

BMGZ750 and BMGZ750.PNET Operating Manual

Calibratable evaluation unit for conveyor belt scales, with optional PROFINET interface

Document version	1.35
Published/author	12/2024 NS
Firmware version BMGZ750	2.35
Firmware version BMGZ750.PNET	12.35



Free download for IOS and Android

Diese Bedienungsanleitung ist auch in Deutsch erhältlich. Bitte kontaktieren Sie Ihre nächstgelegene FMS Vertretung.

© by FMS Force Measuring Systems AG, CH-8154 Oberglatt – All rights reserved.





1 Table of contents

1	TABL	E OF CONTENTS	2
2	SAFE	TY INSTRUCTIONS	5
	2.1 F 2.1.1 2.1.2 2.2 (Representations of safety instructions Risk that may result in minor or moderate injury Instructions to ensure proper functionality General safety instructions	5 5 5 5
3	PROD	DUCT INFORMATION	6
	3.1 \$	System configuration	6
	3.2 I	Product description	6
	3.3 I	Functional description	6
	3.4	Scope of supply	7
	3.5 (Order code for evaluation unit	7
4	SPEC	IAL FEATURES OF THE CALIBRATABLE VERSION	8
	4.1 I	EU Type-examination Certificate	8
	4.2	Accuracy class 2	8
	4.2.1	Limitations	8
	4.3 F	Requirements, guidelines, standards, verification test	
	4.4 I	Procedure of the calibration test	
	4.5 (Calibration conditions, calibration test	
	4.6 I	Location, maintenance of the conveyor belt scale	9
	4.6.1	Installation location	9
	4.0.2	Material transition length	9 10
	4.0.5	Distance between idler roller stations on the measuring section	10
	4.0.4	Change of installation site	10
	466	Protection against the environment	
	4.6.7	Modifications to the conveyor belt or the scale	
	4.6.8	Belt tensioning device	
	4.6.9	Maximum belt length	10
	4.6.10) Belt cleaning	10
	4.6.11	Adjacent idler stations	11
	4.6.12	2 Concentricity of adjacent idlers	11
	4.6.13	3 Inclination of the conveyor belt	11
	4.6.14	Belt emptying	11
	4.6.15	5 Taring, zeroing the scale	11
	4.6.16	8 Reversible conveyor belts	11
	4.6.17	7 Error signal	11
5	INST	ALLATION	12
	5.1 F	Electrical connection (see installation instructions for the FMS measuring roller)	14
6	OPER	RATION AND INTERFACE	17
	6.1 I	Navigation, quick start	17

	6.2	Histogram	19
7	CON	FIGURATION	20
	7.1	Machine parameters	20
	7.1.1	Description of machine parameters	
	7.2	Additional machine parameters for the calibratable version	24
	7.3	Description of the additional machine parameters for the calibratable version	25
	7.4	Operating parameters	
	7.4.1	Description of operating parameters	27
	7.5	System parameters	
	7.5.1	Description of system parameters	
	7.6	Service	31
	7.7	Digital inputs	33
	7.7.1	Digital input 1 (taring/zero setting)	33
	7.7.2	Digital input 2 (batch active)	33
	7.7.3	Digital input 3 (seal)	34
	7.8	Digital outputs	35
	7.8.1	Digital output 1 (BMGZ OK)	35
	7.8.2	Digital output 2 (taring active)	35
	7.8.3	Digital output 3 (remote counter pulse)	35
	7.8.4	Digital output 4 (remote counter reset)	35
8	STA	NDARD PROCEDURES	36
	8 1	Taring (zero setting)	36
	82	Calibrating	37
	8.3	Manual weighing of a batch - with saving in the alibi protocol	
٩	CON		30
3			
	9.1	Peer-to-peer connection	
	9.2	Home screen	
	9.3	Current Reading	
	9.4	Parameters	
	9.5		
	9.6	Ethernet settings	
	9.7	System settings	46
1(D DIMI	ENSIONS	47
1′	1 OPT	IONAL ETHERNET INTERFACE – PROFINET	50
	11.1	Ethernet Configuration Device – FOR PROFINET DEVICE ONLY	51
	11.2	Communication	53
	11.2	1 General function	53
	11.2	2 Services and protocols	54
	11.3	Cyclic data traffic	54
	11.4	Acyclic data traffic	57
12	2 FMS	BELTSCALE APP	62
	12.1	Configuration via app	63
13	3 BMG	Z750 TECHNICAL DATA	64





13.1	PROFINET interface specification	(optional)	. 64
------	----------------------------------	------------	------



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



Illustration 1: Measuring roller and evaluation unit

3.2 Product description

The evaluation units in the BMGZ750 series are designed to meet the demanding conditions of applications in stationary conveyor systems. The illuminated graphical display shows the current delivery 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. The calibratable version allows you to bill the customer directly via the measurement data of the FMS measuring roller.

An integrated PROFINET IRT interface is available as option.

3.3 Functional description

The evaluation units in the BMGZ750 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 BMGZ750 series have an auto-taring program that automatically determines the tare value over two belt revolutions by pressing a button.



3.4 Scope of supply

Included in the scope of supply:

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

Not included in the scope of supply:

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	50.PNET : Order	code		
BMGZ7	5 0 .W .PNET			
		Profinet IRT ethernet interface		
Housing (.W wall mount; .S. panel mount; K. in cabinet)				
Additional functionality (none)				
		Variation (1: Single-channel; 5: calibratable)		
		Series		

Illustration 2: Order code for evaluation unit





Calibration by a gauger

The operating company alone is responsible for recalibration and for calling in the gauger.

4.1 EU Type-examination Certificate

According Annex II Module B of the Directive 2014/32/EU

4.2 Accuracy class 2

The BMGZ750 is approved for accuracy class 2.

Error limits for flow rates from 20% to 100%:

- a) Max. Error during calibration test (during commissioning / calibration): +/- 1 % of the respective flow rate.
- b) Max. Error in operation (traffic error): +/- 2 % of the respective flow rate.

The test quantity for the adjustment and the official calibration acceptance corresponds to the "smallest delivery quantity".

4.2.1 Limitations

Accuracy class 2 scales may only be used for weighing sand, gravel, waste and demolition material.

4.3 Requirements, guidelines, standards, verification test

This compilation contains a summary of the most important requirements, guidelines of applicable standards and manufacturer recommendations for the construction, testing and operation of calibratable belt scales BMGZ750.

4.4 Procedure of the calibration test



Verification by verification officer

The operator alone is responsible for recalibration and for calling in the verification officer.

The customer applies for the calibration to be carried out. The calibration costs are borne by the customer. FMS recommends that customers clarify the entire test procedure and the necessary precautions / resources with the verification engineer in advance.

During the verification test, check weighing of the weighed material is carried out. It must be possible to load or unload the material without loss. The check weighing must

FMS_

be carried out on a suitable test scale. This must be clarified in advance with the verification officer.

4.5 Calibration conditions, calibration test

The test quantity is the **"smallest delivery quantity"** (OIML R50-1, No. 2.3). It must not be larger than the quantity that can still be handled with reasonable effort during the verification test. The local conditions regarding the available check scale as well as the capacity of the usual transport containers and vehicles must be taken into account.

The "smallest delivery quantity" is equal to the largest quantity, which is calculated from the following three conditions:

- Full belt circulation at maximum conveying rate or
- 2 % of the quantity weighed in one hour at maximum conveying speed or
- 200 digit increments of the measured value display, see OIML 2.3.

It must be possible to adjust and calibrate the belt scale at the installation site easily and safely using original bulk material. A check scale must be available in the vicinity of the belt scale to be tested. The error limit of this scale may be max. 1/5 of the error limit of the belt scale. No bulk material may be lost during the removal and transport of the test quantity. The tests are to be carried out under normal conditions of use between 20% and 100% of the maximum conveying rate. At least two values within the error limit shall be obtained for each conveying rate value. The bulk material quantity used in the test must correspond at least to the "smallest delivery quantity". The weight check of the bulk material quantity can be carried out before or after passing through the belt scale. The conditions for testing with material shall be provided on site.

4.6 Location, maintenance of the conveyor belt scale

The conveyor must be installed on a solid and, if necessary, frost-proof foundation, either stationary or mobile on rails, in order to ensure vibration-free operation of the belt scale.

(OIML R50-1 / regulation test center).

4.6.1 Installation location

The belt scale must be installed as far away as possible from the drive drum in order to minimize belt tension influences. The belt scale may only be installed in a straight belt section with constant troughing.

(FMS recommendation).

4.6.2 Belt alignment and material skirting

The belt alignment must prevent the belt from moving sideways. Any lateral guide rollers that may be necessary must not be installed around the measuring section, nor must infeed skirting.

(Recommendation FMS)

FMS

4.6.3 Material transition length

The measuring section should be as close as possible to the material feed, but it must be ensured that the material has settled before the measuring section, i.e. the material must no longer slip or shift on the belt.

(Regulation FMS)

4.6.4 Distance between idler roller stations on the measuring section

The distance between the idlers for the measuring section is specified by FMS based on the specifications and must be observed. This distance is usually in the range of 0.5 to 2 m.

(Specification FMS)

The measuring section must be at least 3 to 4-times of the belt widths away from belt transition length.

(Recommendation FMS)

4.6.5 Change of installation site

If the installation location of the conveyor belt is changed, the belt scale must be checked and recalibrated if necessary. (Regulation test center)

4.6.6 Protection against the environment

If the conveyor belt is installed outdoors, protection against the effects of weather must be provided by the customer around the belt scale. (Recommendation FMS)

4.6.7 Modifications to the conveyor belt or the scale

The following changes to the conveyor belt or the scale require calibration of the conveyor belt scale:

- Replacement of adjacent idler stations.
- Replacing the conveyor belt
- Change of the inclination

4.6.8 Belt tensioning device

The belt tension must be constant and kept free from temperature, wear, and load effects, among others. The conveyor belt must be equipped with a tensioning device. The wrap angle of the tensioning roller on the conveyor belt must be at least 90°.

(OIML R50-1 / regulation test center)

4.6.9 Maximum belt length

The overall belt length should not exceed 100m.

(FMS recommendation).

4.6.10 Belt cleaning

The conveyor belt must be provided with an effective cleaning device (e.g. scraper) in case of adhering bulk material, whereby no influence on the weighing operation must occur. (OIML R50-1)

4.6.11 Adjacent idler stations

At least two idlers each before and after the measuring roller must be in the same plane as the measuring roller. The measuring roller and in each case the first idler roller before and after the measuring roller must be secured against displacement and marked with the serial number of the scale. If the diameters of the mentioned rollers are not the same, these rollers must be secured against disassembly.

(Regulation test center)

4.6.12 Concentricity of adjacent idlers

The adjacent idler rollers must have a precise concentricity to prevent vibrations of the conveyor belt.

(FMS regulation)

4.6.13 Inclination of the conveyor belt

The conveyor belt must run horizontally or with a constant inclination. The maximum slope depends on the material and must not be too large to prevent the material from moving.

(OIML R50-1, calibration requirement)

4.6.14 Belt emptying

Each weighing must start and end with an empty belt.

(OIML R50)

4.6.15 Taring, zeroing the scale

The conveyor belt scale must be zeroed after switching on and then at least every 3 hours. This procedure is fully automatic on the BMGZ750 at the press of a key during two belt cycles.

4.6.16 Reversible conveyor belts

With reversible belts, the calibration of the scale is only valid for the conveying direction for which the calibration was carried out. Calibration may only be carried out for one direction.

(Calibration requirement).

4.6.17 Error signal

If the belt scale is switched off or fails, the conveyor belt must be stopped or an acoustic or optical signal must be emitted.

(Regulation of the test center).

FMS provides a digital output (BMGZ OK) on the electronics for this purpose. The "BMGZ OK" output is active if the evaluation electronics are switched on and no error is present. The operator must ensure that if this relay drops out, the conveyor belt is stopped or an acoustic or optical signal is emitted.



5 Installation

Several versions of the evaluation unit are available.



Illustration 3: 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



Illustration 4: BMGZ710.S Panel mount

- The panel must be prepared with a suitable recess and holes. See 10 Dimensions, page 47
- The housing is clamped to the sheet metal





Illustration 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



Illustration 6: Speciality BMGZ710.K

```
FMS_
```

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

The connection between the measuring roller and the evaluation unit must use the 10-core twisted-pair cable $(5x2x0.75 \text{ mm}^2)$ 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 the 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.



Illustration 7: Connection cable, evaluation unit side

BMGZ750 / BMGZ750.PNET Operating Manual Installation - Electrical connection (see installation instructions for the FMS measuring roller)





Illustration 8: Terminal assignment, BMGZ750



Illustration 9: ethernet connector M12, D-coded



Illustration 10: Connection cable, calibratable measuring roller side, BMGZ061

FMS

BMGZ750 / BMGZ750.PNET Operating Manual **Operation and interface - Navigation, quick start**



6 Operation and interface



Illustration 11: Device view

6.1 Navigation, quick start

The menu is divided into two levels







Levels, navigatio	n	
Level	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
	A V	Histogram 120 t/h Q [t/h] 45.9 5 Min Edit
	▲ ▼	BatchBatch20.11.202014:57Total559 tBatch59.54 tBatch No.21StartReset
	A V	Zero setting > 0 < 20.11.2020 14:57 Start zero setting? Is the belt running empty? Yes
	A V	Detail Detail 20.11.2020 14:57 Q 125.9 t/h v 2.11 m/s Menu

Levels, navigatior	ו	
Level	Navigation	Display
		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

Table 1: Levels, display

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.

This parameter set is blocked by a seal in the calibratable version. This is implemented by a switch inside the housing that switches the digital input 3 "Seal". To change the values, the switch must be set to "off". A new official calibration must then be carried out.

The temperature reference values (see 7.2 Additional machine parameters for the calibratable version, page 24) are also protected by the switch and should not be changed.

Machine parameters						
Parameters	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

Table 2: Machine parameters

Machine parameters

Gain



7.1.1 Description of machine parameters

parameter. This value is required for taring.		
Unit	m	
Min.	1	
Max.	5000	
Default	10	
Increment	1	
The diameter o (see measuring	f the centre roller is saved under this paramete ; roller nameplate).	
Unit	mm	
Min.	10	
Max.	1000	
Default	108	
Increment	1	
	parameter. This Unit Min. Max. Default Increment The diameter o (see measuring Unit Min. Max. Default Increment	



FMS	

Machine parameters				
Name	Description			
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		
Distance	The distance between adjacent idlers is saved under this parameter. This value corresponds to the sum of the distances between the measuring roller and the preceding and following idler stations.			
	Unit	mm		
	Min.	100		
	Max.	5000		
	Default	2000		
	Increment	1		
Nominal force	Nominal force of the used force measuring bearing. This value is indicated on the name plate of the measuring roller and the name plate of each force sensor.			
	Unit	Ν		
	Min.	1		
	Max.	5000		
	Default	1000		
	Increment	1		

FMS_	

Machine paramet	Machine parameters		
Name	Description		
Max. Q	The maximum delivery rate Q of the belt scale can be stored this parameter.		
	If the current delivery rate falls below 5% of this value, the electronics no longer integrates. The measurement "pauses", so to speak, until the delivery rate increases above the 5 % again. Batch counter and totalizer are not increased during this time. An error is displayed.		
	Unit	t/h	
	Min.	0	
	Max.	5000	
	Default	1000	
	Increment	1	

Table 3: Description of machine parameters

7.2 Additional machine parameters for the calibratable version

Parameters for the calibratable version					
Parameters	Unit	Default	Min.	Max.	No.
Direction of movement	-	Standard	inverse		44
Corr. offset -10	Digit	0	-32768	32767	32
Corr. offset -5	Digit	0	-32768	32767	33
Corr. offset 0	Digit	0	-32768	32767	34
Corr. offset +5	Digit	0	-32768	32767	35
Corr. offset +10	Digit	0	-32768	32767	36
Corr. offset +15	Digit	0	-32768	32767	37
Corr. offset +20	Digit	0	-32768	32767	38
Corr. offset +25	Digit	0	-32768	32767	39
Corr. offset +30	Digit	0	-32768	32767	40
Corr. offset +35	Digit	0	-32768	32767	41
Corr. offset +40	Digit	0	-32768	32767	42
Corr. offset +45	Digit	0	-32768	32767	43
Corr. gain –10	-	1,000	0,500	2,000	20
Corr. gain –5	-	1,000	0,500	2,000	21
Corr. gain 0	-	1,000	0,500	2,000	22
Corr. gain +5	-	1,000	0,500	2,000	23
Corr. gain +10	-	1,000	0,500	2,000	24
Corr. gain +15	-	1,000	0,500	2,000	25
Corr. gain +20	-	1,000	0,500	2,000	26
Corr. gain +25	-	1,000	0,500	2,000	27
Corr. gain +30	-	1,000	0,500	2,000	28
Corr. gain +35	-	1,000	0,500	2,000	29
Corr. gain +40	-	1,000	0,500	2,000	30
Corr. gain +45	-	1,000	0,500	2,000	31

 Table 4: Parameters for the calibratable version

FMS_

7.3 Description of the additional machine parameters for the calibratable version

System parameters			
Name	Description		
Direction of movement	The direction of rotation of the measuring roller is defined here.		
	"Standard" definition: clockwise as seen from the connection side.		
	Unit	-	
	Selection	Standard, inverse	
	Default	Standard	
Corr. Offset xy °C	Here the offset temperature drift of the measuring roller at xy°C is corrected.		
	The value is e	ntered at the factory at FMS.	
	Unit	Digit	
	Min.	-32768	
	Max.	32768	
	Default	0	
	Increment	1	
Corr. Gain xy°C	Here the gain temperature drift of the measuring roller at xy°C (see list) is corrected.		
	The value is e	ntered at the factory at FMS.	
	Unit	-	
	Min.	0500	
	Max.	2000	
	Default	1,000	
	Increment	0,001	

Table 5: Description of the additional parameters for the calibratable version



7.4 Operating parameters

Operating parameters						
Parameters	Unit	Selection	Default	Min.	Max.	No.
Pulse output	[kg]		100	1	1000	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 6: Operating parameters



Operating parameters			
Name	Description		
Pulse output	This output emits a pulse each time the defined weight has passed the measuring roller. The weight corresponding to one pulse is stored under this parameter.		
	Pulse duration	1 to 1000 ms, depending on delivery rate	
	Unit	kg	
	Min.	1	
	Max.	1000	
	Default	100	
	Increment	1	
Current output	Two proportional analogue outputs are available for the delivery rate.		
	The type of cur	rent output signal is selected here.	
	Current and voltage 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-pass filter for the analogue output to filter out undesirable fluctuations.		
	The threshold f	requency is configured here.	
	This filter is ind	ependent of the other filters.	
	Unit	Hz	
	Min.	0.1	
	Max.	20.0	
	Default	10.0	
	Increment	0.1	

7.4.1 Description of operating parameters



Operating parameters			
Name	Description		
Scaling (output)	Here, you can define the delivery 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 7: Description of operating parameters



7.5 System parameters

System parameters						
Parameters	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 8: System parameters

7.5.1 Description of system parameters

System parameters			
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	First-order low-pass filter to filter out undesirable fluctuations from the display. The threshold frequency of the filter is configured here.		
	Unit	Hz	
	Min.	0.1	
	Max.	10	
	Default	1.0	
	Increment	0.1	
Date format	Here, the form	at of the displayed date can be configured.	
	Unit	-	
	Default	DD.MM.YYYY	
	Increment	DD.MM.YYYY, MM.DD.YYYY	



System parameters			
Name	Description		
Time/date	The evaluation unit has a built-in real-time clock (RTC). To configure the time, the current time and date can be entered into this parameter.		
	This information is stored in the alibi memory with the corresponding batch.		
	Unit	-	
	Min.	00:00 01.01.2020	
	Max.	23:59 31.12.2099	
IP address	Static IP addre	ess of the evaluation unit	
	The IP address is entered in four blocks.		
	Note: This IP-address is NOT relevant for PROFINET!		
	Unit	-	
	Min.	0	
	Max.	255	
	Default	192.168.0.90	
Subnet mask	The subnet mask is entered in four blocks.		
	Unit	-	
	Min.	0	
	Max.	255	
	Default	255.255.255.0	

 Table 9: Description of system parameters



7.6 Service

Service		
Parameters	Unit	Display
A/D values, raw	Digit	Raw value
Strain gauge, raw	mV	Raw value
Travel	mV	Raw value minus offset
Force	N	Calculated
Belt	Kg/m	Weight
Digital inputs:	-	Status: 0 = inactive; 1 = active
		Taring
		Batch active
		Seal
		Pulse (input, initiator 1)
		Pulse check (input, initiator 2)
Digital outputs	-	Status: 0 = inactive; 1 = active
		BMGZ ok
		Taring active
		Remote counter pulse
		Remote counter reset
PT1000	°C	BMGZ750 and BMGZ750.PNET only
		Current temperature in the measuring roller in °C
Temperature	°C	Temperature value in the measuring roller in °C
Temperature offset		Factory setting: Please do not change!
CRC	-	Cyclic redundancy check: Monitoring of transmission errors and changes in metrologically relevant parameters.
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.
	5 false pules (from proximity switches) Detection of incorrect direction of rotation.
	→ Check proximity switches or connection cables
	6 CRC Error → In the service menu under the CRC, the currently calculated CRC can be declared as valid. In the unsealed state, the "Enter" key and the "+" key must be pressed together for 3 seconds.
	7 Memory full → Contact FMS
Device offset	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 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 parameter.
Totalizer	Can be changed in case of replacement or repair.
	Press and hold the - and keys simultaneously for > 5 sec. to access this parameter.

Table 10: Service

7.7 Digital inputs

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

7.7.1 Digital input 1 (taring/zero setting)

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

Another activation aborts the ongoing procedure.



Illustration 12: context dig. in- and output

7.7.2 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 memory. This ensures that the weighed quantities are traceable.

The batch counter may only be reset if the delivery rate is > 5 % of the max. delivery rate. Otherwise, an error message "Batch counter cannot be zeroed because the delivery rate is < 5 % of the max. delivery rate" is output. While this input is active, a batch is weighed. If the input becomes passive, the weighed quantity (batch counter), the totaliser, date and time are saved in the alibi memory. This ensures that the weighed quantities are traceable.

7.7.3 Digital input 3 (seal)

In the calibratable version, this digital input is used as a seal. If this digital input is active via the switch in the housing, then the calibratable parameters can be accessed, otherwise not.



Illustration 13: "Seal" switch in the housing



7.8 Digital outputs

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

7.8.1 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 delivery rate", or "overload"). An error message is also shown on the display. An error message is also shown on the display.



Audible or visual warning

The operator must ensure that if this digital output switches off, the conveyor belt is stopped, or an audible or visual signal is given.

7.8.2 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)36

7.8.3 Digital output 3 (remote counter pulse)

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

After a defined delivery rate, a pulse is output here. The delivery 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 %).

7.8.4 Digital output 4 (remote counter 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 " $\rightarrow 0 \leftarrow$ ".



Illustration 14: 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.

- Open housing
- Set calibration switch S1 inside the housing (digital input 3 "Seal") to "on".
- Check or enter the belt length, diameter, pulse, distance, nominal force, max. delivery rate parameters
- Run the conveyor belt until 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 "Calibration" menu item in the configuration (menu)

Machine parameters Operating parameters System parameters		
Calibration		
Alibiprotocol		
Service		
Home	4	

Illustration 15: 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 saved in the background under the "Gain" parameter.
- Compare the determined value with the display of the conveyor belt scale (batch quantity). If the deviation is greater than +/-1 %, the actual weight must be communicated to the conveyor belt scale. This is done through the Calibration parameter function.
- Set calibration switch S1 inside the housing (digital input 3 "Seal") to "off".
- Close the housing and seal it in the presence of the official calibration supervisor.



8.3 Manual weighing of a batch - with saving in the alibi protocol



Illustration 16: Manual weighing of a batch with saving 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 until 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

ĺ

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 7.4 Operating parameters

9.1 Peer-to-peer connection



Illustration 1: 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



Illustration 17: 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 🚱 Deal	divieren Diagnose
	Schließen

veib	Intel(R) 825	llen ube 791 M Gi	r: iaabit Net	work Con	nection		
Dies	• Verbindung	verwen	detfolger	nde Eleme	ente:	Konfigurie	eren
	Client für M QoS-Pake Datei- und Internetpro	licrosoft tplaner Drucker tokoll V tokoll V er für Ver Verbind	-Netzwerk rfreigabe ersion 6 (ersion 4 (rbindungs lungsschi	ce für Micros TCP/IPv6 TCP/IPv4 sschicht T icht-Topol	oft-Netz opologi ogieerk	werke eerkennung	gszuo
Bes	nstallieren chreibung CP/IP, das Sta	andardp	Deinst rotokoll fi	tallierer	etzwerk	Eigenscha e, das den	aften
	etzwerke erm	öglicht.	ereenieu.	ene, miten	ander	orbandene	·

Illustration 18: Status of LAN connection

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





- 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

Illustration 19: Internet protocol properties

- Select "Use the following IP address:"
- Enter the PC address (e.g., 192.168.000.1)
- In the subnet mask, enter: 255 255 255 000 255 255 255 000
- 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	
BMGZ750	Calibratable Belt	Scale with integrated Web Interface	
Home Current Reading	Device Information		
Parameters Alibi Protocol Ethernet Settings	PROPERTIES Serial number	VALUE 4981272	
System Settings	Firmware Version	1.0.0	

Illustration 20: Homepage with device information

The homepage provides information about general device properties, such as serial number and software version.

The menu on the left side of the screen allows navigation on the page.

9.3 Current Reading

The Point is Techno	ology		FMS_
BMGZ750	Calibratable Be	It Scale with integ	grated Web Interface
Home Current Reading	Current Reading		
Parameters	PROPERTIES	VALUE	
Alibi Protocol	Total	0 t	
System Settings	Charge	0.925 t	
	Charge Nr.	47	
	Q	0.0 t/h	
	v	0.00 m/s	

Illustration 21: Current Reading (current measured values) The current reading website shows all current values



9.4 Parameters

The Parameters page allows you to modify the parameters.

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

meters M A C Perties	HINE	_	
meters M A C Perties	HINE		
M A C PERTIES	HINE	_	
M A C PERTIES	HINE		
PERTIES			
	VALUE		
t	5194		
	1.000		
length	10	m	
eter	108	mm	
ses	4		
nce	2000	mm	
nal Force	1000	N	
Q	0	t/h	
tion	Standard		
PERTIES	VALUE		
se output	100	ka	
nt output	420mA		
frequency output	10.0	Hz	
ng output	1000.0	t/h	
	Lesse		
S Y S	S Т Е М		
SY S Perties	STEM VALUE		
SYS PERTIES ay language	STEM VALUE English	~	
SYS PERTIES ay language ay filter	STEM VALUE English 1.0	• Hz	
S Y S PERTIES ay language ay filter format	S T E M VALUE English 1.0 DD.MM.YYYY	✓ Hz	
S Y S PERTIES ay language ay filter format rding time	S T E M VALUE English 1.0 DD.MM.YYYY	✓ Hz ✓ Min	
	length eter lses nce nal Force Q tion O P E R PERTIES lse output ent output frequency output ng output	length 10 eter 108 lses 4 nce 2000 nal Force 1000 Q 0 tion Standard O P E R A T I N G PERTIES VALUE lse output 100 ent output 420mA frequency output 10.0 ng output 1000.0	length 10 m eter 108 mm lses 4 mm nce 2000 mm nal Force 1000 N Q 0 t/h tion Standard ✓ O P E R A T I N G PERTIES VALUE lse output 100 kg ent output 420mA ✓ frequency output 10.0 Hz ng output 1000.0 t/h



Illustration 22: Parameters sealed, view with sealed / calibrated electronics

GZ750	Calibratable Be	t Scale wit	h integrate	ed Web Interface			
	Parameters						
nt Reading eters	-		_	0.5.5.6.5			
rotocol		. HINE	_		I CORR.	GAIN	CORR.
et Settings	PROPERTIES	FIDA		PROPERTIES	VALUE	PROPERTIES	VALUE
n Settings	Chin	1 000	-	Corr. Offset - 10 °C	0	Corr. Gain F. 2C	1.000
	Band longth	10		Corr Offset 0.9C		Corr. Gain 0.9C	1.000
	Dismotor	109		Corr Offeet +5 °C	0	Corr Gain +5 90	1.000
	Impulses	4		Corr Offeet +10 °C	0	Corr Gain +10 °C	1.000
	Distance	2000	mm	Corr. Offset +15 °C	0	Corr Gain +15 °C	1.000
ve changes	Nominal Force	1000	N	Corr. Offset +20 °C	0	Corr. Gain +20 °C	1.000
re unungeo	Max Q	0	t/h	Corr. Offset +25 °C	0	Corr. Gain +25 °C	1.000
	Direction	Standard	×	Corr. Offset +30 °C	0	Corr Gain +30 °C	1.000
		(second s		Corr Offset +35 °C	0	Corr Gain +35 °C	1.000
	OPER	ATING		Corr. Offset +40 °C	0	Corr. Gain +40 °C	1.000
	PROPERTIES	VALUE	-	Corr. Offset +45 °C	0	Corr. Gain +45 °C	1.000
	Impulse output	100	kg			_	
	Current output	420mA	~				
	Filter frequency output	10.0	Hz				
	Scaling output	1000.0	t/h				
	S Y	STEM					
	PROPERTIES	VALUE					
	Display language	English	~				
	Display filter	1.0	Hz				
	Date format	DD.MM.YYYY	~				
	Recording time	1	Min				
	Histogram scaling	20	t/h				
	DLA	G R A M					
	PROPERTIES	VALUE					
	Recording time	1	Min				

Illustration 23: Parameters unsealed, view with electronics not sealed / uncalibrated. In this state, the parameters shown above can be changed.

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



9.5 Alibi protocol

• The Point is Techno	ology			FMS_			
BMGZ750	Calibra	table Belt Scal	e with integrated	Web Interfa	ce		
Home Current Reading	Alibi Me	mory					
Parameters	INDEX	START	END	CHARGE NR	CHARGE	TOTAL	MODE
Alibi Protocol	46	12.04.2021 13:17:12	12.04.2021 13:17:13	46	0.000 t	874 t	0
System Settings	45	08.04.2021 12:23:59	19.10.2021 16:44:14	44	0.4	0.4	255
	44	08.04.2021 11:54:20	19.10.2021 16:14:35	43	0-t	0.t	255
	43	01.02.2021 10:04:25	01.02.2021 10:04:38	42	0.495 t	551 t	0
	42	18.01.2021 08:53:05	18.01.2021 08:53:10	39	0.000 t	549 t	0
	41	14.01.2021 16:01:49	14.01.2021 16:02:26	38	0.052 t	549 t	0
	40	28.10.2020 17:37:43	10.05.2021 21:57:58	36	0-t	0-t	255
	39	28.10.2020 17:35:41	28.10.2020 17:36:05	35	0.064 t	547 t	0
	38	28.10.2020 17:34:05	28.10.2020 17:34:13	33	0.000 t	547 t	0
	37	28.10.2020 17:17:50	28.10.2020 17:18:05	32	0.045 t	547 t	0
			[< << < 46	>>>	<		

Illustration 24: 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	viegy		FMS_0
BMGZ750	Calibratable Belt S	cale with integrated 1	Neb Interface
Home Current Reading	Ethernet Settings		
Parameters	PROPERTIES	VALUE	
Alibi Protocol	Device MAC address	00-02-x2-4c-02-15	
System Settings	Device IP address	192.168.0.93	
	Subriet Mask	255.255.255.0	
	Gateway IP address	192.168.0.1	
	Save changes Note: Saving of new settings cause	sec an immediate reset and must be v	alidated within a period of 3 minutes otherwise the original settings will be returned. This ensures that invalid settings do not render a dwice unvachable.

Illustration 25: Ethernet settings

FMS

9.7 System settings

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

BMGZ750	Calibratable Bel	t Scale with integrated Web Inter
ome urrent Reading	System Settings	
arameters	PROPERTIES	VALUE
ibi Protocol	Firmware Version	1.0.0
stem Settings	Web Stack	4.5.0.3
	netX Bootloader	1.6.0.1
	Program File	Durchsuchen Keine Datei ausgewählt.
	Password	

Illustration 26: System settings

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

Use the "Synchronize to PC time" button to transfer the time and date set in the connected PC to the evaluation unit.



10 Dimensions



Illustration 27: Dimensions, BMGZ710.W



Illustration 28: Dimensions, BMGZ710.S



BMGZ750 / BMGZ750.PNET Operating Manual Dimensions - System settings



Illustration 29: Dimensions, BMGZ710.K





A PROFINET interface is available for the evaluation units of the BMGZ700 series with the .PNET option.

BMGZ710.PNET - standard version, not calibratable, see separate operating manual BMGZ750.PNET – calibratable version



Illustration 30: peripherical devices

FMS

11.1 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	0
00-02-A2-81-4A-7E	Tension Amplifier EMGZ492	-not set -	0.0.0.0	DCP	10

Figure 31: Ethernet Device Configuration – initial screen

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



Figure 32: 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»

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

Figure 33: Ethernet Device Configuration – IP Configuration

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



			100	•	000		097
Subnet mask:	255	•	255		255	•	0
Default gateway:	0	•	0	•	0	4	0
Get IP Address via DHCP							
Authentication method:	AC a	dd	ress			_	Ŧ
Client ID:							
Store settings temporary							

Figure 34: Ethernet Device Configuration – IP Adresse geändert

 $\ensuremath{\mathsf{Press}}$ «OK» to store the settings.

11.2 Communication

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

11.2.1 General function

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



Illustration 35: Read/Write cycle



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

11.2.2 Services and protocols

The following services and protocols are used:

- RTC Real Time Cyclic Protocol
- RT_CLASS_1 (unsynchronized)
- 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 permissible as well.

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

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

11.3 Cyclic data traffic

After a successful system start, IO controller and the assigned IO devices can exchange cyclic process data. The table below shows the measured data and how they are transmitted.

From Tom:

Cyclic data traffic reads the operating status of the evaluation unit 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 unit.

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

Sub- slot	Туре	Parameters	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 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).







Sub- slot	Туре	Parameters	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	Ν	- 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 11: PROFINET cyclic data

11.4 Acyclic data traffic

After a successful system start, IO controller and the assigned IO devices can exchange acyclic demand data. The following table shows the parameters and commands and how they are transmitted using acyclic data traffic.

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

desilves Field/and Zielsushass	Analytic Falses Families	CHE						
B B C C	Ansicht Extras Fenster	Hille						
					_			
C 300-Station (Konfigurat	ion) BMGZ700_PN_V	0_2					1	
						Suchen:		
						Profil	EMS	
						Them.	True.	
	~	Ethern	net(1); PROFIN	ET-IO-System (100)		10 1	PROFIBUS-DP	
CPU 315-2PN/DF						- #	PROFINET IO	
MPI/DP				- (1) bm az 75		- 00 +	Gateway	
t Povil		-		EMS Temp		E.	🛅 HMI	
2 Port 2						E.	1/0	
				BMG2750.PWET		Đ.	Network Components	
						E.	Schaltgerate	
						1	Sensors	
						E.		
	2						Belt Scales	
							📕 🚡 Belt Scale B	MGZ710 Rev. 1.0
							- 🚡 Calibratable	Belt Scale BMGZ750 F
							🕀 🦲 Web Guides	
							+ Drives	
					_		🗄 🧰 Gateway	
a Maria		1011					⊕ ☐ Gateway ⊕ ☐ I/0	
(1) bmgz750					-		⊕	
(1) bmgz750 z J Baugruppe	Bestellnummer	E-Adresse	A-Adresse	Diagnoseadresse	Komr	+	Gateway G	
(1) bmgz750 z [Baugruppe	Bestellnummer	E-Adresse	A-Adresse	Diagnoseadresse	Komr	÷ ÷	Gateway Gateway Gateway Gateway Gateway Gateway Gateway Simatric 300 SIMATIC 400 SIMATIC PC Based Control:	300/400
(1) bmg2750 2 (1) Baugruppe 2 000g22 00 1 PR0FINET 10	Bestellnummer BMG2750	E-Adresse	A-Adresse	Diagnoseadresse 2039* 2042*	Komm		Gateway Gateway Gateway Gateway Gateway Gateway Gateway SIMATIC 300 SIMATIC 400 SIMATIC PC Based Control: SIMATIC PC Station	300/400
(1) bmgz750 z [] Baugruppe i congaz so i FROFINET-1/07 i Fast 7	Bestellnummer BMG2750	E-Adresse	A-Adresse	Diagnoseadresse 2039 2042** 2041*	Komm		Gateway G	300/400
11 bmgz750 z Baugruppe PRUFINCT+10 PRUFINCT+10 PRUFINCT+10 PRUFINCT+10 PRUFINCT+10 PRUFINCT+10 PRUFINCT+10	Bestellnummer BMG2750	E-Adresse	A-Adresse	Diagnoseadresse 2039* 2042* 2041* 2040*	Komm	+ + 2	Gateway G	300/400
(1) bmgz750 z Baugruppe PROFINET-ICI Part 1 Fast 2 Identification/Maintena	Bestellnummer BMG2750	E-Adresse	A-Adresse	Diagnoseadresse 2039* 2042* 2047* 2047* 2025*	Korm	+ + 2	Gateway G	300/400
(1) brigz750 z Baugruppe <i>PROFINET-ICT</i> <i>Part T</i> <i>Rast 2</i> <i>I. Identification/Maintena</i>	Bestellnummer BMG2750	E-Adresse	A-Adresse	Diagnoseadresse 2013** 2011** 2011** 2017** 2023** 2023** 2023**	Korm		Gateway G	300/400
1) bmgz750 z Baugruppe PROFINET-I/I Past 1 I Bast 2 I Identification/Maintena Consentation/Maintena Feedback	Bestellnummer BMG2750	E-Adresse	AAdresse	Diagnoseadresse 2009 2011 2011 2011 2011 2013 2013 2013 2013	Komm	+	Gateway G	300/400
11 bmgz750 z Baugruppe <i>PRUFINET I/I</i> <i>Part 1</i> <i>Fart 2</i> <i>I.dentification/Maintena</i> <i>Feedback</i> <i>Feedback</i> <i>Forthere second Fain</i>	Bestellnummer BMG2750	E-Adresse	A-Adresse	Diagnoseadresse 2039* 2047* 2047* 2023* 2023* 2023* 2037* 2037* 2037*	Komm		Gateway G	300/400
1) bmgz750 z Baugruppe PROFINET 40 Pavi 7 Identification Maintena Econolis of asses Pain Feedback roomens recess Pain Last Envi	Bestellnummer BMG2750	E:Adresse	A-Adresse	Diagnoseadresse 2039* 2047* 2047* 2047* 2038* 2038* 2037* 2037*	Komr		Gateway G	300/400
1) bmgz750 z Baugruppe <i>PRUFINET-UT</i> <i>PRUFINET-UT</i> <i>PRUFINET-UT</i> <i>PRUFINET-UT</i> <i>PRUFINET-UT</i> <i>PRUFINET-UT</i> <i>PRUFINET-UT</i> <i>PRUFINET-UT</i> <i>PRUFINET-UT</i> <i>PRUFINET-UT</i> <i>PRUFINET-UT</i> <i>PRUFINET-UT</i> <i>PRUFINET-UT</i> <i>PRUFINET-UT</i> <i>PRUFINET-UT</i> <i>PRUFINET-UT</i> <i>PRUFINET-UT</i> <i>PRUFINET-UT</i> <i>PRUFINET-UT</i> <i>PRUFINET-UT</i> <i>PRUFINET-UT</i> <i>PRUFINET-UT</i> <i>PRUFINET-UT</i> <i>PRUFINET-UT</i> <i>PRUFINET-UT</i> <i>PRUFINET-UT</i> <i>PRUFINET-UT</i> <i>PRUFINET-UT</i> <i>PRUFINET-UT</i> <i>PRUFINET-UT</i> <i>PRUFINET-UT</i> <i>PRUFINET-UT</i> <i>PRUFINET-UT</i> <i>PRUFINET-UT</i> <i>PRUFINET-UT</i> <i>PRUFINET-UT</i> <i>PRUFINET-UT</i> <i>PRUFINET-UT</i> <i>PRUFINET-UT</i> <i>PRUFINET-UT</i> <i>PRUFINET-UT</i> <i>PRUFINET-UT</i> <i>PRUFINET-UT</i> <i>PRUFINET-UT</i> <i>PRUFINET-UT</i> <i>PRUFINET-UT</i> <i>PRUFINET-UT</i> <i>PRUFINET-UT</i> <i>PRUFINET-UT</i> <i>PRUFINET-UT</i> <i>PRUFINET-UT</i> <i>PRUFINET-UT</i> <i>PRUFINET-UT</i> <i>PRUFINET-UT</i> <i>PRUFINET-UT</i> <i>PRUFINET-UT</i> <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i>PRUFINET-UT <i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i>	Bestellnummer BMG2750	E-Adresse 256259 83 332267	A-Adresse	Diagnoseadresse 20347** 2041** 2041** 2039** 2039** 2039* 2037* 2037*	Komr		Gateway G	300/400
1) bmgz750 z Baugruppe PRC/FINET/I/I Past 1 Past 2 Identification/Maintena Preedback Preedback Produces Point Status Tota/(I) Baldy I/I	Bestellnummer BMG2750	E-Adresse	A-Adresse	Diagnoseadresse 20142* 20147* 20147* 20147* 20137* 20137* 20137* 20137*	Komm		Gateway G	300/400
11 bmgz750 z Baugruppe PRUFINET4/0 Part 1 Part 2 Ldentificatiou/Maintena Feedback Feedback Feedback Formers recess Fain Last Ence States Tots/(I) Batch /(I) Batch /(I)	Bestellnummer BMG2750	E-Adresse 256259 B3 287257 284257 284257	AAdresse	Diagnoseadresse 2039* 2042* 2047* 2047* 2037* 2037* 2037*	Komm		Gateway G	300/400
1) bmgz750 z Baugruppe <i>PROFINETVIO</i> <i>PROFINETVIO</i> <i>PROFI</i> <i>PROFINETVIO</i> <i>PROFINETVIO</i> <i>PROFINETVIO</i> <i>PROFINETVIO</i> <i>PROFINETVIO</i> <i>PROFINETVIO</i> <i>PROFINETVIO</i> <i>PROFINETVIO</i> <i>PROFINETVIO</i> <i>PROFINETVIO</i> <i>PROFINETVIO</i> <i>PROFINETVIO</i> <i>PROFINETVIO</i> <i>PROFINETVIO</i> <i>PROFINETVIO</i> <i>PROFINETVIO</i> <i>PROFINETVIO</i> <i>PROFINETVIO</i> <i>PROFINETVIO</i> <i>PROFINETVIO</i> <i>PROFINETVIO</i> <i>PROFINETVIO</i> <i>PROFINETVIO</i> <i>PROFINETVIO</i> <i>PROFINETVIO</i> <i>PROFINETVIO</i> <i>PROFINETVIO</i> <i>PROFINETVIO</i> <i>PROFINETVIO</i> <i>PROFINETVIO</i> <i>PROFINETVIO</i> <i>PROFINETVIO</i> <i>PROFINETVIO</i> <i>PROFINETVIO</i> <i>PROFINETVIO</i> <i>PROFINETVIO</i> <i>PROFINETVIO</i> <i>PROFINETVIO</i> <i>PROFINETVIO</i> <i>PROFINETVIO</i> <i>PROFINETVIO</i> <i>PROFINETVIO</i> <i>PROFINETVIO</i> <i>PROFINETVIO</i> <i>PROFINETVIO</i> <i>PROFINETVIO</i> <i>PROFINETVIO</i> <i>PROFINETVIO</i> <i>PROFINETVIO <i>PROFINETVIO</i> <i>PROFINETVIO <i>PROFINETVIO PROFINETVIO <i>PROFINETVIO PROFINETVIO <i>PROFINETVIO PROFINETVIO <i>PROFINETVIO PROFINETVIO <i>PROFINETVIO PROFINETVIO <i>PROFINETVIO PROFINETVIO <i>PROFINETVIO PROFINETVIO <i>PROFINETVIO PROFINETVIO <i>PROFINETVIO PROFINETVIO <i>PROFINETVIO PROFINETVIO <i>PROFINETVIO PROFINETVIO <i>PROFINETVIO PROFINETVIO <i>PROFINETVIO PROFINETVIO <i>PROFINETVIO PROFINETVIO <i>PROFINETVIO PROFINETVIO <i>PROFINETVIO PROFINETVIO <i>PROFINETVIO PROFINETVIO <i>PROFINETVIO PROFINETVIO <i>PROFINETVIO PROFINETVIO <i>PROFINETVIO PROFINETVIO <i>PROFINETVIO PROFINETVIO <i>PROFINETVIO PROFINETVIO <i>PROFINETVIO PROFINETVIO <i>PROFINETVIO PROFINETVIO <i>PROFINETVIO PROFINETVIO <i>PROFINETVIO PROFINETVIO <i>PROFINETVIO PROFINETVIO <i>PROFINETVIO PROFINETVIO <i>PROFINETVIO PROFINETVIO <i>PROFINETVIO PROFINETVIO <i>PROFINETVIO PROFINETVIO <i>PROFINETVIO PROFINETVIO <i>PROFINETVIO PROFINETVIO <i>PROFINETVIO PROFINETVIO <i>PROFINETVIO PROFINETVIO <i>PROFINETVIO PROFINETVIO <i>PROFINETVIO PROFINETVIO <i>PROFINETVIO PROFINETVIO <i>PROFINETVIO PROFINETVIO <i>PROFINETVIO PROFINETVIO <i>PROFINETVIO PROFINETVIO <i>PROFINETVIO PROFINETVIO <i>PROFINETVIO PROFINITATIO <i>PROFINETVIO PROFINETVIO <i>PROFINETVIO PROFINETVIO <i>PR</i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i>	Bestellnummer BMG2750	E-Adresse 256, 259 2.3 280, 263 284, 265 268, 277 268, 277	A-Adresse	Diagnoseadresse 2039** 2047** 2047** 2037* 2037* 2037* 2037*	Komr		Gateway G	300/400
1) bmgz750 z Baugruppe <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-ID</i> <i>PROFINET-IDD</i> <i>PROFINET-IDD</i> <i>PROFINET-IDD</i> <i>PROFINET-IDD</i> <i>PROFINET-IDD</i> <i>PROFINET-IDD</i> <i>PROFINET-IDD</i> <i>PROFINET-IDD</i> <i>PROFINET-IDD</i> <i>PROFINET-IDD</i> <i>PROFINET-IDD</i> <i>PROFINET-IDD</i> <i>PROFINET-IDD</i> <i>PROFINET-IDD</i> <i>PROFINET-IDD</i> <i>PROFINET-IDD</i> <i>PROFINET-IDD</i> <i>PROFINET-IDD</i> <i>PROFINET-IDD</i> <i>PROFINET-IDD</i> <i>PROFINET-IDD</i> <i>PROFINET-IDD</i> <i>PROFINET-IDD</i> <i>PROFINET-IDD</i> <i>PROFINET-IDD</i> <i>PROFINET-IDD</i> <i>PROFINET-IDD</i> <i>PROFINET-IDD</i> <i>PROFINET-IDD</i> <i>PROFINET-IDD <i>PROFINET-IDD <i>PROFINET-IDD <i>PROFINET-</i></i></i></i>	Bestellnummer BMG2750	E-Adresse 256259 83 267257 268257 268257 272257 272279	AAdresse	Diagnoseadresse 20147** 20147** 2017** 2017** 20137** 20137** 20137** 20137**	Komm		Gateway	300/400
1) bmgz750 z Baugruppe PRUFINET I/U Prot 1 Port 2 Identification/Maintena Preechack Freechac	Bestellnummer BMG2750	E-Adresse 256259 2.3 286259 284267 284267 275279 278279 278279 278279 278293	A-Adresse	Diagnoseadresse 2039* 2011* 2011* 2013* 2013* 2013* 2013* 2013* 2013* 2013* 2013*	Komm		Gateway G	300/400
11 bmgz750 z Baugruppe zmgz r.sc PRUFINET/UZ Part Z Identification/Maintena Ant Z Identification/Maintena Feedback Part Z Identification/Maintena Raintena Status Status Status Status Tota/III Batch (III Batch (III) Batch Number Q (Ph) Y (pt/s) Raw ADC visitue Load cell rew vollage (I	Bestellnummer BMG2750	E-Adresse 256259 83 264257 278277 272275 278279 278279 278279 278279 278279 278279 278279	A-Adresse	Diagnoseadresse 2039* 2047* 2047* 2047* 2039* 2039* 2039* 2037* 2037*	Komm		Gateway G	300/400
I) bmgz750 Baugruppe Griger s-o FROFNET-I/I Rot 7 Rot 7 Rot 7 Rot 2 Genetication/Maintena Constant Antonion Status Triat/II Batch (II) Batch (II) Batch (II) Batch (II) Batch (II) Rot ADC value Load cell new vallage f Load cell new vallage f	Bestellnummer BMG2750	E-Adresse 256259 83 280267 288277 278279 278279 278279 278279 278279 278279 278279 278279 278279 278279 278279 278279 278279 278279 278279	Adresse	Diagnoseadresse 2037 2011* 2011* 2017* 2037* 2037* 2037* 2037*	Komm		 	300/400
I) bmgz750 Z Bavgruppe PRCIFINET/ICI Prot 1 Prot 1 Prot 2 Identification/Maintena Deservature dyname Feedback rotomeer Access Pain Status Tota/(I) Batch N(I) Batch N(I) Batch N(I) Batch N(I) Batch N(I) Batch N(I) Raw ADC value Load cell force voltage Force (N)	Bestellnummer BMG2750	E-Adresse 255. 259 17. 3 267. 263 284. 267 268. 271 272. 275 278. 279 283. 271 272. 275 284. 283 284. 287 284. 287 283. 291 284. 283 284. 287 288. 291 288. 291	AAdresse	Diagnoseadresse 2015" 2011" 2011" 2011" 2017" 2023" 2023" 2023" 2023"	Komm Kom Ko		Gateway G	300/400
11 bmg2750 z PR0FINET+0 PR0FINET+0 Prot Prot Prot Identification/Mointena Foot 2 Identification/Mointena Lost Encr Stata Tota/fil Batch /Nmber Q (I/h) V (In/s) Raw/DDC value Load cell new vallage f Load cell new vallage f Load cell New vallage f Encr Bat/Rg/m)	Bestellnummer BMG2750	E-Adresse 256, 259 0, 3 296, 263 284, 267 276, 275 276, 275 276, 275 276, 275 276, 275 276, 287 284, 287 284, 287 284, 287 284, 287 284, 287 284, 287 284, 287 285, 285 284, 287 285, 285 284, 287 285, 285 286, 287 285, 285 285, 285	A-Adresse	Diagnoseadresse 2039* 2047* 2047* 2047* 2037* 2037* 2037* 2037*	Komm Kom Ko	 € € € BMGZ277 BMGZ275 	Gateway	300/400
I) bmgz750 Z Baugruppe PRUFINET+U Status Trainfl(I) Batch (I) Call serv subget Load cell serv subget Force (N) Folk g/m Taing countdown time, Taing	Bestellnummer BMG2750	E-Adresse 256259 83 393267 264267 268279 268279 268279 268299 268291	A Adresse	Diagnoseadresse 2037* 2047* 2047* 2037* 2037* 2037* 2037*	Komr	€	Gateway G	300/400 th PROFINET-10

Illustration 36: PLC configuration

FMS



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

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

For the remote-control commands, only writing is useful. Note, however, that it is possible to write the same value again. This causes the command to be executed again.

Sub- slot	Туре	Parameters	Unit	Valid range and number format	Description
Machin	ne parameters	I 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	Ν	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	
				#.#	

Parameters

Sub-

slot

Туре

13	UNIT16	Scaling	t/h	10 to 50,000	Manual Automatic
				#.#	
System	n 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
				n	(4018 = 2001-1-1 / 42404 = 2106-02- 06)
19	UINT16	Recording Time	Min	1 to 600 #	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 #.###	

Valid range and number

format

Description

Unit





Sub- slot	Туре	Parameters	Unit	Valid range and number format	Description
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.
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 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: Ok 1: Q < 20% or Q > 100% >= 2: Data record corrupt.

 Table 12: PROFINET acyclic data, parameter configuration

60/64



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 causes the command to be executed again.

Sub- slot	Туре	Parameters	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 13: PROFINET acyclic data, remote control



12 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.



Figure2: 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.



Figure3: Link to download the app (Android or IOS)



12.1 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.

	Mirgon a 🚽 🖛	Megeruz 🖌 🕈 🔲	Megerus 🖬 🗮 🗮
	Devices Straich distors	Home 🗮	Menu X
and the second se	<pre></pre>	DMGZ71C xxx2212 Scale 02	DMGZ710 Ava22121 Scale 02
	•Nordel Number>		Machine parameters
12 🎘 🤐	xxx4711 ABCDEF123456	localizer 1000.000 t	Operating parameters
»»» 🐨 🧰 📷	and the second s	Batch 15'225 t	System parameters
Victor Mage Analyse Processing	XXX5812 Scale 03	Batch No. 99999	Calibration
	www.EP12 Cools 77	Delivery rate 250.15 t/h	Alibi protocol
Artise Benerigters Cours Stock	RECEIPT	Belt speed 1.5 m/s	Service 🗸
📰 👩 🦳 🕰 🛛	xxx2212 Scale 02		Measuring roller
Manifold Rate App Store G. Contan	1 553G2/10		Digital inputs
			Digital outputs
			App configuration
	at the second se	Start Reset	
	international and the second s	Harry Chart Devices	Herrine Chart Devices
Download the FMS	Overview of all	Display of the	Configuration,
BeltSCALE app and	devices in the	current measured	overview of
install it	reception area	values, main menu	parameters
→ Google Play Store (Android); iTunes (IOS)	Select device, identification by	at the bottom, configuration menu at the top right	

Maren a	Marra d +	Marra 🖌 🖉
Machine parameters	Celibration with device	Chart I Delivery rate
DM57712 4022121State 02	DM5771E 0022121800±02	0M6771C m22121State 02
Offset 0 12'584	Calibration with calbration device BMGZ-Cal	\$600
Gain 0 20'000	Reference weight (kg) 0 15	and A A A
Belt length (m) 🔹 5'000	Belt inclination (*) 0 15	
Diameter (mm) 0 128	Required time (s) 0 250	
Impulses 0 100	Calculated target value 15.225 t	Max. delivery rate (U/h) 0 5'000
Distance (mm) 0	Batch weight 15.221 t	Time interval (Min.) 0 60
Nominal force (N) () 3'000		Reset chart
Max. 0 (t/h) 0 2'000		
		Totalizer 1'000'000 L Batch 15'225 L
v-detection U None V		Del. rate 250.15 t/h Batch No. 9999 Belt speed 1.5 m/s
	Start Calibrate	Export chart
Iterer >0< /a>	Item >0<	HINY HINY Chart WHERE
onfiguration -	Taring	Graphic recording
verview of		also possible in
nachina		landscape format
		ianuscape ionnat
arameters		



13 BMGZ750 technical data

BMGZ750.PNET : 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
Weight	1.5 kg (2.2 lbs.)
Analogue outputs	Actual performance, 0 to 10 VDC or 0/4 to 20 mA
Ethernet interface	Profinet RT

Table 14: BMGZ750 technical data

13.1 PROFINET interface specification (optional)

BMGZ750.PNET : PROFINET Features	
Cycle time	0.5 ms for RT_CLASS_3, 1 ms for RT_CLASS_1
Media redundancy	Media Redundancy Protocol (MRP) – Client
IRT Support	Yes, RT_CLASS_3, synchronous with network clock
Integrated Switch	2 Port
PROFINET IO specification	V 2.3, legacy startup of specification V 2.2 is supported
Certification	PNIO version V 2.35, net load class: CLASS III, conformance class (CC-C)

Table 15: PROFINET properties



FMS Force Measuring Systems AG Aspstrasse 6 8154 Oberglatt (Switzerland) Tel. +41 44 852 80 80 info@fms-technology.com www.fms-technology.com FMS USA, Inc. 2155 Stonington Avenue Suite 119 Hoffman Estates,, IL 60169 (USA) Tel. +1 847 519 4400 fmsusa@fms-technology.com