4.	**Options**	
	00	without option

GHM Messtechnik GmbH – Location Martens
Kiebitzhörn 18 ● 22885 Barsbüttel ● Germany
Fon +49-40-670 73-0 ● Fax -288
www.ghm-messtechnik.de ● info@martens-elektronik.de

Load-Cell Series SB8



- **Standard- or Ex-devices**
- **Measuring range from 10..500 kg**
- **Operating temperature -20..+60 °C**
- **Accuracy 0.05 % (0.02 % optional)**
- **Protection class IP67**

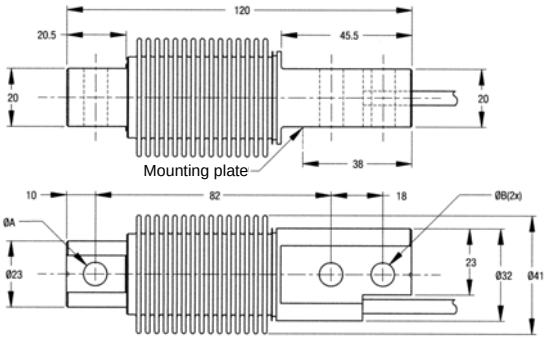
Characteristics

The shear-beam cell type SB8 is completely tightly welded made from stainless steel. The cell is specified for industry applications like plate form-, table bridges, small container and tank weigh-bridges.
The load cell was conceived for nominal loads up to 500 kg.

Technical data

Power supply		
Bridge supply	:	max. 15 V DC
Operating temperature	:	-40..+60 °C -10..+40 °C compensated range
Approvals	:	ATEX- approval for Ex-area Zone 0, 1, 2, 20, 21 and 22 FM approval
Bridge resistance	:	375 Ω
Output signal	:	2 mV/V, exact sensitivity on the type plate
Isolation resistance	:	>5000 MΩ
Accuracy	:	0.05 %, or 0.02%
Repeatability	:	<0.025 %
Zero unbalance	:	<5 %
Max. overload	:	200 %
Breaking load	:	300 %
Connection cable	:	3 m, 6-pole shielded, AWG26
Protection class	:	IP68
Material	:	stainless steel 1.4548
Weight	:	max. 0.8 kg, inclusive package

Dimensions

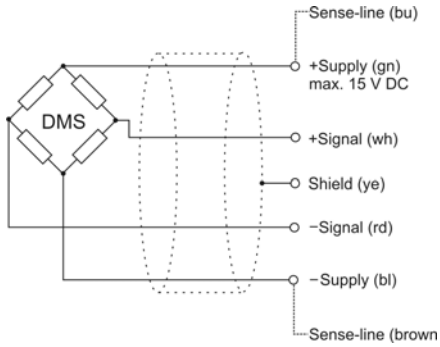


Dimension table

Model size	A	B	Mounting screw	Torque
01	8.2	8.2	M8 / quality 8.8	25 Nm
02	10.5	8.2	M8 / quality 10.9	35 Nm

Grease the screw thread!

Connection diagram



The sense line is used to compensate line resistance from load cell to DMS transmitter. For distances more than 5 m it is recommended to use the sense line.

Ordering code

SB8 - 1. - 2. - 3. - 4.

1.	**Design**	
	00	standard for non-Ex applications
	Ex	Ex applications acc. to KEMA 02ATEX 1123X
2.	**Frame size** (see dimensions)	
	01	nominal load 10 kg..250 kg
	02	nominal load 500 kg
3.	**Nominal load [kg]**	
	10	
	20	
	50	
	100	
	250	
	500	
4.	**Options**	
	00	without option
	01	accuracy 0.02 %

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Kiebitzhörn 18 ● 22885 Barsbüttel ● Germany
Fon +49-40-670 73-0 ● Fax -288
www.ghm-messtechnik.de ● info@martens-elektronik.de

DMS-Load-Cell ULB

- **Standard- or Ex-devices**
- **Measuring range from 0 kg..5000 kg**
- **Operating temperature -20..+60 °C**
- **Accuracy 0,05 % (0,02 %)**
- **Protection class IP67**

Characteristics

Type ULB is a stainless steel universal load cell which allows for tension and compression loading. Its improved potting makes it suitable for use in industrial environments. The fields of applications lie in the section crane scales and hanging scales, small hopper and tank weighing systems, hybrid systems with lever work, belt weighers and other load carriers with multiple load cells.

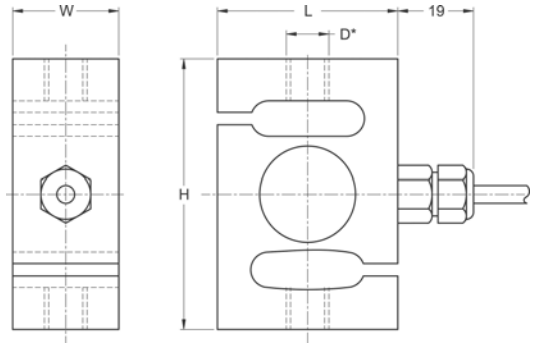
The load cell was conceived for nominal loads of 0 kg up to 100 kg and 0 kg up to 5000 kg.

Technical data

Power supply

Bridge supply	:	5..15 V DC
Operating temperature	:	-10..+40 °C compensated range -20..+60 °C max.
approvals	:	ATEX-approval for Ex-area Zone 0, 1, 2, 20, 21 and 22 FM approval
Bridge resistance	:	1100 Ω
Output signal	:	2 mV/V, exact sensitivity on the type plate
solation resistance	:	>5000 MΩ
Accuracy	:	0,05 % (0,02 %)
Repeatability	:	<0,025 %
Zero unbalance	:	<5 %
Max. over-load	:	200 %
Breaking load	:	300 %
Connection cable	:	6 m, 4 pole, shielded cable (AWG 24), 5 mm diameter
Protection class	:	IP67
Case material	:	stainless steel 1.4548 (17-4PH)
Weight	:	weight inclusive package Nominal load 100..1000 kg: ~1 kg Nominal load 2000 kg: ~2 kg Nominal load 3000 kg: ~2,7 kg Nominal load 5000 kg: ~5,3 kg

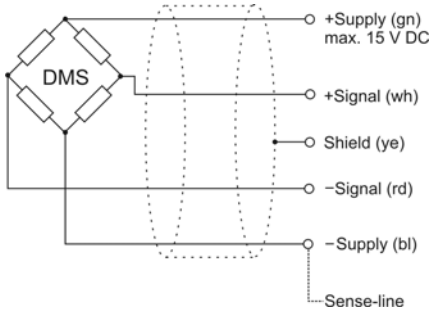
Dimensions



Model size	H	L	W	Thread D-M	UNF thread D-U	UNF thread D-H
01	76,2	49	30	M12	1/2-20	-
02	76,2	49	30	M16	1/2-20	5/8-18
03	86,1	76,2	30	M16	5/8-18	-
04	86,1	88,7	40	M20x1,5	3/4-16	-
05	146	91,2	56,6	M24x2	1-12	-

Dimensions in mm

Connection diagram



The sense line is used to compensate line resistance from load cell to DMS transmitter. For distances more than 5 m it is recommended to use the sense line.

Ordering code

ULB - 1. - 2. - 3. - 4. 5.

1.	**Design**	
	00	standard for non-Ex applications
	Ex	Ex applications acc. to KEMA 02ATEX 1123X
2.	**Frame size** (see dimensions)	
	01	Nominal load 100..500 kg
	02	Nominal load 1000 kg
	03	Nominal load 2000 kg
	04	Nominal load 3000 kg
	05	Nominal load 5000 kg
3.	**Nominal load**	
	Please state in plain text (note model size)	
	100 / 200 / 300 / 500 / 1000 / 3000 / 5000 kg	
4.	**Options**	
	00	without option
	01	Accuracy 0.02% (instead of 0.05 %)

GHM Messtechnik GmbH – Location Martens
Kiebitzhörn 18 ● 22885 Barsbüttel ● Germany
Fon +49-40-670 73-0 ● Fax -288
www.ghm-messtechnik.de ● info@martens-elektronik.de

Load-Cell Series RC3

- **Standard- or Ex-devices**
- **Measuring range from 7.5..100 t**
- **Operating temperature -20..+60 °C**
- **Accuracy 0.05 %**
- **Protection class IP67**

Characteristics

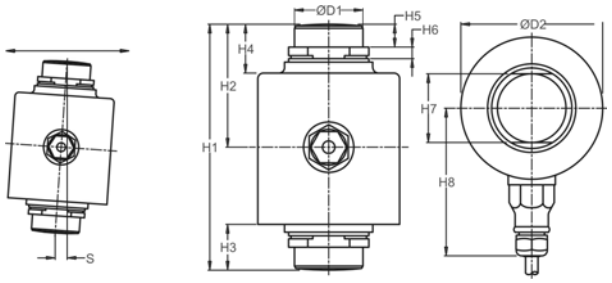
The high power load-cell series RC3 is completely tightly welded made from stainless steel. The cell is specified for industry applications like tanks, silos and weighbridges for heavy load. The load cell was conceived for nominal loads up to 100 t.

Technical data

Power supply

Bridge supply	:	max. 15 V DC
Operating temperature	:	-40..+60 °C -10..+40 °C compensated range
Approvals	:	ATEX- approval for Ex-area Zone 0, 1, 2, 20, 21 and 22 FM approval
Bridge resistance	:	1150 Ω
Output signal	:	2 mV/V, exact sensitivity on the type plate
Isolation resistance	:	>5000 MΩ
Accuracy	:	0.05 % , or 0.02 %
Repeatability	:	<0.025 %
Zero unbalance	:	<5 %
Max. overload	:	200 %
Breaking load	:	300 %
Connection cable	:	12 m model size 01, AWG 24 18 m model size 02-05, AWG 20 4-pole shielded
Protection class	:	IP68, tightly welded
Material	:	stainless steel 1.4548
Weight	:	inclusive package, see ordering code

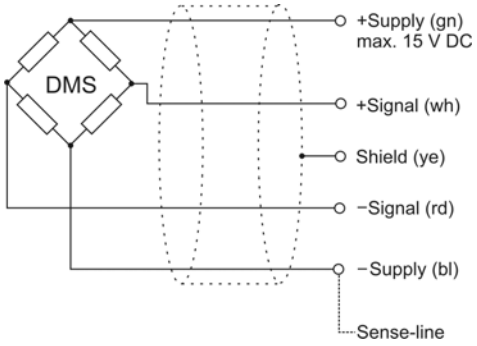
Dimensions



Size	H1	H2	H3	H4	H5	H6	H7	H8	D1	D2	S*	RF**
01	89	44	17	23	11	6	28	75	28	69	8	11
01	89	44	17	23	11	6	28	75	28	69	7	20
01	89	44	17	23	11	6	28	75	28	69	4.5	30
02	140	80	26	28	13	6.5	39	84	39	81	10.5	34
03	150	75	31	33	13	11.7	39	84	39	81	10	37
04	178	89	32	34	17	8.5	44	94	44	99	9	51
05	178	89	38.5	38.5	17	12	62	93.8	62	141.3	11.5	152

*S_{max}: maximum horizontal movement of the load
**RF: restoring force at maximum overload or breaking load

Connection diagram



The sense line is used to compensate line resistance from load cell to DMS transmitter. For distances more than 5 m it is recommended to use the sense line.

Ordering code

RC3 - 1. - 2. - 3. - 4.

1.	**Design**	
	00	standard for non-Ex applications
	Ex	Ex applications acc. to KEMA 02ATEX 1123X
2.	**Frame size** (see dimensions)	
	01	7.5..22.5 t / dead load 1.3..1.5 kg
	02	30 t / dead load 3.3 kg
	03	40 t / dead load 3.6 kg
	04	50 t / dead load 4.5 kg
	05	100 t / dead load 4.7 kg
3.	**Nominal load [t]**, (look after model size)	
	7.5 / 15 / 22.5 / 30 / 40 / 50 / 100	
4.	**Options**	
	00	without option
	01	accuracy 0.02 %

GHM Messtechnik GmbH – Sales Center International
Schloßstraße 6 ● 88453 Erolzheim ● Germany
Fon +49-7354-937233-0 ● Fax -88
www.ghm-messtechnik.de ● info@ghm-messtechnik.de

Product Overview

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Humidity
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Flow
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Analysis

“Laboratory Instrumentation“

„Industrial Electronics“

Displays / Controller
Transmitter / Signal conditioning
Isolating converters
Safety and Monitoring Devices
Power Electronics
Calibration and Testing

“Measuring Data Acquisition“

Data Logging and Monitoring
Test Bench Measurement Technology
Renewable Energies