

Operating Manual BMGZ710 and BMGZ710.PNET

Robust evaluation unit for conveyor belt scales, with optional PROFNET interface

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Free download for IOS and Android

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All safety, operating, and installation instructions given here serve to ensure that the device functions properly. They must be observed in all circumstances to ensure the safe operation of systems. Failure to comply with the safety instructions or use of the devices outside of the specified performance characteristics may endanger the safety and health of persons.

Work relating to the operation, maintenance, conversion, repair, or configuration of the device described may only be performed by qualified personnel.

2.1 Representations of safety instructions

2.1.1 Risk that may result in minor or moderate injury



Danger, warning, caution Type and source of danger Possible consequence of disregarding the instruction Measures to prevent the danger

2.1.2 Instructions to ensure proper functionality



Instruction Instruction regarding proper operation Simplification of operation Ensuring functionality

2.2 General safety instructions



The functionality of the conveyor belt scales is only guaranteed if the components are installed in the recommended configuration. If not, there is a risk of serious malfunction. The installation instructions on the following pages must therefore always be followed.



The on-site installation regulations serve to ensure the safety of electrical systems. These regulations are not taken into consideration by this operating manual. However, they must always be observed nonetheless.



Improper earthing may cause electric shocks to people, malfunctions of the entire system, or damage to the evaluation unit! It must always be ensured that the housing is properly grounded.



3 Product information

3.1 System configuration

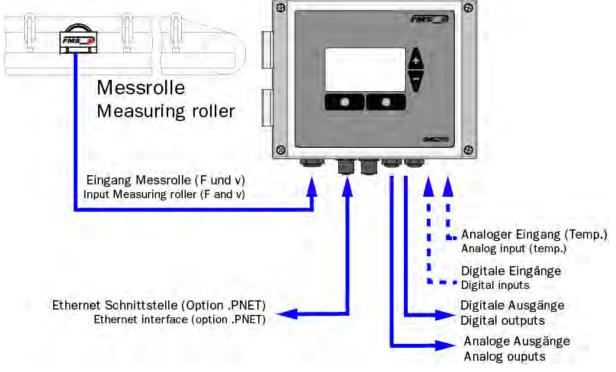


Figure1: Measuring roller and evaluation unit

3.2 Product description

The evaluation units in the BMGZ700 series are designed to meet the demanding conditions of applications in mobile and stationary conveyor systems. The illuminated graphical display shows the current flow rate, the daily amount, the total amount, and the belt speed. Additional display devices and controls can be connected via the configurable analogue and digital outputs. The web browser, included by default, allows the measuring roller to be quickly configured, e.g. with any PC or laptop, or by remote access.

An integrated PROFINET interface is available as option.

3.3 Functional description

The evaluation units in the BMGZ700 series convert the measuring signals from the measuring roller into digital form. The weight of the measuring roller and the load from the belt (taring) are subtracted from the measured value, and the resulting difference is multiplied with the belt speed. The evaluation units in the BMGZ700 series have an auto-taring program that automatically determines the tare value over two belt revolutions by pressing a button.



3.4 Scope of delivery

Included in the delivery:

Evaluation unit; for the .K version, the evaluation unit is preinstalled in the control cabinet

Not included in the delivery:

Power supply unit, installation materials

Also available:

Measuring roller, connection cable from evaluation unit to measuring roller (specify length), M12 d-coded Ethernet cable, or RJ45 patch cable for web browser.

3.5 Order code for evaluation unit

BMGZ7:	10	: Order code	e
BMGZ7	1	0 .W	Housing (.W wall mount; .S. panel mount; K. in cabinet)
			Additional functionality (none)
			Variation (1: Single-channel; 5: calabratable)
			Series

Figure2: Order code for evaluation unit



4 Installation

Several versions of the evaluation unit are available.

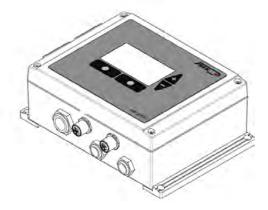


Figure3: BMGZ710.W Wall mount

- Unscrew the 4 screws on the cover with the membrane control panel and display
- The cover can now be opened
- The housing is screwed on through the 4 holes in the bottom of the housing

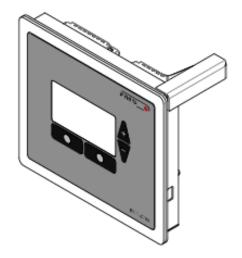


Figure4: BMGZ710.S Panel mount

5 The panel must be prepared with a suitable recess and holes. See 10 FMS BeltSCALE App

The app allows you to read the current measured values and configure the evaluation electronics via your smartphone or tablet.

The devices communicate via an integrated Bluetooth® module.

For clear identification, the last 4 digits of the serial number of the BMGZ700 series are applied to the front of the housing.



Figure 27: BMGZ700-series with last 4 digits of the serial number

Only one mobile device can access the evaluation electronics at a time.

As soon as the connection to the mobile device is established, the display of the evaluation electronics flashes.

The FMS BeltSCALE app is an operating aid. No data is saved on the mobile device, only the current measured values of the evaluation electronics and the settings are displayed. The parameters are only saved in the evaluation electronics themselves.



Figure 28: Link to download the app (Android or IOS)

5.1 Configuration via app

The procedure for taring and calibration is always identical to the procedure for evaluation electronics without Bluetooth communication. The only difference is that a mobile device is used for input instead of the control panel.

	Megaus de	Meganae 🖌 🖝	Magaria de 📼
	Devices Search Unsides:	Home 🚍	Menu X
	<pre></pre> <serial> <device></device></serial>	DMGZ71C xxx2212 Scale 02	DMGZ710 xxx2212 Scale 02
	•Noddal Numcer>	Totalizer 1/000'000 (Machine parameters
12 🎘 😫	xxx4711 ABCDEF123456		Operating parameters
eee eee eee		Batch 15'225 t	System parameters
Volter Nager Proceeding on	xxx5812 Scale 03	Batch No. 99999	Calibration
	xxx5B13 Scale 07	Delivery rate 250.15 t/h	Allbl protocol
Artin Banighers Churk Stores	HIMGZ COL	Belt speed 1.5 m/s	Service 💛
1 🗱 🕡 👄 👫 🛛	xxx2212 Scale 02		Measuring roller
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			Digital outputs
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And Solar Man			
	ting and an and a sector a sign and a sector a	Item NOC Char Writer	Itrue Itrue Char Wenner
Download the FMS	Overview of all	Display of the	Configuration,
			overview of
BeltSCALE app and	devices in the	current measured	overview of
install it	reception area	values, main menu	parameters
		at the bottom,	
\rightarrow Google Play	Select device,		
Store (Android);	identification by	configuration menu	
iTunes (IOS)	serial number	at the top right	
1101165 (103)	Serial Hullinei	(password 3231)	

Mager z Machine parameters DMS2711 (M22) (2 Jace 02	Magaza Colibration with device D0/62711 w/22/2 (sche 02	Magura Chart Delivery rate DM62711 xv22/2 Scale 02
Offset 12584 Gain 20000 Beht length (m) 5000 Diameter (nm) 128 Impulses 100 Distance (mm) 1 Nominal force (N) 3'000	Calibration with caloration device BMG2: Cal Reference weight (kg) 15 Bett inclination (*) 15 Required time (a) 250 Calculated target value 15:225 t Batch weight 15:221 t	Max. delivery rate (Min.) Reset chart Reset chart
Max. Q (1/h) 0 27000 y-detection 0 None ~ ing >0	Start Calibrate	Totalizer 1000000 L Batch 152251 Del rate 250.15 L/h Batch 152251 Del rate 250.15 L/h Batch 10.9999 Bett speed 1.5 m/s Export chart Export chart Out Chart Out Chart
Configuration - Overview of machine parameters	Taring	Graphic recording, also possible in landscape format

- Dimensions
- The housing is clamped to the sheet metal

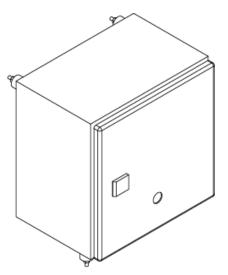
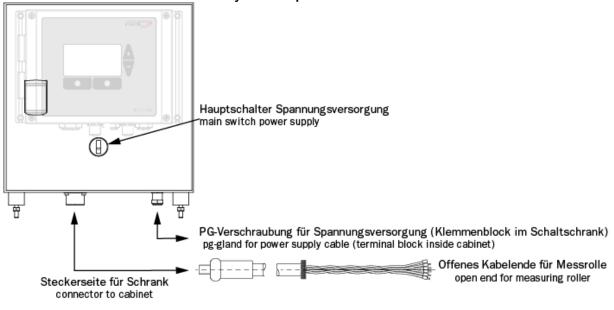


Figure 5: BMGZ710.K Cabinet

The cabinet is screwed on through the 4 holes in the back wall
Use the rubber mounts if the system experiences vibrations





5.2 Electrical connection (see installation instructions for the FMS measuring roller)

The connection between the measuring roller and the evaluation unit must use the 8-core twisted-pair cable $(4x2x0.75 \text{ mm}^2)$ provided.

The cable must be laid away from any power cables to ensure that no interference is induced in the measurement signal. On the measuring roller side, remove the plastic sheath of the cable over a length of approx. 14 cm.

The white wire is not required. Connect the shield to earth terminal.

On the evaluation unit side, remove the plastic sheath over a length of a approx. 25-54 cm. The white wire is not required. The shield has to have contact with the pg-gland.

The cable shield must be connected on both sides.

For the K version of the housing (cabinet), feed the cable with the 8-pin plug through the cabinet wall.

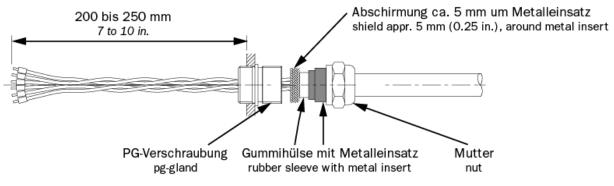
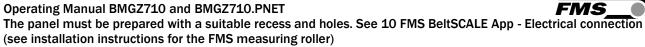


Figure7: Connection cable, evaluation unit side

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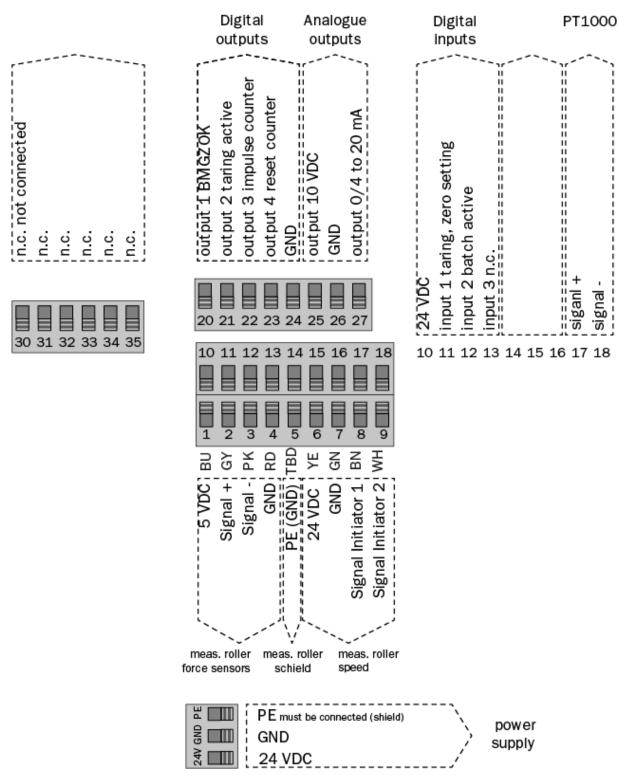


Figure8: Terminal assignment BMGZ710

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The panel must be prepared with a suitable recess and holes. See 10 FMS BeltSCALE App - Electrical connection (see installation instructions for the FMS measuring roller)

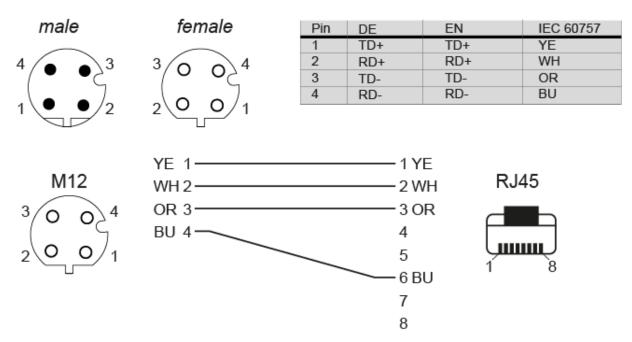


Figure9: ethernet connector M12, D-coded

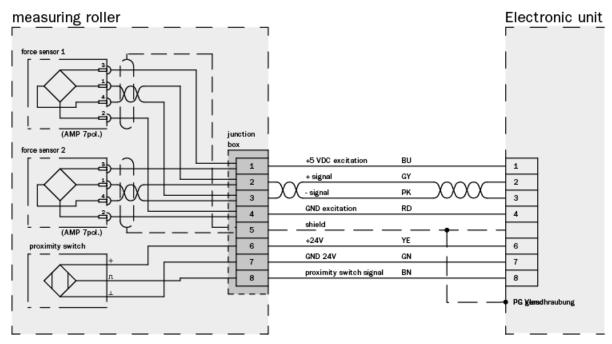


Figure 10: Connection cable, measuring roller side

Operating Manual BMGZ710 and BMGZ710.PNET Operation and surface - Navigation, quick start



6 Operation and surface

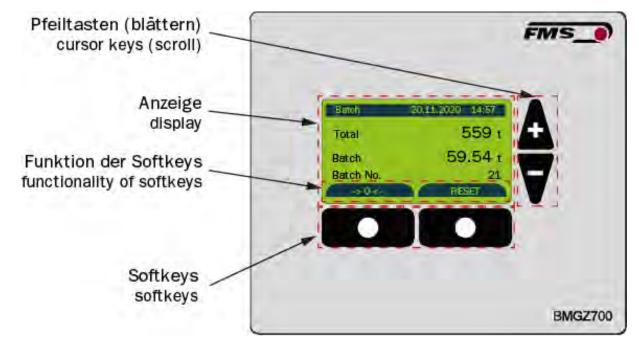


Figure11: View of device

6.1 Navigation, quick start

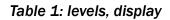
The menu is divided into two levels To navigate between levels, use the softkeys (menu) or \checkmark Level 1: HOME Display current system data with different representations Level 2: CONFIGURATION To enter the configuration level, press the softkey (menu) in the Home level Machine parameters – One-time set-up of conveyor belt and measuring roller System parameters – One-time set-up of conveyor belt and measuring roller System parameters – One-time configuration, inputs and outputs Calibration – Input correction factor Alibi protocol – Fail-safe storage of batch data Service – Access to system status and detailed display of error messages Use the navigation keys \checkmark to select individual parameters

To make a selection, press ←

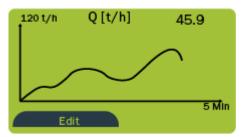
Levels, navigation	n	
Levels	Navigation	Display
HOME	A V	Home 20.11.2020 14:57 Total [t] 12558 Batch [t] 3.122 Batch No. 21 Q [t/h] 12.9 v [m/s] 1.49 Menu
		Histogram
	A V	120 t/h Q [t/h] 45.9 5 Min Edit
		Zero setting
	A V	> 0 < 20.11.2020 14:57 Start zero setting? Is the belt running empty? Yes
		Batch
	AV	Batch20.11.202014:57Total559 tBatch59.54 tBatch No.21StartReset



		Detail
		Detail 20.11.2020 14:57
	ΑV	Q 125.9 t/h
		v 2.11m/s
		Menu
		Press "Menu"
CONFIGURATION	A V	Machine parameters Working parameters Systemp arameters Calibration Alibiprotocol Service Home
	A V	Machine parameters Operating parameters System parameters Calibration Alibiprotocol Service Home
		Press -
PARAMETER	A V	Machine parameters belt lentgth [m] 10 Return



6.2 Histogram

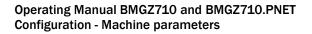


Pressing "Edit" takes you to the configuration of the display.



The "Scaling" parameter allows you to adjust the division of the vertical axis. The "Recording" parameter allows you to set the recording time in the horizontal axis.





7 Configuration

7.1 Machine parameters

The machine parameters directly affect the weighing results.

Machine paramete	rs					
Parameter	Unit	Selection	Default	Min.	Max.	No.
Offset	[Digit]		0	-32768	32767	1
Gain	[-]		1	0.1	10	2
Belt length	[m]		10	1	5000	3
Diameter	[mm]		108	10	1000	4
Pulse	[-]		4	1	100	5
Distance	[mm]		2000	100	5000	6
Nominal force	[N]		1000	1	5000	7
Max. Q	[t/h]		0	1	5000	54
v-detection	-	auto, none	auto			55

Table 1: Machine parameters

7.1.1 Description of machine parameters

Parameter				
Name	Description			
Offset		The evaluation unit saves the value determined during taring / zero setting in [Digit].		
	Unit	Digit		
	Min.	-32768		
	Max.	32768		
	Default	0		
	Increment	1		





Parameter		
Name	Description	
Gain	The value determined during calibration is saved under this parameter. If the automatic calibration cannot be used, a manually determined value can also be entered here.	
	Unit -	
	Min. 0.100	
	Max. 10.000	
	Default 1.000	
	Increment 0.001	
Belt length	The unrolled length of the conveyor belt is saved under this parameter. This value is required for taring.	
	Unit m	
	Min. 1	
	Max. 5000	
	Default 10	
	Increment 1	
Diameter	The diameter of the centre roller is saved under this paramet (see measuring roller nameplate).	er
	Unit mm	
	Min. 10	
	Max. 1000	
	Default 108	
	Increment 1	
Pulse	The number of blades of the pulse generator is stored under this parameter, see measuring roller nameplate. This value corresponds to the number of pulses per revolution of the measuring roller.	
	Unit -	
	Min. 1	
	Max. 100	
	Default 4	
	Increment 1	

FMS_	

Parameter		
Name	Description	
Distance	The distance between adjacent idlers is saved under this parameter. This value corresponds to the sum of the distance between the measuring roller and the preceding and followin idler stations.	
	Unit	mm
	Min.	100
	Max.	5000
	Default	2000
	Increment	1
Nominal force	Nominal force of the force senors. This value is indicated on the label of the measuring roller and the labels of each force sensor. See measuring roller nameplate.	
	Unit	Ν
	Min.	1
	Max.	5000
	Default	1000
	Increment	1
Max. Q	The maximum parameter.	n capacity Q of the belt scale can be stored in this
	The factory se	etting "0" has no further effect.
	If a value othe	er than "0" is set:
	If the current capacity falls below 5% of this value, the electronics no longer integrates. The measurement "pauses so to speak, until the delivery rate rises above the 5 % again Batch counter and totalizer are not increased during this time	
	Unit	t/h
	Min.	0
	Max.	5000
	Default	0
	Increment	1

Parameter			
Name	Description		
v-detection	If this parameter is set to "automatic", the speed of the conveyor belt is recorded with the pulse generator integrated in the measuring roller.		
	place. The cap of 1.00 m/s. Ir running" must This function n	er is set to "none", no speed detection takes acity is then calculated with a preset belt speed addition to this setting, digital input 3 "Belt also be activated. ot used in practice, since the automatic speed ually activated. For test purposes, however, this e helpful.	
	Unit	-	
	Selection	none	
		Auto	
	Default	Auto	

Table 2: Description of machine parameters

7.2 Operating parameters

Operating param	eters					
Parameter	Unit	Selection	Default	Min.	Мах.	No.
Pulse output	[kg]		100	1	10000	50
Current output		0 to 20; 4 to 20 mA	4 to 20 mA			51
Filter output	[Hz]		10.0	0.1	20.0	52
Scaling	[t/h]		1000.0	1.0	5000.0	53

Table 3: Operating parameters





7.2.1 Description of operating parameters

Operating parame	eters		
Name	Description		
Pulse output	passed the me	its a pulse each time the defined weight has asuring roller. The weight corresponding to one under this parameter.	
	Pulse duration	1 to 1000 ms, depending on flow rate	
	Unit	kg	
	Min.	1	
	Max.	1000	
	Default	100	
	Increment	1	
Current output	Two proportion rate.	al analogue outputs are available for the flow	
	The type of current output signal is selected here.		
	Current and vo	ltage outputs can be used independently.	
	Unit	-	
	Selection	0 to 20 mA, 4 to 20 mA	
	Default	4 to 20 mA	
Filter output	First-order low- undesirable flu	pass filter for the analogue output to filter out ctuations.	
	The threshold frequency is configured here.		
	This filter is ind	lependent of the other filters.	
	Unit	Hz	
	Min.	0.1	
	Max.	20.0	
	Default	10.0	
	Increment	0.1	

Operating parameters			
Name	Description		
Scaling output	Here, you can define the flow rate that generates the maximum output signal (10 V or 20 mA) at the analogue outputs.		
	The resolution is 12 bits.		
	Unit t/h		
	Min.	1.0	
	Max.	5000.0	
	Default	1000.0	
	Increment	0.1	

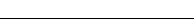
 Table 4: Description of operating parameters

7.3 System parameters

System parame	eters					
Parameter	Unit	Selection	Default	Min.	Max.	No.
Language	-	German, English	German			1
Filter display	Hz		1.0	0.1	1.0	2
Date format	-	DD.MM.Y YYY, MM.DD.Y YYY	DD.MM.YYYY			3
Time / date	-			00:00 01.01.202 0	23:59 31.12.2099	4
IP address	-		192.168.0.90	0	255	5
Subnet mask	-		255.255.255.0	0	255	6

Table 5: System parameters





7.3.1 Description of system parameters

System paramete	ers		
Name	Description		
Language	This parameter allows the display language to be selected. Either German or English can be selected.		
	Unit	-	
	Selection	German, English	
	Default	German	
Filter display		<i>y</i> -pass filter to filter out undesirable fluctuations lay. The threshold frequency of the filter is re.	
	Unit	Hz	
	Min.	0.1	
	Max.	10	
	Default	1.0	
	Increment	0.1	
Date format	Here, the form	nat of the displayed date can be configured.	
	Unit	-	
	Default	DD.MM.YYYY	
	Increment	DD.MM.YYYY, MM.DD.YYYY	
Time / date		n unit has a built-in real-time clock (RTC). To time, the current time and date can be entered meter.	
	This information is stored in the alibi memory with the corresponding batch.		
	There is NO an time	utomatic compensation of summer and winter	
	Unit	-	
	Min.	00:00 01.01.2020	
	Max.	23:59 31.12.2099	



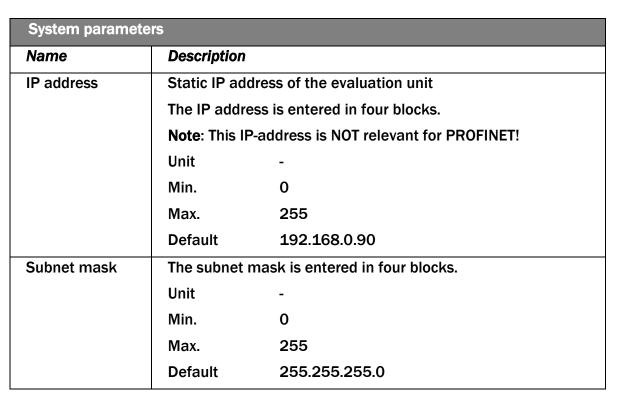


 Table 6: Description of system parameters

7.4 Service

Service		
Parameter	Unit	Display
A/D values raw	Digit	Raw value
DMS raw	mV	Raw value
Travel	mV	Raw value minus offset
Force	Ν	Calculated
Belt	kg/m	Weight
Digital inputs:	-	Status: 0 = inactive; 1 = active
		Taring
		Batch active
		Belt is running
		Impulse
Digital outputs		Status: 0 = inactive; 1 = active
		BMGZ ok
		Zero setting active
		Remote impulse





	Remote reset
Error code	0 no error
	 1 Measuring roller overloaded Check measuring roller cable. Check for short circuit → strain gauge input (ADC) is over limit (> +/- 32000 Digits) → reduce load on measuring roller.
	2 Analog output overloaded Q [t/h] > scaling >10V or >20mA. Check scaling The analog output (DAC) is limited (> 4095 Digits), which would lead to more than 10V or 20mA. → check scaling
	3 Analog output < minimum Q [t/h] < 0 <0V or <0/4mA Check Zeroing The analog output (DAC) shows 0 Digits. There is a small hysteresis that as Q < -0.2 to indicate the error. → start zero setting or adjust offset manually.
	 4 Impulse output too fast. The impulse output is no longer correct. The load is higher that the output can indicate. → Reduce load or enhance the parameter of the impulse output [kg] so that more weight per pulse can be outputted.
Device offset	Factory setting: Please do not change!
	Can be changed in case of replacement or repair.
	Press and hold the \leftarrow and \bigtriangleup keys simultaneously for > 5 sec. to access this parameter.
Device gain	Factory setting: Please do not change!
	Can be changed in case of replacement or repair.
	Press and hold the and keys simultaneously for > 5 sec. to access this

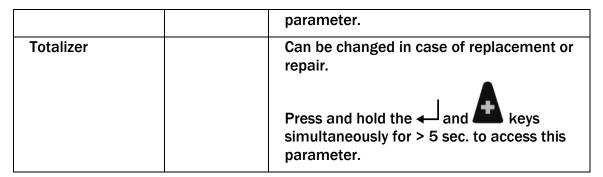


Table 2: Service

7.5 Digital inputs

The functions of the digital inputs are preconfigured and cannot be changed.

7.5.1 Digital input 1 (zero setting)

Setting this input begins the procedure for zero setting. Setting the input to inactive aborts the ongoing procedure.

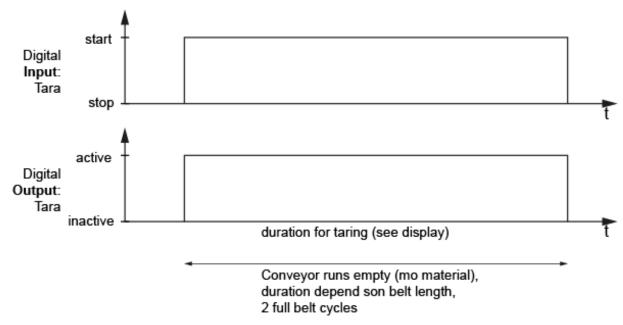


Figure 12: context dig. in- and output

7.5.2 Digital input 2 (batch active)

Setting this input starts the weighing of a new batch. The batch counter is incremented, and the batch weight is set to zero.

If the digital input 'Batch active' is set, the batch counter (quantity) is zeroed (identical to when the Reset softkey is pressed) and the batch no. is increased by 1. While this input is active, a batch is weighed. If the input becomes passive, the batch no., the weighed quantity (batch counter), date and time are saved in the alibi protocol. This ensures that weighed batches are traceable.

7.5.3 Digital input 3 (belt running)





Note

This setting is only relevant if v-detection is set to "None".

If the v-detection parameter is set to 'None', the evaluation electronics does not calculate the speed using the initiator information but takes 1.00 m/s as the belt speed value for the calculation. However, the evaluation electronics only integrates the weight if this digital input 3 "Belt running" is active, otherwise not.

7.5.4 Digital input 4 (impulse)

The status of the proximity switch for detecting the speed is displayed here.



7.6 Digital outputs

The functions of the digital outputs are pre-configured and cannot be changed.

7.6.1 Digital output 1 (BMGZ OK)

24 VDC, max. 100 mA

This output is always "active" if the evaluation unit is switched on and there is no error. Any error deactivates the output (e.g. "belt not running", "negative flow rate", or "overload"). An error message is also shown on the display.

7.6.2 Digital output 2 (taring active)

24 VDC, max. 100 mA

If taring (zero setting) has been started, this output is activated until the procedure is completed or cancelled. As long as the output is active, no materiel shall be fed over the conveyor.

See 8.1 Taring (zero setting)

7.6.3 Digital output 3 (remote impulse)

24 VDC, max. 100 mA, pulse duration 1 to 1000 ms, depending on the flow rate.

A pulse is emitted on this output above a certain flow rate. The flow rate is defined in the "pulse output" operating parameter.

The pulse can for example be used for a remote counter or as a PLC input.

The pulse duration is symmetric (duty cycle 50%)

7.6.4 Digital output 4 (remote reset)

24 VDC, max. 100 mA, 100 ms

Activation resets the remote counter to zero.

This can also be performed directly through the controls on the device via "Reset" batch.

If the "Reset" softkey is pressed and confirmed with the "Yes" softkey, the batch counter is deleted, and a pulse is emitted on the "remote counter reset" digital output for 100 ms. This allows a remote counter to also be reset to zero, for example.

8 Standard procedures

8.1 Taring (zero setting)

Taring ensures that no weight is integrated when the belt is idling to avoid weighing errors. The weight of the belt and the measuring roller are subtracted from the measurement.

The "taring" procedure can be started via the "taring" digital input or on the home screen via " $\rightarrow 0 \leftarrow$ ".



Figure13: Taring home screen

The taring procedure calculates the taring time from the "belt length" parameter and the speed and ensures that the A/D value is determined, averaged, and the offset value calculated over two belt revolutions. This value is then saved under the "Offset" parameter.

To do this, proceed as follows:

- Switch to the "->0<-" screen
- Start the conveyor belt without any load
- Start the procedure by pressing the "Yes" softkey
- The remaining time is shown on the display. The procedure can be stopped at any time by pressing the "Cancel" softkey.
- When the procedure is stopped, the newly calculated offset value is displayed and saved under the "Offset" parameter.

Multiple taring throughout the day



The belt tension directly affects the measurement results.

Strong temperature variations throughout the day will affect the belt tension, which will be directly reflected in the measurement results.

Check the belt tension regularly, and perform taring in the morning and early afternoon, for example.



Measurement accuracy

Errors or inaccurate work during taring and calibration will directly affect the accuracy of the conveyor belt scales.

Ensure that taring is performed carefully.

Setting the "taring" digital input begins the recalculation of the offset. The "taring active" digital output is set until the procedure is completed or aborted. If the "taring" input is reset before the remaining time has elapsed, the procedure is aborted, the "taring active" digital output is reset, and the offset value is not changed.

8.2 Calibrating

The belt scale must be calibrated at start-up to ensure that the evaluation unit can correctly calculate the flow rate.

- Run the conveyor belt while empty
- Press "Reset" on the home screen
- The batch amount is set to 0 t and the batch counter is incremented by 1.
- Load batch onto truck with known tare weight.
- Stop conveyor
- Weigh truck on platform or truck scale
- Compare the currently displayed batch quantity with the actual weight as weighed on the truck
- To adjust, select the menu item "Calibration" in the configuration (menu)

Machine parameters Operating parameters System parameters
Calibration
Alibiprotocol
Service
Home 4

Figure14: Calibration

- Pressing activates the input
- You can use the cursor keys to enter the actual weighed quantity under "Reference value".
- Press "Calculate"
- The display will show: "Calibration complete". The newly calculated gain factor "Gain" will be displayed and will be saved in the background under the "Gain" parameter.



Measurement accuracy

Errors or inaccurate work during taring and calibration will directly affect the accuracy of the conveyor belt scales.

Ensure that taring is performed carefully.



8.3 Manual batch weighing

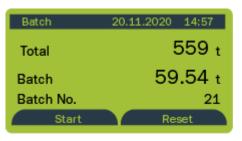


Figure15: Manual weighing of a batch

- Start the conveyor belt without any load
- Press the "Reset" softkey on the home screen
- The batch amount is set to zero
- The batch counter is incremented
- Run the desired amount over the conveyor system.
- End loading and run the belt empty.
- The display will now show the quantity that has just been conveyed under "Batch"

8.4 Manual batch weighing – with storage in the alibi protocol



Figure16: Manual batch weighing with storage in the alibi protocol

- Start the conveyor belt without any load
- Press the "Start" softkey on the "Batch" home screen
- The batch amount is set to zero
- The batch counter is incremented
- Run the desired amount over the conveyor system.
- End loading and run the belt empty
- The display will now show the quantity that has just been conveyed under "Batch"
- To end the batch, press the "Stop" softkey.

After the measurement is complete, the values (start time, end time, batch amount, and batch number) are automatically and securely saved in the so-called alibi protocol.

You can retrieve data from the alibi protocol via the web browser or in the configuration under the "Alibi protocol" menu item.



9 Configuration via web interface



IP-Adress for PROFINET

With the PROFINET version, the system parameter IP-adress CAN NOT be used for communication via the web browser.

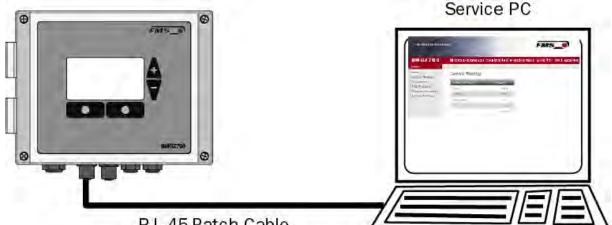
With the PROFINET version, you have to use the (from the PLC) assigned IP-address. Or you have to assign a unique IP-address via the Ethernet Device Configuration Tool, see 12.1 Ethernet Configuration Device – FOR PROFINET DEVICE ONLY

You can configure the evaluation unit using a web browser (Internet Explorer 7 or higher). To do this, either connect the web guiding controller to an Ethernet network or connect it directly to a PC.

The browser interface is only available in English.

Press "Save changes" to save any modifications, or they will be lost.

9.1 Peer-to-peer connection



RJ-45 Patch Cable

Illustration 17: Peer-to-peer connection

Before you connect the computer to the evaluation unit with the patch cable, you must assign a static IP address to your PC. The two devices can then communicate via web browser.

If the web guiding controller is already connected to a network (e.g. LAN) via a switch, you can skip the following instructions.

Settings for MS Windows 7:

- Connect the PC and evaluation unit with a patch cable
- Start up the PC and evaluation unit
- Click the start button on the PC (bottom left corner of screen)
- **Click on "Control Panel"**
- **Double-click on LAN connection**

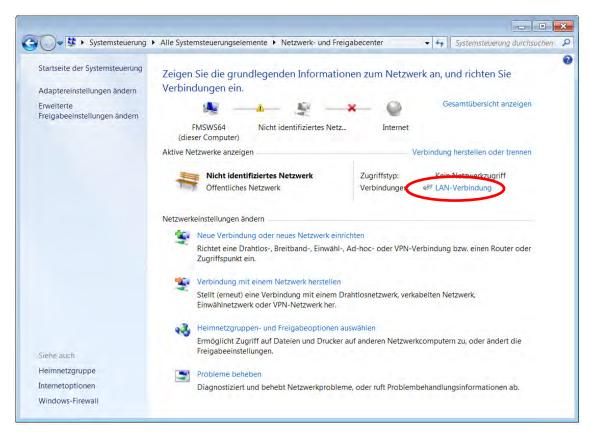


Figure18: Status of LAN connection

Status von LAN-Verbindung	×
Allgemein	
Verbindung	
IPv4-Konnektivität:	Kein Netzwerkzugriff
IPv6-Konnektivität:	Kein Netzwerkzugriff
Medienstatus:	Aktiviert
Dauer:	07:55:26
Übertragungsrate:	100,0 MBit/s
Details	
Aktivität	
Gesendet ——	Empfangen
Bytes: 21'192'172	290'425'764
Eigenschaften 🚱 Deak	tivieren Diagnose
	Schließen

Figure19: Status of LAN connection

- Select "Properties"
- The "Local Area Connection Properties" window will open
- Select "Internet Protocol Version 4 (TCP/IPv4)".

🕌 Eigenschaften von LAN-Verbindung
Netzwerk
Verbindung herstellen über:
Intel(R) 82579LM Gigabit Network Connection
Konfigurieren
Diese Verbindung verwendet folgende Elemente:
Image: State of the state
Installieren Deinstalliere Eigenschaften Beschreibung TCP/IP, das Standardprotokoll für WAN-Netzwerke, das den Datenaustausch über verschiedene, miteinander verbundene Netzwerke ermöglicht
OK Abbrechen





- Select "Properties". The corresponding window will open.

Eigenschaften von Internetprotokoll Version 4 (TCP/IPv4)
Allgemein
IP-Einstellungen können automatisch zugewiesen werden, wenn das Netzwerk diese Funktion unterstützt. Wenden Sie sich andernfalls an den Netzwerkadministrator, um die geeigneten IP-Einstellungen zu beziehen.
IP-Adresse automatisch beziehen
Folgende IP-Adresse verwenden:
IP-Adresse: 192.168.0.1
Subnetzmaske: 255 . 255 . 0
Standardgateway:
ODNS-Serveradresse automatisch beziehen
Folgende DNS-Serveradressen verwenden:
Bevorzugter DNS-Server:
Alternativer DNS-Server:
Einstellungen beim Beenden überprüfen
Erweitert
OK Abbrechen

Figure 20: Internet protocol properties

- Select "Use the following IP address:"
- Enter the PC address (e.g. 192.168.000.1)
- In the subnet mask, enter: 255 255 255 000
- Close the window with "OK".
- Close all other windows

The computer is now ready to communicate with the evaluation unit:

- Open a web browser (Microsoft Internet Explorer, Mozilla Firefox, etc.)
- The factory default setting of the IP address of the evaluation unit is 192.168.000.090.
- Enter this IP address in the format 192.168.0.90 into the input field and confirm with "Enter".
- The home screen will open.



9.2 Home screen

The Point is Techno	ology		FMS_0
BMGZ710	Belt Scale with i	ntegrated PROFI	NET Interface
MENU			
Home Current Reading	Device Information		
Parameters	PROPERTIES	VALUE	
Alibi Protocol	Serial number	4980360	
Ethernet Settings System Settings	Firmware Version	1.0.0	

Figure 21: Home screen with device information

The home page gives information about general device properties, such as the serial number and software version.

The menu on the left side of the screen allows you to navigate on the page.

9.3 Current reading

The Point is Techno	logy		FMS_
BMGZ710	Belt Scale with	integrated PROFI	NET Interface
Home Current Reading	Current Reading		
Parameters	PROPERTIES	VALUE	
Alibi Protocol Ethernet Settings	Total	19269 t	
System Settings	Charge	2651.82 t	
	Charge Nr.	77	
	Q	0.0 t/h	
	v	0.00 m/s	

Figure22: Current reading

The current reading webpage shows all current values



9.4 Parameters

The parameters page allows you to modify the parameters.

In PROFINET environments, this is usually done from the PLC.

MGZ710	Belt Scale with i	ntegrated V	Veb In
ENU			
ne	Parameters		
rrent Reading		the second s	_
arameters libi Protocol	and the second se	HINE	
ernet Settings	PROPERTIES	VALUE	_
tem Settings	Offset	5194	
	Gain	1.000	
	Band length	10	m
	Diameter	108	mm
	Impulses	4	195.2
	Distance	2000	mm
Save changes	Nominal Force	1000	N
	Max. Q	0	t/h
	v-acquisition	Auto	~
	OPER	ATING	
	PROPERTIES	VALUE	
	Impulse output	1000	kg
	Current output	420mA	~
	Filter frequency output	10.0	Hz
	Scaling output	1000.0	t/h
	S Y	STEM	
	PROPERTIES	VALUE	_
	Display language	Deutsch	v
	Display filter	1.0	Hz
	Date format	DD.MM.YYYY	v
	Recording time	3	Min
	Histogram scaling	100	t/h
	DIA	GRAM	
		5 N N III	
		VALUE	
	PROPERTIES Recording time	VALUE	Min

Figure23: Parameters

Press "Save changes" to save any modifications, or they will be lost.



9.5 Alibi protocol

The Point is Techno	FMS_						
BMGZ710	Belt Sc	ale with integra	ted PROFINET I	nterface			
Home Current Reading	Alibi Me	mory					
Parameters	INDEX	START	END	CHARGE NR	CHARGE	TOTAL	MODE
Alibi Protocol Ethernet Settings	77	03.06.2021 15:42:56	<u>14.12.2021 20:03:11</u>	77	0-t	0-t	255
System Settings	76	03.06.2021 15:38:00	03.06.2021 15:39:19	76	3.525 t	16607 t	0
	75	03.06.2021 15:31:49	03.06.2021 15:33:43	75	8.001 t	16596-t	Q
	74	03.06.2021 11:49:01	03.06.2021 11:49:11	75	0.000 t	16499 t	0
	73	01.06.2021 13:36:52	01.06.2021 13:38:31	74	4.459 t	16177 t	0
	72	20.05 2021 09:57 53	30.11.2021 14:18:08	77	0-t	0-t	255
	71	20.05.2021 09:57:07	20.05.2021 09:57:20	76	0.000 t	4160 t	0
	70	20.05.2021 09:54:53	20.05.2021 09:54:56	75	0.000 t	4160 t	0
	69	20.05.2021 09:54:50	20.05.2021 09:54:50	74	0.000 t	4160 t	0
	68	11.05.2021 11.47.16	11.05.2021 11:48:16	73	2.011 t	1593 t	0

Figure24: Alibi protocol

Index – consecutive numbering

Start – start time and date of the batch measurement

End - end time and date of the batch measurement

Batch no. – saved batch number; missing batch numbers correspond to measurements made with "Reset" that were not saved in the alibi protocol.

Batch – batch amount

Total - value of totalizer at the end time

Mode - validity of measurement; invalid measurements are shown crossed out.

9.6 Ethernet settings

The Point is Techno	ology	FMS_
BMGZ710	Belt Scale with inte	egrated PROFINET Interface
Home Current Reading	Ethernet Settings	
Parameters	PROPERTIES	VALUE
Alibi Protocol Ethernet Settings	MAC Address	00-02-a2-4b-fe-85
System Settings	Device IP address	192.168.0.84
	Subnet Mask	255.255.255.0
	Gateway IP address	192.168.0.1

Figure25: Ethernet settings

9.7 System settings

The internal firmware version can be seen on the system settings page. New firmware can also be loaded here.

MGZ710	Belt Scale with i	ntograted PRO	
102710	Belt Scale with I	niegrateu PRO	FINET Interlace
e rent Reading	System Settings		
ameters	PROPERTIES	VALUE	
Protocol rnet Settings	Firmware Version	1.0.0	
em Settings	PROFINET Stack	4.5.0.3	
	netX Bootloader	1.6.0.1	
	Program File	Durchsuchen	Keine Datei ausgewählt.
	Password		_

Figure26: System settings

The latest firmware files can be found in the download section of our website.





10 FMS BeltSCALE App

The app allows you to read the current measured values and configure the evaluation electronics via your smartphone or tablet.

The devices communicate via an integrated Bluetooth® module.

For clear identification, the last 4 digits of the serial number of the BMGZ700 series are applied to the front of the housing.



Figure 27: BMGZ700-series with last 4 digits of the serial number

Only one mobile device can access the evaluation electronics at a time.

As soon as the connection to the mobile device is established, the display of the evaluation electronics flashes.

The FMS BeltSCALE app is an operating aid. No data is saved on the mobile device, only the current measured values of the evaluation electronics and the settings are displayed. The parameters are only saved in the evaluation electronics themselves.



Figure 28: Link to download the app (Android or IOS)

10.1 Configuration via app

The procedure for taring and calibration is always identical to the procedure for evaluation electronics without Bluetooth communication. The only difference is that a mobile device is used for input instead of the control panel.

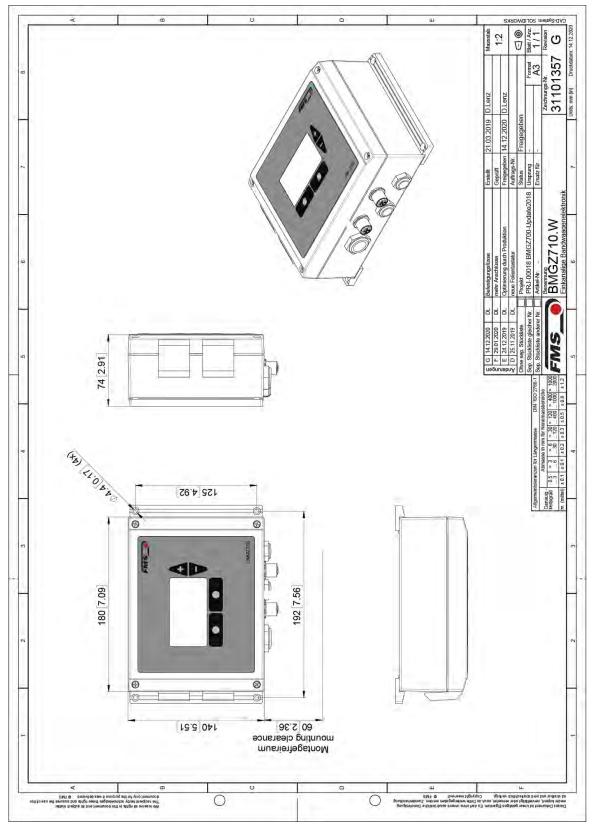
	Magaria 🖌 🚽 💳	Megaria 🖌 🕈 👘	Magaruz 🖌 🕈 💳
	Devices Search Unices	Home 🗮	Menu X
	<pre><pre><serial> <device></device></serial></pre></pre>	0M6271C xxx22121Scale 02	DMGZ710 xxx22121 Scale 01
	ebbankel Narroczer>	Totalizer 1/000/000 L	Machine parameters
12 🗶 🔛	xxx4711 ABCDEF123456		Operating parameters
aaa 💬 🧰 📷		Batch 15'225 t	System parameters
Name Name Provide State	xxx5812 Scale 03	Batch No. 99999	Calibration
	xxx5B13 Scale 07	Delivery rate 250.15 t/h	Alibi protocol
fortum themajology Disco Stoppes	HING2750	Belt speed 1.5 m/s	Service 💛
	xxx2212 Scale 02		Measuring roller
Africational Ford App Time Constant			Digital inputs
🖾 (🚔) II			Digital outputs
			App configuration
- 😉 🔜 🚮 👩		Start Reset	
The Design Street			
	Evenie allog dier zweise	Description of the second seco	Inter SOC Car Spectrum
Download the FMS	Overview of all	Display of the	Configuration,
			overview of
BeltSCALE app and	devices in the	current measured	
install it	reception area	values, main menu	parameters
		at the bottom,	-
\rightarrow Google Play	Select device,		
Store (Android);	identification by	configuration menu	
()	serial number	at the top right	
iTunes (IOS)	senai number	(password 3231)	
1		(pussion of of the	

Megor.a 🖌 🖝 🚃			
	Maganta 🖉 🗮	Magana 🖌 🕈 🚃	
Machine parameters 📃	Calibration with device 📃	Chart Delivery rate 📃	
DMGZ71C xxx2212 Scale 02	0M6Z71C xxx2212 Scale 02	DMGZ71C xxx2212 Gcale 02	
Offset 0 12'584 Gain 0 20'000	Calibration with calbration device BMG2-Cal Reference weight (kg) 15		
Belt length (m) 5000	Belt inclination (*) 15		
Diameter (mm) 0 128	Required time (s) 0 250		
Impulses 0 100	Calculated target value 15.225 t	Max. delivery rate (L/h) 0 5'000	
Distance (mm) 0	Batch weight 15.221 t	Time interval (Min.) 0 60	
Nominal force (N) 0 3'000		Reset chart	
Max. Q (t/h) 0 2'000			
v-detection D None 🗸		Totalizer 1'000'000 L Batch 15'225 L Del. rate 250.15 t/h Batch No. 9999 Belt speed 1.5 m/s	
	Start Calibrate	Export chart	
I IIIIII I IIIII IIII Char Person	Item >0<	Lawer Doc Chart Boots	
Configuration -	Taring	Graphic recording,	
Overview of	2	also possible in	
		-	
machine		landscape format	
parameters			





11 Dimensions





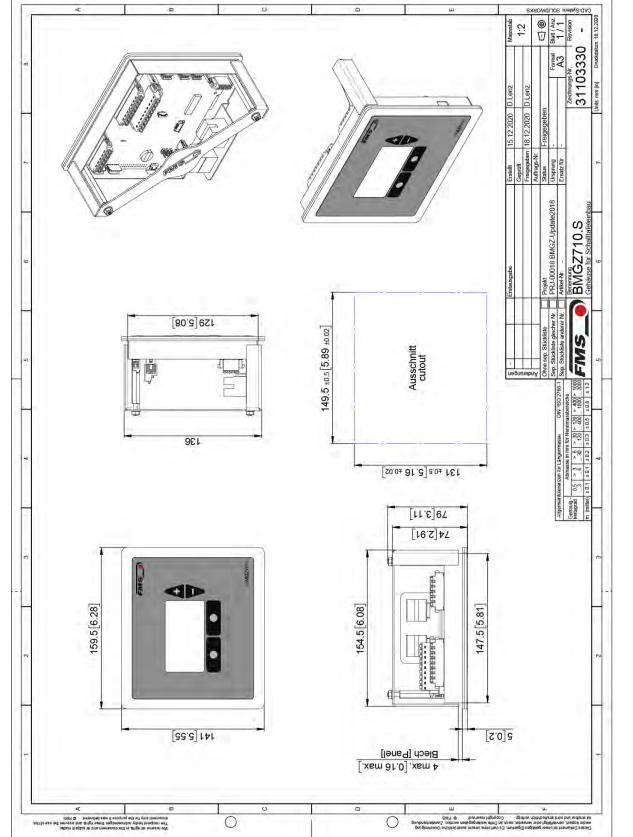


Figure30: Dimensions BMGZ710.S



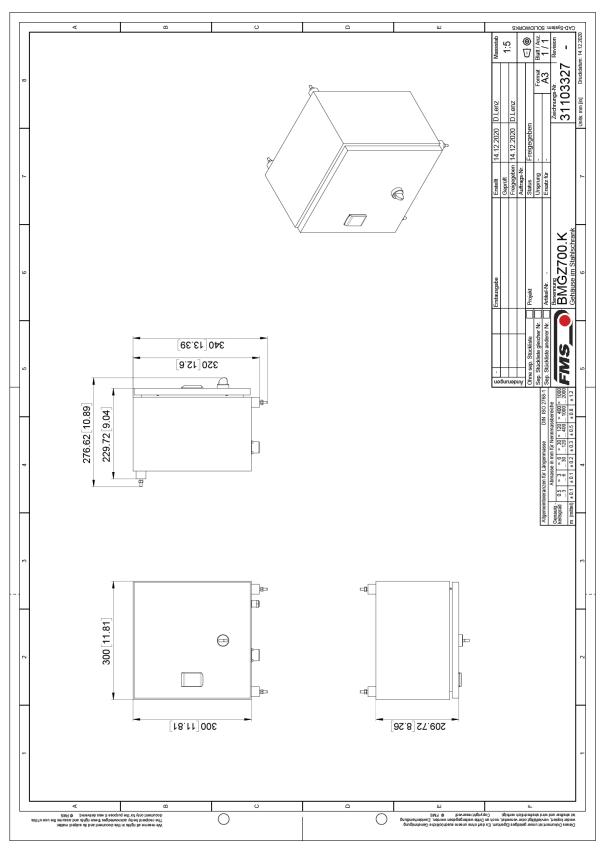


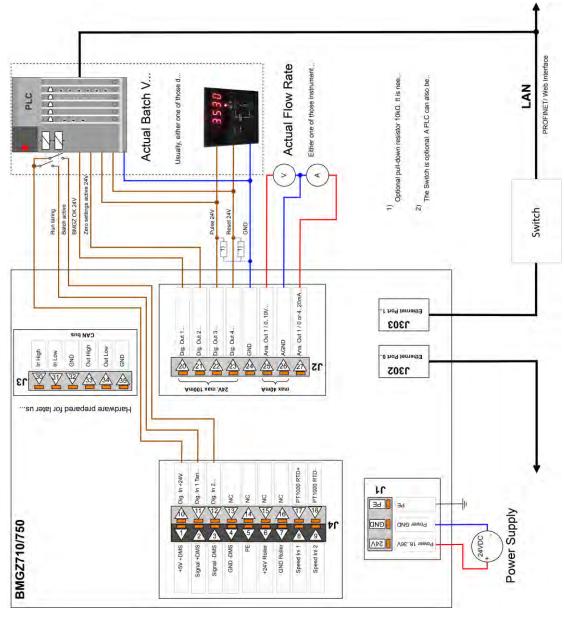
Figure31: Dimensions BMGZ710.K



12 Optional ethernet interface – PROFINET

A PROFINET interface is available for the electronics of the BMGZ700 series with the option .PNET. BMGZ710.PNET

BMGZ750.PNET - calibratable version, see separate operating manual





12.1 Ethernet Configuration Device – FOR PROFINET DEVICE ONLY

The IP address of the measuring amplifier is preset to 0.0.0.0. To modify the adress, you can use the «Ethernet Device Configuration Tool». It is available for free download on https://www.fms-technology.com/en/downloadcenter/profinet

Connect the measuring amplifier with your PC. Please note that the ethernet port on your PC has an IP address that is set to static.

evices Online	Find:		next	previous
MAC Address	Device Type	Device Name	IP Address	Protocol
00-02-A2-81-4A-7	E Tension Amplifier EMGZ492	-not set -	0.0.0.0	DCP
<				

Figure 1: Ethernet Device Configuration – initial screen

Select the device and press «Configure» and «Set IP Adress...»

Carles N	V
Configure 🕨	Signal
	Set IP Address
-	Set Device Name
A	Reset to factory defaults

Figure 2: Ethernet Device Configuration – Configure

If you want to store the IP address only temporarily – until the next new start of the amplifier - enable the field " $\$ Store settings temporary $\$

		-	-	_	-	-	0	-
IP address:	1 .	•	0	•	0		0	
Subnet mask:	0	•	0	•	0	÷	0	
Default gateway:	0	•	0	•	0	+	0	
C Get IP Address via DHCP								
Authentication method:	MAC	add	ress					Ŷ
Client ID:	-							
Store settings temporary								

Figure 3: Ethernet Device Configuration – IP Configuration

Enter the desired IP address and also set the subnet mask to 255.255.255.0



IP address:	192		168	•	000	÷	097
Subnet mask:	255	•	255	•	255		3
Default gateway:	0	•	0	•	0	÷	0
Get IP Address via DHCP							
Authentication method:	MAC a	de	ress			_	Ŧ
Client ID:				_			
Store settings temporary							

Figure 4: Ethernet Device Configuration – IP Adresse geändert

Press «OK» to store the settings.

12.2 Communication

With the acyclic data exchange, IO devices (slaves) can be parameterized, configured or status information can be read out. This is accomplished with the read/write frames via the standard IT services using UDP/IP.Allgemeine

12.2.1 Function

The read/write commands can be triggered if there is a connection between the controller and the IO device, i.e. a "Connect" has taken place.



Figure33: Read- / Write-cykle



A computer with the corresponding application can now request a "read" or "write" to a data model of the controller. This executes the read/write command via PROFINET and returns the status or the data to the computer.

12.2.2 Services und Protocols

The following services and protocols are used:

- RTC Real Time Cyclic Protocol
- RT_CLASS_1 (unsynchronisiert)
- R TA Real Time Acyclic Protocol
- DCP Discovery and Configuration Protocol
- DCE / RPC Distributed Computing Environment / Remote Procedure Calls, Connectionless RPC
- LLDP Link Layer Discovery Protocol
- PTCP Precision Transparent Clock Protocol
- SNMP Simple Network Management Protocol

All other services required for PROFINET are also permitted.

The electronics can be loaded with the above services at any time.

In addition, other services can be used as long as they do not exceed the network load according to Netload Class III for Normal Operation.

12.3 Cyclic data traffic

After a successful system start, the IO controller and the assigned IO devices can exchange cyclic process data. The following table shows which measurement data are transmitted in which form.

Cyclic data traffic reads the operating status of the evaluation electronics in a defined time cycle and updates it in the PLC. The PLC defines the cycle time for its protocol. The operating status is used to monitor the operation of the evaluation electronics.

Sub- slot	Туре	Parameter	Unit	Valid range and number format	Description
2	INT32	Last Error		0	No Error
				1	A taring is not allowed while a batch runs.
				2	The taring cannot be started while a batch runs.
				3	The taring cannot be stopped when not a taring is running.
				4	A reset of the batch be cannot be executed while a batch runs.
				5	Taring cannot be started when the belt stands still.
				6	Not permitted when the device is sealed (750 only).
3	UINT32	Status			

The following table shows which data is available and how it must be interpreted.



Sub- slot	Туре	Parameter	Unit	Valid range and number format	Description
		Bit 0 State of Digital Input 1		True	Taring belt scale (edge triggered ↑)
		Taring belt scale		False	No action
		Bit 1: State of Digital		True	Start batch (edge triggered ↑)
		Input 2 Start batch		False	No action
		Bit 2: State of Digital Input 3		True	Conveyor belt runs (BMGZ710.PNET) Sealed (BMGZ750.PNET)
				False	Conveyor belt stands still (BMGZ710.PNET)
					Unsealed (BMGZ750.PNET)
		Bit 3: State of Digital Output 1		True	BMGZ runs ok
		BMGZ OK		False	The BMGZ has encountered a hardware problem. Consult the status bits 7 to 10 for more information.
		Bit 4: State of Digital		True	Taring is active
		Output 2 Taring Active		False	Taring is inactive
		Bit 5: State of Digital Output 3		True	Remote Counter counts up one digit (edge triggered ↑)
		Remote Counter Pulse		False	No action
		Bit 6: State of Digital Output 4		True	Remote Counter is reset (edge triggered ↑)
		Remote Counter Reset		False	No action
		Bit 7: Load cell overload		True	The load cell is loaded with too much weight and reached the mechanical stop.
		Bit 8: Analog output overflow		True	The analog output is in overflow. This happens when the parameter Scaling is set too high.
		Bit 9: Analog output underflow		True	The analog output is in the underflow state. This happens when the system is not correctly calibrated.
		Bit 10: Pulse output too fast		True	The pulse output frequency is too fast.
		Bit 12 to 31:			Not used
4		Total	t	0 to 2 ³¹ -1 #	Overall total
5	INT32	Batch	t	0 to 4'000'000' 000 #.###	Batch



Sub- slot	Туре	Parameter	Unit	Valid range and number format	Description
6	INT32	Batch Number		0 to 2 ³¹ -1	Batch number
				#	
7	INT32	Q	t/h	0 to 5'000'000 #.###	Delivery rate
8	INT32	v	m/s	0 to 10'000'00 #.##	Conveyor belt speed
9	INT32	Raw ADC value	Digit s	-32'768 to 32'767	Read ADC input value without signal processing.
10	INT32	Load cell raw voltage	mV	-20'000 to 20'000 #.###	Read load cell input voltage without any signal processing.
11	INT32	Load cell force voltage	mV	-20'000 to 20'000 #.###	Offset corrected load cell input voltage.
12	INT32	Force	N	- 999'999'99 9 to 999'999'99 9 #.###	
13	INT32	Belt	kg/ m	0 to 999'999'99 9 #.###	
14	INT32	Taring countdown time	S	0 to 600	Remaining time until the taring is over.
15	INT32	Temperature	°C	-9'999 to 9'999	The temperature at the weighing device (BMGZ750.PNET only).
				#.#	

 Table 3: cyclic data traffic PROFINET

12.4 Acyclic data traffic

After successful system startup, IO controllers and the assigned IO devices can exchange acyclic demand data. The table below shows which parameters and commands are transmitted in which form with the acyclic data traffic.

For addressing the parameters 0x01 to 0x08 the slot 1, module Feedback, "Parameter Access Point" is to be used.

	MATIC 300-Station									
arbeiten	Einfügen Zielsystem 4	Ansicht Extras Fenster	Hilfe							
~ 🖬 🗳	k 6 B 2 1	🛍 🗈 🗆 📽 N	?							
1C 300.	Station Konfiguratio	on) BMGZ700 PN V	n z				1			
IC 300-	ararion (wenngulario	JII] DWIG2700_PIN_V	<u>v_z</u>				Suchen:	6		nt n
							1			
IUA							<u>Profil:</u>	FMS		1
T				EN	ROFINET-IO-System (1)	001	H-88	PROFIBUS-DP		
_	CPU 315-2PN/DP			Ethemet(1): P	HUFINE I-IU-System (II		*	PROFIBUS-DP PROFIBUS-PA PROFINET 10		
	MPI/DP		12 47 17		I TRANS	500	E #	PROFINET 10		
	PN-IO		1		(1) bmgz7	70		🛄 Gateway		
	Port 1				FMS	-		HMI 1/0		
P2	Port 2				BMGZ710.PN	IET		Network Component	te	
						-		Schaltgeräte	10	
								Sensors		
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-								E Controllers		
_								🖃 🦲 Belt Scales		
								💼 Belt Sca	ale BMGZ710 Rev. 1.	D
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atz 🚺		Bestellnummer BMG2710	E-Adresse	A-Adresse	Diagnoseadresse 2035* 2242**	Kommentar	÷	⊕	5	
atz	Baugruppe		E-Adresse	A-Adresse	2039*	Kommentar	÷	Web Guides Gateway SIMATIC 300 SIMATIC 400 SIMATIC PC Based Con	5	
atz	Baugruppe FROFINE 7-10		E.Adresse	A-Adresse	2039* 2042**	Kommentar	÷	Web Guides Gateway SIMATIC 300 SIMATIC 400 SIMATIC PC Based Con	5	
atz	Baugruppe FROFINET-ID Part 1. Part 2. Tdentification/Maintena**		E-Adresse	A-Adresse	2039* 2042** 2041** 2040** 2040** 2039**	Kommentar	÷	Web Guides Gateway SIMATIC 300 SIMATIC 400 SIMATIC PC Based Con	5	
	Baugruppe PR/DFINE 7-10 Part 1 Fart 2 Dentification/Maintena** Brenstein/Maintena**		E.Adresse	A-Adresse	2039* 2042* 2041* 2040* 2039* 2038*	Kommentar	÷	Web Guides Gateway SIMATIC 300 SIMATIC 400 SIMATIC PC Based Con	5	
	Baugruppe PRDFINET-ID Part 1 Part 1 Identification/Maintena* Freedback		E:Adresse	A-Adresse	2039* 2042* 2041* 2040* 2038* 2038* 2038*	Kommentar	÷	Web Guides Gateway SIMATIC 300 SIMATIC 400 SIMATIC PC Based Con	5	
	Baugruppe FRUFINET-ICI Part 1 Identification/Maintena* Identification/Maintena* Peedback Sometra Access of out			A-Adresse	2039* 2042* 2041* 2040* 2039* 2038*	Kommenter	÷	Web Guides Gateway SIMATIC 300 SIMATIC 400 SIMATIC PC Based Con	5	
	Baugruppe PROFINET-ICI Part 1 Part 1 Part 1 Genetication / Maintena** Preedback Systematic Access - chint Last Error		256.,259	A-Adresse	2039* 2042* 2041* 2040* 2038* 2038* 2038*	Kommenter	÷	Web Guides Gateway SIMATIC 300 SIMATIC 400 SIMATIC PC Based Con	5	
	Baugruppe PRDFINET-ID Pant 1 Identification/Maintena** Feedback Some Recess Cont Last Encor Status		256259 03	A-Adresse	2039* 2042* 2041* 2040* 2038* 2038* 2038*	Kommenkar	÷	Web Guides Gateway SIMATIC 300 SIMATIC 400 SIMATIC PC Based Con	5	
atz	Baugruppe PRUFINET+U Part 1 Eart 2 Identification/Maintena* Freedback Freedback Cast Enror Status Total/(I)		256259 	A.Adresse	2039* 2042* 2041* 2040* 2038* 2038* 2038*	Kommenter		Web Guides Gateway SIMATIC 300 SIMATIC 400 SIMATIC PC Based Con	5	
	Baugruppe FROFINET+IC FROFINET+IC Fort 2 Fort 2 Fortal Control Admittens* Fortal Control Admittens* Fortal Control Admittens* Fortal Control Admittens* Status Total ([]) Batch ([])		256259 D3 280257 280267	A-Adresse	2039* 2042* 2041* 2040* 2038* 2038* 2038*	Kommenter		Web Guides Gateway SIMATIC 300 SIMATIC 400 SIMATIC PC Based Con	5	
	Baugruppe PRDFINET+ID Pant 1 Identification/Maintena** Preedback Preedba		256.,259 D.,3 260.,263 260.,263 264.,267 268.,267	A-Adresse	2039* 2042* 2041* 2040* 2038* 2038* 2038*	Kommentar		Web Guides Gateway SIMATIC 300 SIMATIC 400 SIMATIC PC Based Con	5	
	Baugruppe FRUFINET+U FRUFINET+U Fant 2 Identification/Maintena* Freedback and antena Freedback Freedba		255259 03 280267 284267 284267 268271 272275	A-Adresse	2039* 2042* 2041* 2040* 2038* 2038* 2038*	Kommentar		Web Guides Gateway SIMATIC 300 SIMATIC 400 SIMATIC PC Based Con	5	
	Baugruppe FROFINET-IC Part 1 Part 2 Constant Admintena** Freedback Status Total ([] Batch (V) Batch Number Q ([/h]) V (Int)S)		256.259 D.3 280.267 284.267 288.277 278.275 278.275 278.275	A Adresse	2039* 2042* 2041* 2040* 2038* 2038* 2038*	Kommenter		Web Guides Gateway SIMATIC 300 SIMATIC 400 SIMATIC PC Based Con	5	
atz 0 4	Baugruppe PRDFINET+ID Pant 1 Pant 2 Identification/Maintena** Preedback		256, 259 D. 3 284, 267 284, 267 286, 271 272, 275 276, 279 276, 279 286, 279 286, 279	A-Adresse	2039* 2042* 2041* 2040* 2038* 2038* 2038*	Kommenter		Web Guides Gateway SIMATIC 300 SIMATIC 400 SIMATIC PC Based Con	5	
atz	Baugruppe FROFINET-IC Part 1 Part 2 Constant Admintena** Freedback Status Total ([] Batch (V) Batch Number Q ([/h]) V (Int)S)		256.259 D.3 280.267 284.267 288.277 278.275 278.275 278.275	A-Adresse	2039* 2042* 2041* 2040* 2038* 2038* 2038*	Kommentar		Control Contro Control Control Control Control Control Control Control Control Co	s ntrol 300/400	
atz 0 4	Baugruppe FRUFINE T-ID Fan 1 Identification/Maintena** Freedback Fordiner Access Point Cast Error Status Tota/I() Batch N(I) Batch N(I) Bat		256259 E. 3 260267 260267 260267 260267 272275 276279 276275 276287 280287	A.Adresse	2039* 2042* 2041* 2040* 2038* 2038* 2038*	Kommenter		Control Contro Control Control Control Control Control Control Control Control Co	s ntrol 300/400	
	Baugruppe FRIGFINET-ICI Part 1 Part 2 Identification/Maintena** Preedback Preedbac		255259 D3 260263 264263 264263 276275 276275 276279 277279 278283 276287 278287 278287	A-Adresse	2039* 2042* 2041* 2040* 2038* 2038* 2038*	Kommenter		Web Guides Gateway SIMATIC 300 SIMATIC 400 SIMATIC PC Based Con	s ntrol 300/400	

Figure34: BMGZ710.PNET configuration PLC

FMS

A PLC can exchange acyclic data with the evaluation electronics. This data is used for configuration and remote control of the evaluation electronics.

The following table shows all commands for parameter configuration. The parameters can be read and written.

Sub- slot	Туре	Parameter	Unit	Valid range and number format	Description
Machin	e parameter	S			
1	INT16	Offset		-32'768 to 32'767	
				#	
2	UINT16	Gain		100 to 20'000	
				#.###	
3	UINT16	Belt length	m	1 to 5'000	
				#	
4	UINT16	Diameter	mm	10 to 1'000	
				#	
5	UINT16	Pulses		1 to 100	
				#	
6	UINT16	Distance	mm	100 to 5'000	
				#	
7	UINT32	Nominal force	N	1 to 200'000	
				#	
8	UINT16	Max. Q	t/h	0 to 5'000	
				#	
9	UINT16	v-acquisition (BMGZ710.PNET)		0	None (BMGZ710.PNET) Inverse (BMGZ750.PNET)
		Direction BMGZ750.PNET		1	Auto (BMGZ710.PNET) Standard (BMGZ750.PNET)
Operat	ing paramete	rs			
10	UINT16	Pulse output	kg	1 to 1'000	
				#	
11	UINT16	Current output mode		0	0 to 20mA
				1	4 to 20mA
12	UINT16	Filter output	Hz	1	
				2'000	
				#.#	
13	UNIT16	Scaling	t/h	10 to	Manual
				50'000	Automatic
				#.#	



Sub- slot	Туре	Parameter	Unit	Valid range and number format	Description
System	parameters				
14	UINT16	Language		0	German
				1	English
15	UINT16	Filter display	Hz	1 to 100	
				#.#	
16	UINT16	Date format		0	DD.MM.YYYY
				1	MM/DD/YYYY
17	INT32	Device Time of day	ms	0 to 86'399'999 #	Current device time. The value represents the number of ms since midnight.
18	UINT16	Device Date		4018 to 42404 #	Current device date. The value represents the number of days since 1990-1-1 (4018 = 2001-1-1 / 42404 = 2106-02-
19	UINT16	Recording Time	Min	1 to 600 #	06) Histogram recording duration of the x- axis.
20	UINT16	Histogram Scaling	t/h	0 to 5'000 #	Histogram scaling of the y-axis.
Alibi pr	otocol				
21	INT32	Request batch log by number		0 to 2 ³¹ -1 #	Request batch log by the batch number. If the number is zero, then the latest batch is read.
22	INT32	Log Index		0 to 2 ³¹ -1 #	Log Index indicates the index of the actual read data record. This can be different from the requested index when the requested doesn't exist. If the index is negative, then the data record is corrupt.
23	INT32	Logged Batch number		0 to 2 ³¹ -1 #	
24	INT32	Logged Batch	t	0 to 4'000'000' 000 #.###	
25	UINT16	Logged start date	Date	4018 to 42404 #	Start date of the logged batch. The value represents the number of days since 1990-1-1 (4018 = 2001-1-1 / 42404 = 2106-02- 06)
26	UINT32	Logged start time	ms	0 to 86'399'999 #	Start time of the logged batch. The value represents the number of ms since midnight.



Sub- slot	Туре	Parameter	Unit	Valid range and number format	Description
27	UINT16	Logged end date	Date	4018 to 42404 #	End date of the logged batch. The value represents the number of days since 1990-1-1 (4018 = 2001-1-1 / 42404 = 2106-02- 06)
28	UINT32	Logged end time	ms	0 to 86'399'999 #	End time of of the logged batch. The value represents the number of ms since midnight.
29	INT32	Total	t	0 to 2 ³¹ -1 #	Overall total at the end time
30	UINT16	Logged Mode		0 to 255	0: 0k 1: Q < 20% or Q > 100% >= 2: Data record corrupt.

 Table 4: acyclic process data PROFINET, parameter configuration



FMS_

The following table shows the commands for remote control. For the remote control commands, only writing is useful.

Note, however, that it is possible to write the same value again. This will also execute the command again.

Sub- slot	Туре	Parameter	Unit	Valid range and number format	Description
50	UINT16	Start Batch		0	Do nothing
				1	Starts the batch
51	UINT16	Stop Batch		0	Do nothing
				1	Stops the batch
52	UINT16	Reset Batch		0	Do nothing
				1	Resets the batch weight
53	UINT16	Start belt scale taring		0	Do nothing
				1	It starts a taring of the belt scale until the taring status gets inactive or it is stopped.
54	UINT16	Stop belt scale taring		0	Do nothing
				1	It stops a running taring of the belt scale.
55	INT32	Calibrate belt scale	t	0 to 4'000'000' 000 #.###	Calibrate the belt scale with the reference weight and the last batch weight.
56	UNIT16	Reset Last Error		0	Do nothing
				1	Reset register last error in the operating status area. That ensures that an occurrence of an error is new.

Table 5: acyclic data PROFINET, remote control



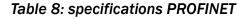
13 Technical data BMGZ710

BMGZ710 : Technical data	
Accuracy class electronics	0.05 %
Number of channels	1, for one measuring roller
Displayed values	total amount [t], daily amount or batch [t], actual performance $[t/h]$, belt speed $[m/s]$ as absolute value or histogram
Daily amount, batch counter	0 to 1,000 t (resolution 5 kg); 1,000 to 10,000 t (resolution 10 kg); 10,000 to 100,000 t (resolution 100 kg); 100,000 to 1,000,000 t (resolution 1000 kg)
Operation and display	4 buttons, graphical, illuminated 128 x 64 px STN LCD, alternatively via web browser
Total amount	0 to 1 Mio. t (resolution 1000 kg)
Digital outputs	Tare active, 24 VDC, max. 100 mA; Belt scale o.k., 24 VDC, max. 100 mA; Remote counter, impulse 1 to 1000 ms, 24 VDC, max. 100 mA; Reset remote counter, 24 VDC, max. 100 mA
Digital inputs	start tare procedure, production batch active, speed probe, 24 VDC
Analogue ouput	Current output: 0/4 to 20 mA, min. 500 Ω or
	power output: 1 to 10 VDC, min. 1000 Ω
Cycle time	1 ms
Temperature range	-10 to +50 °C (14 to 122 F)
Power supply	24 (18 to 36) VDC
Power consumption	5 W
Analogue outputs	Actual performance, 0 to 10 VDC or 0/4 to 20 mA
Weight	1.5 kg (2.2 lbs.)

Table 7: Technical data BMGZ710

13.1 Specification PROFINET interface

Features
0.5 ms for RT_CLASS_3, 1 ms for RT_CLASS_1
Media Redundancy Protocol (MRP) – Client
Yes, RT_CLASS_3, synchronous with network clock
2 Port
V 2.3, legacy startup of specification V 2.2 is supported
PNIO version V 2.35, net load class: CLASS III, conformance class (CC-C)







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