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EC Type Examination Certificate

No. DK 0199.361 Revision 1

M2200-B03-FB02

CONTINUOUS TOTALIZING AUTOMATIC WEIGHING INSTRUMENT

Issued by **DELTA Danish Electronics, Light & Acoustics**
EU - Notified Body No. 0199

In accordance with the requirements for the automatic weighing instruments in Directive 2004/22/EC of the European Parliament and Council of March 31, 2004 on Measuring Instruments (MID).

Issued to **Marel ehf**
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In respect of A Continuous totalizing automatic weighing instrument designated M2200-B03-FB02 with variants of modules of load cells and peripheral equipment.

Accuracy class	0.5 or 1
Maximum flow rate,	Q_{max} from 20 000 kg/h to 100 000 kg/h.
Totalization scale interval,	d_t = 1 kg.
Maximum capacity,	Max: = 55.6 kg.

Variants of modules and conditions for the composition of the modules are set out in the annex.

The conformity with the essential requirements in Annex 1 and the specific requirements in Annex MI-006, chapter I & V of the Directive 2004/22/EC is met by the application of OIML R50-1:1997, section 12 & 13 of OIML D11:2004, WELMEC Guide 7.2:2011, and WELMEC Guide 8.16-4:2006.

Note: This certificate is a revised edition which replaces previous revisions.

The principal characteristics and approval conditions are set out in the descriptive annex to this certificate.

The annex comprises 22 pages.

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Descriptive annex

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1. Name and type of instruments and modules

The M2200-B03 Flow scale is a "Continuous totalizing automatic weighing instrument" (belt weigher) as defined by the OIML R50 recommendations.

The weighing instrument is designated M2000-B03-FB02 Marel Flow scale and consists of two main parts: An electronic indicator type M2200-B03 with peripheral interfaces for connection to peripheral equipment, as appropriate, and a motor driven belt weigher unit type FB02-900, which carries the material to be weighed, across a built in weighing-plate. A variant is the narrower FB02-600.

The M2200-B03 indicator can be mounted separate from the FB02 belt weigher unit.

2. Description of the construction and function

2.1 Construction

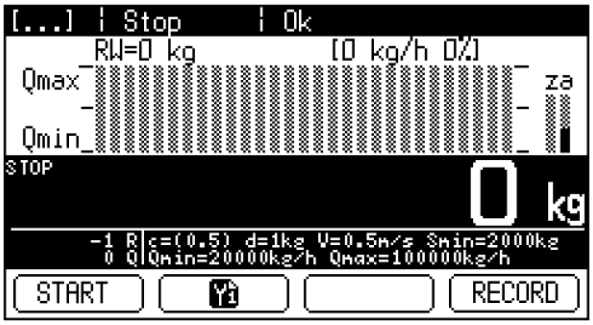
2.1.1 Indicator

The indicator enclosure is watertight and made of stainless steel. The enclosure consists of two parts; the bottom part on which the electronics are mounted and the top cover and keypad, fastened by screws through the bottom of the indicator. The indicator is mounted on a stainless steel bracket on which the indicator can be tilted back and forth. A fastening handle on each side is then used for adjusting the tilt. On the front side of the indicator is a clear plastic window through which the Primary Weight Display, rating plate and other display annunciators can be seen. On the right side of the display window is a twelve key keypad, and beneath it are four programmable function keys for operating the indicator.

The front panel comprises:

- A 128x240 pixel LCD display with backlight, size 68x123 mm (10x40, or 400 characters in the standard font) This display is used for all indication; such as the Master Weight Totalizer (General Totalization Indication Device)
- Ten key numeric keypad (0 to 9)
- A check mark key (enter key)
- A page key for control (rotate between display pages and return from menus)
- Four Lua programmable function keys.

2.1.1.1 Indicating elements



The M2200-B03 “Home” screen

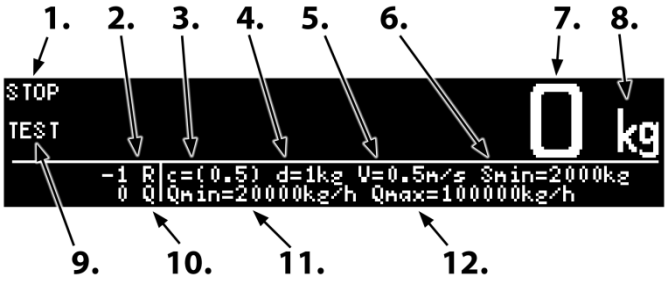
All indicating elements are on the indicator LCD display. The indication on the display is divided into three fields, from the top to the bottom.

The top half of the display is controlled by a downloadable Lua script or program. The Lua script is separated from the indicator firmware by a protective interface, and the indication in this part of the display is not necessarily a part of an approved or a tested function. Lua scripts are generally used to control automatic operation and to make custom reports and indications.

The middle section of the LCD (in reverse video) is controlled by the indicator firmware. All indications in this part of the display have a legally approved status and are protected by the audit trail counters (CAL/CON).

The bottom part of the display is used for indicating the function of the programmable keys. Some keys are controlled by the firmware and some by the Lua script. In the case above, the first key (start/stop) is controlled by the firmware, but the remaining three keys are controlled by the Lua script.

2.1.1.2 Firmware display



Firmware display indications			
1	STOP, IDLE, FLOW and FAIL status indication	7	"General Totalization Indication Device" or "Master Weight Totalizer"
2	"R" The record number of the last weight recording	8	Weighing unit
3	"c= (0.5)" Accuracy class marking	9	Flashing "TEST" in test mode
4	"d=1kg" display division size and unit	10	"Q" rate of flow indication [kg/h]
5	"V=0.5m/s" Belt speed marking	11	"Qmin=" minimum flow rate marking
6	"Smin =2000kg" ∑min, or minimum totalized load or record minimum.		"Qmax=" maximum flow rate marking

2.1.1.2.1 Master weight totalizer (General totalization indicating device)

The "Master weight totalizer", or MWT, is 8 digits and has the capacity to display up to 99 999 999 kg before it rolls over to zero. The value is always stored in a battery backup memory and it can be recalled later, in case of a power failure. The battery backup will last for weeks.

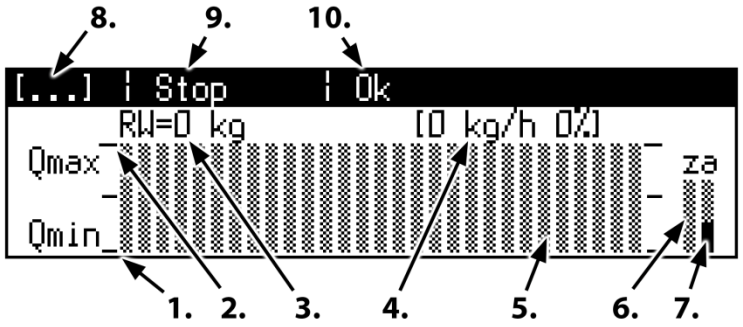
The MWT can be cleared from a firmware menu, but this will increment the CON audit trail counter.

2.1.1.2.2 Rate of flow indication (firmware)

The firmware displays the rate of flow in the firmware display. The identification is the letter "Q" (item 10 in the picture above). The measurement is updated every second and the unit is kg/h (kilogram per hour).

2.1.1.3 Lua script display

The downloadable Lua script controls the upper part of the LCD display. The script written for the M2200-B03 can have various custom reports displayed there, but generally it will display rate of flow history during normal operation.



Lua script display indications			
1	The Qmin, or minimum (20%) flow rate marker.	6	A column showing the progress of taking zero.
2	The Qmax, or maximum flow rate marker (100%)	7	A column showing the age of zero.
3	"RW" is the last recorded weight.	8	The status of the product sensor (P) and the status of the tacho sensor (T).
4	The instantaneous flowrate as kg and percent value.	9	Status (Stop, Idle, Flow, Fail).
5	The flow rate history display	10	Messages (alarms, warnings).

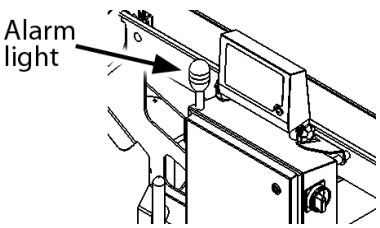
The default histogram timing is one second per column and about half a minute for the whole histogram. The timing can be made longer.

2.1.1.4 Function keys (programmable keys)

The function keys are largely self-explaining. Below are the most common ones and their function.

M2200-B03 programmable function keys (soft keys)			
1	An inactive key.	11	Move a selection up in a menu.
2	START the conveyor belt.	12	Move a selection down in a menu.
3	The key is inactive, but the conveyor is running, on remote command.	13	Alarm (press to display further information on the alarm).
4	STOP the conveyor belt.	14	The “Tool” key. Used to access further information or settings.
5	The key is inactive, but the conveyor has stopped, on remote command.	15	The “Home” key. Press to return to the home position or the home screen.
6	RECORD the load (record the batch).	16	Go to previous page or screen.
7	The emergency stop is active and the conveyor belt cannot be started.	17	Go to the next page or screen.
8	Increment a number by one.	18	Advance to the next user program (the current program number is shown - in this case it is “0”).
9	Decrement a number by one.	19	Enter a minus sign.
10	Clear a value (set it to zero).	20	Enter a decimal point in a number.

2.1.1.5 Alarms, faults, and error codes



A fault will appear as an error code on the main display and replace the Master Totalizer. A fault will also stop the conveyor and prevent it from weighing. Warnings and alarms are displayed differently. The alarm light on the electrical cabinet will come on and one of the function keys will turn into an “Alarm” key. Pressing this key will display further information on the alarm. The scale will keep on weighing despite alarms and warnings.

The “Alarm” key

M2200-B03 non-critical alarms and warnings		Conveyor stop	Infeed stop
Belt too slow	This alarm indicates the current speed of the weighing belt is significantly lower than the configuration of the sealed nominal speed value (10% too slow)	No	No
Belt too fast	This alarm indicates the current speed of the weighing belt is significantly higher than the configuration of the sealed nominal speed value (10% too fast)	No	No
Rate too low or Low flowrate	This alarm (warning) indicates that the current rate of flow is below 20% of the maximum rate of flow (Qmax)	No	No
Rate too high or High flowrate	This alarm (warning) indicates that the current rate of flow is above of the maximum rate of flow (Qmax)	No	No
Zero too old	This warning indicates that it is more than 6 hours since the last successful zero operation of the Flow Scale. The time can be set to a different value in the setup.	No	No
M2200-B03 critical alarms and warnings			
E15 or Parameter error	Parameter fault. A CRC error has been detected in a sealed parameter. That parameter has now taken its default value. To clear this error use System/Configuration/Weighing/Clear Critical Faults and then restart/reset the indicator.	Yes	Yes
E19 or Alibi failure	Alibi failure. This error is displayed when the alibi hardware is not present or has failed	Yes	Yes
E23 and E25 or Voltage too high or Voltage too low	The power supply input voltage is too high or too low. This is used on indicators running on a industrial 24Vdc power	No	Yes
Noise or Noisy belt weight	The noise alarm indicates that the variance of a running empty weighing belt is abnormally high	No	No
I/O module or CAN module	This alarm indicates that no I/O module is detected	Yes	Yes
ADC failure or ADC error state	This alarm indicates that one of the AD converters is experiencing an error	Yes	Yes
Bad zero	This alarm indicates that the Operational Zero needs to be adjusted outside its allowed range. To remove this alarm first try to take a new Initial Zero since it is allowed greater deviation and will not break the seal. If the Initial Zero operation fails, a new Calibration Zero must be taken. This will break the seal.	No	No
Hazard input	This is an alarm from external equipment. The belt motor is stopped and the marking on the Start/Stop key changes to “Hazard”. The Emergency button on the Flow Scale also activates this alarm.	Yes	Yes
Motor overload	This is an alarm from the motor controller of the Flow Scale. The motor is stopped.	Yes	Yes
Product sensor blocked	This alarm is displayed if the product sensor “sees” material on the belt, but nothing is weighed for three turns of the belt.	No	Yes
Product sensor missing	This alarm is displayed if there is load on the belt but the product sensor “sees” nothing.	No	Yes
Missing tacho	This alarm is displayed if there is no tacho signal from the tacho sensor (the belt travel sensor).	No	Yes

Pressing the Alarm key will open a new display showing all alarms.

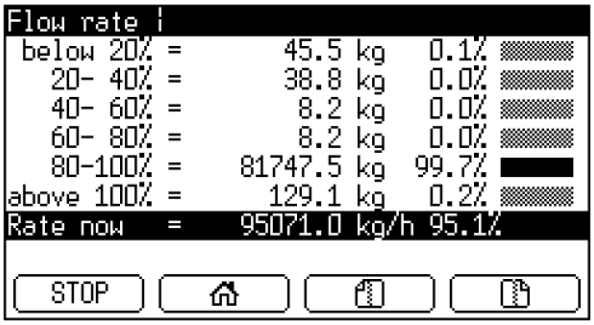
The “Alarm” display

2.1.1.6 Rate of flow indication and recording by the Lua script

The Lua script will show a bar graph history of the rate of flow. An additional representation is also available if the “Tool” key is pressed. In this display, the totalized weight has been sorted into 20% wide ranges according to the flow rate. One can therefore see how much of the totalized flow has been weighed at flow rates below, or above, the acceptable limits for the instrument. This representation is displayed by the Lua script, but generated by the firmware. The firmware recording element will also record the amount totalized below the Qmin and above the Qmax limits (minimum flow rate and maximum flow rate).

The flowrate and flowrate history on the Home display.

The “Tool” key



The M2200-B03 flowrate screen

2.1.2 Load cells

Set out in Section 3.3.2.

2.1.3 Load receptor

Set out in Section 3.3.1.

2.1.4 Interfaces and peripheral equipment

Set out in Section 4.

2.2 Functions

2.2.1 Zero setting

2.2.1.1 Initial zero setting

At power-on the flow weigher assumes that its last operational zero is valid and may be used. The working zero value is checked, and if it is out of range a zero alarm will be given.

The command to take a new initial zero point is to be found in the Weighing menu. The allowed range for the initial zero is ±10% of maximum load from the value of the calibration zero point.

2.2.1.2 Operational zero (working zero)

The operational zero point is taken automatically for every three consecutive empty cycles of the weighing belt. The valid range of the operational zero point is ±2% of maximum load from the value of the initial zero point. If the automatic zero operation finds that the operational zero would go out of bounds a new zero is not taken and a zero alarm is activated.

2.2.2 Recording elements

The recording function of the M2200-B03 is triggered by the Lua script. The Lua script uses one of the programmable function keys to produce a “Record” key for the operator to press. When the “Record” key is pressed, the Lua script sends a request to the firmware of the M2200-B03 and asks for the value to record, or to transmit over Ethernet to an external computer.

The M2200-B03 firmware returns the data, but it also stores this data in a persistent memory, generally called the alibi memory. The alibi memory then becomes the recording element of the belt weigher.

About one million records can be stored until the oldest records are written over by the latest ones. The look-up is also controlled by the firmware, and one opens a firmware menu and enters the number of the record to be viewed. Each record is protected by a 16 bit CRC checksum.

The weight unit and the division recorded is the same as for the master weight totalizer.

Data stored by the M2200-B03 recording element (alibi memory)	
Time (y-mm-dd hh:mm)	This is the date and time of the recording. Note that only the final digit of the year is stored.
Master start total	This is the value of the Master Weight Totalizer (MWT) at the start of the recorded totalization process.
Master stop total	This is the value of the Master Weight Totalizer (MWT) at the end of the recorded totalization process.
Quantity	This is the recorded value of the totalization.
Proportion under Qmin	This entry indicates how much of the totalization occurred at a flow rate below 20% of the maximum flow rate.
Proportion over Qmax	This entry indicates how much of the totalization occurred at a flow rate above the maximum flow rate.

2.2.3 Software identification

The firmware of M2200-B03 has software version 1.bb-xx, where bb-xx is 00-23 or higher.

3. Technical data

The automatic weighing instruments and its modules are set out as follows:

3.1 Continuous totalizer

Type:	M2200-B03-FB02-xxx
Accuracy class:	0.5 or 1
Maximum capacity (Max):	55.8 kg
Maximum flow rate (Q_{max}):	20 000 kg/h to 100 000 kg/h
Minimum flow rate (Q_{min}):	20 % of Q_{max}
Totalization scale interval (d):	1 kg
Scale interval for test:	d / 1000
Belt velocity type:	single-speed
Belt speed, v:	0.2 m/s to 0.5 m/s
Weigh length, L:	1 m
Reduction ratio of the load transmitting device:	1:2
Temperature range:	-10 °C to 40 °C
Electromagnetic class:	E2
Humidity:	Non-condensing

3.2 Controller unit

Type:	M2200-B03
Accuracy class:	0.5
Fractional factor:	p'i = 0.7
Excitation voltage:	14 VDC ±5 %
Minimum load cell input impedance:	350 Ohm
Maximum load cell input impedance:	1100 Ohm
Operating temperature range:	-10 °C to +40 °C
Power requirements:	12-24 VDC, not from DC mains
Maximum cable length between controller and a junction box for the load cells – if present:	90 m/mm^2
Peripheral interface:	Set out in Section 4

3.3 The FB02 Belt unit

The FB02 belt unit is a combined material transport and a weighbridge (load receiver). The material transport belt is made of rigid plastic links and is driven by a sprocket wheel. The belt travel (speed or displacement) is measured by a 12 tooth sprocket wheel (item 7) and a sensor (item 8), mounted to the end of the motor drive axle. The belt is pulled over the weighbridge.

The load sensor of the weighbridge is made from two single point load cells, one at each side of the belt transport. The load cells support the middle section of the table beneath the belt transport. The ta-

ble is divided into four plates. At each end of the belt weigher there is a fixed plate for the initial support of the belt. The center section consists of two equally long plates located end to end. The plate ends facing the fixed plates are supported by fixed bearings. In the middle, where the two live plates come together, they are supported by the load cells, using wire-rope hangers.

There are two variants of the FB02 belt unit; one is wider than the other, but they are equal.

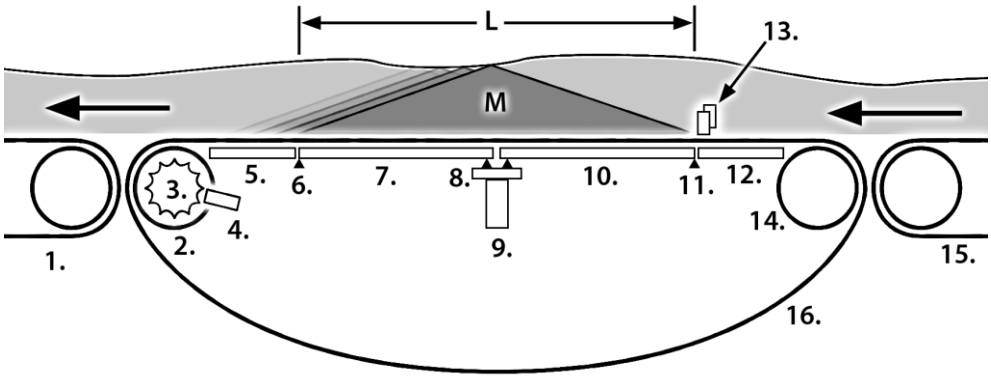
- Variant 1: **FB02-900** (belt width 922mm)
- Variant 2: **FB02-600** (belt width 615mm)

3.3.1 Load receptor

There are two load cells used to weigh the live part of the belt weigher weighbridge and the load. Each load cell is connected to a separate, but identical A/D converters in the M2200 indicator. The A/D converter readings are then combined in the indicator firmware and scaled according to the characteristics of each load cell.

The load on the platform is weighed once for each tick of the tacho sensor (items 3 and 4 in the picture below).

The static scale can weigh up to at least 90 kg (160% of Max), before it is limited by the overload stops.



The M2200-B03-FB02weighbridge - operation principle and elements			
1	Take-away conveyor	10	Infeed weighbridge
2	Belt weigher motor and belt drive	11	Fixed weighbridge bearing
3	12 tooth tacho wheel (for measuring belt travel or speed)	12	Infeed plate (fixed)
4	Tacho sensor (senses the teeth in the tacho wheel)	13	Product sensor
5	Outfeed plate (fixed)	14	Belt weigher idle wheel
6	Fixed weighbridge bearing	15	Infeed conveyor
7	Outfeed weighbridge	16	The belt of the belt weigher (Flat linkbelt, nominal 12.7mm link spacing. The belt is driven by a sprocket wheel)
8	Center weighbridge bearing	L	The length of the weighbridge (1m)
9	Load cell assembly	M	The profile of the mass weighed at a time

3.3.2 Load cells

The instrument uses two Flintec PC6 C3 50 kg load cells.

3.4 I/O control and sensors

To receive input from sensors and to control the operation of the belt weigher, a special I/O module is used. This module is located in the electrical cabinet of the belt weigher, along with the motor speed controller, 24Vdc power supply, circuit breakers and safety elements.

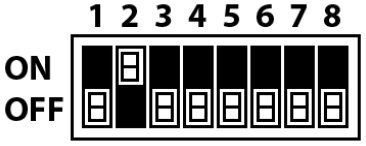
The I/O module used is the Marel MCS816. This module has 16 general purpose outputs and 8 general purpose inputs, all rated for 24Vdc operation. Communication with the M2200 indicator hardware is via the industrial CAN bus.

The signals connected to the I/O module are listed below. One of the primary signals is the tacho signal used to sense the travel of the conveyor belt. This signal directly affects the weight recorded by the master weight totalizer (general totalization indicating device), then there is a signal from a sensor for detecting whether there is a material to be weighed on the belt. This signal helps with the zero setting and prevents the accumulation of weight due to a small zero offset or a spurious flow (no-flow lock-out).

Finally, there are signals for indicating if all is well with the downstream conveyors and to signal the same to upstream material transports.

M2200-B03 - MCS816 I/O control signals		
I11	**IN- tacho sensor**	Input from the belt speed sensor
I12	**n.c.**	
I13	**IN- product sensor**	Input from the product sensor (senses if there is material on the belt)
I14	**IN-start/stop**	Input from external equipment for starting and stopping the Flow Scale
I15	**IN- emergency**	Input from the emergency stop circuit
I16	**IN- downstream is ready**	Input from downstream material transport equipment (ready/not ready)
I17	**IN-motor overload**	Input from the motor controller
I18	**n.c.**	
Q11	**OUT- status light, bit 1**	(Optional status light with three control signals; 000 = off, 001 = green, ...)
Q12	**OUT- status light, bit 2**	(Optional status light with three control signals; 000 = off, 001 = green, ...)
Q13	**OUT- status light, bit 3**	(Optional status light with three control signals; 000 = off, 001 = green, ...)
Q14	**OUT-gate**	Optional control of a material flow direction gate.
Q15	**OUT- activate motor**	Output for turning on the belt weigher motor
Q16	**OUT- ready to accept flow**	Output for signaling other equipment that the belt weigher is ready
Q17	**OUT- 10kg pulse**	Output; a pulse for each 10kg totalized. Can be used for factory flow control when connected to external PLC controllers
Q18	**OUT-alarm**	Output for turning on the alarm light on the electrical cabinet

The MCS816 DIP Switch must be set as shown in the picture to the right (sw2=ON, others OFF).



3.5 Documents

The documents filed at DELTA (reference No. A530949) are valid for the weighing instruments described here.

4. Interfaces and peripheral equipment

4.1 Interfaces

The indicator has six peripheral interfaces designated RS232-0, RS232-1, RS232-2, Ethernet, Infra Red and CAN, which allow peripheral equipment to be connected.

All interfaces are characterised "Protective interfaces" according to paragraph 8.1 in annex I of the Directive.

It is possible to remove the "Protective interface" status of the interfaces by operating a hardware jumper switch. When the T4 (Config Enable) jumper switch is closed (ON or YES), the instrument can be controlled completely through the interfaces (See Section 7.1.1). This condition is indicated by blinking the primary weight indication slowly.

The interfaces are set out below:

4.1.1 RS232

RS232-0 and RS232-1 are standard RS232 bidirectional interfaces with the default setting of 9600 Baud, 8 data bits and no parity. The Baud rate can be set to 1200, 2400, 4800, 9600, 19200 or 38400, but the parity or number of data bits cannot be changed.

RS232-0 is normally only used for programming the microcontroller operating the indicator. It is not possible to use the RS232-0 interface for programming the microcontroller unless the jumper switch T2 (Program) is closed.

4.1.2 Infra-Red

Infra-Red is an infrared interface for receiving commands from the MR-1 remote control and is a part of the front panel user interface.

4.1.3 CAN

CAN is a Controller Area Network interface for bus connection of CAN equipment using a single twisted pair cable (CAN-Bus).

CAN is standardized according to ISO 11898 (Level 1 and 2) and:

CAN Application Layer for Industrial applications CiA DS-201 … CiA DS-207

CANopen Communication Profile for Industrial Systems CiA Draft Standard DS-301

4.1.4 Ethernet

Ethernet is an IEEE 802.3, 10BASE-T twisted pair interface for connection to standard Ethernet networks via TCP/IP protocol.

4.1.5 Specification of connecting cables

RS232 interface cable is a screened, four-wire, 0.22 to 0.5 mm2 (AWG 24 to 20). Combined CAN and power cable is a screened Belden 3084A two twisted pair cable, the power pair is 0.33 mm2 or AWG 22 and the data pair is 0.2 mm2 or AWG 24. The Ethernet cable is a standard 10BASE-T shielded, CAT 5, multi strand cable.

4.2 Peripheral equipment

The instrument may be connected to any simple peripheral device (e.g. a printer) with a CE mark of conformity.

5. Approval conditions

None

6. Special condition for verification

None

7. Securing and location of seals and verification marks

7.1 Securing, sealing, and identification

Seals shall bear the verification mark of a notified body according to annex F of the Directive 2004/22/EC or alternative mark of the manufacturer according to annex D of the Directive 2004/22/EC.

7.1.1 Inscription plate

The inscription plate shall be secured against removal with a brittle plastic sticker.

7.1.2 Indicator sealing

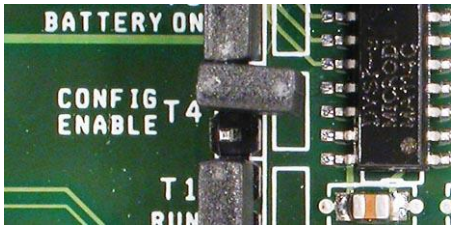
There are two separate means of sealing the instrument and either of them can be used as preferred. The two sealing options are:

- Two event counters, CAL and CON.
- External wire and plumb seal along with an internal jumper switch.

Event Counters, CAL and CON

The indicator is sealed by two event counters, which are affected by each change in sealed parameters. The maximum count of both event counters is 999, starting from 001. The CAL counter seals the adjustment parameters and the CON counter seals the configuration settings. A further protection is provided by a password for restricting access to the calibration and configuration.

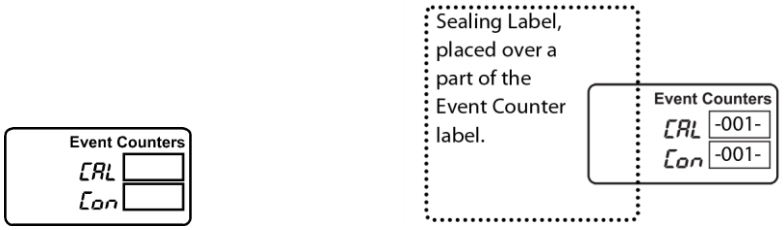
The indicator has remote configuration capability through the interfaces. This feature is enabled using an internal jumper switch (T4, Config Enable). If remote configuration is enabled, the primary weight indication will blink. Remote adjustments through interfaces will increment the counters.



"Remote Configuration Enable" jumper switch, default OPEN or NO (off)

To indicate the sealed status of the event counter, a label with the inscribed count of the event counters is placed either on the bottom or the left side of the indicator. This label also bears the additional designation "EVENT COUNTERS" for identification. The label is made of material, which will self-destruct when removed. The inscribed event count is either permanently printed or handwritten by a felt tipped pen using permanent ink. All three digits of the event counters are to be written, and pre- and suffixed by a hyphen. The orientation shall be the same as of the "EVENT COUNTERS" identification.

Example:



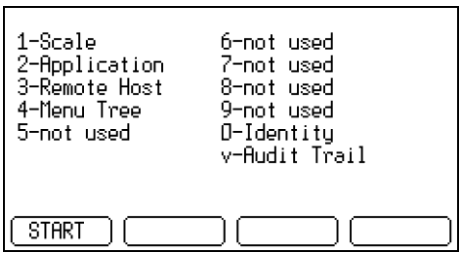
Event counters label and a label with inscription and a brittle seal.
(This is for illustration purposes only).

The EVENT COUNTER label is sealed by partially covering it with an official sealing label.

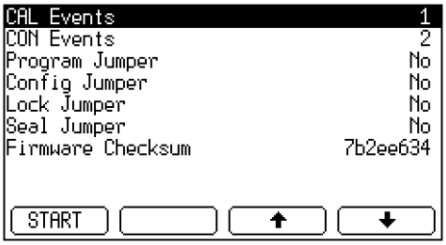
Legal authorities can use their own means of affixing and inscribing the sealed count of the event counter, or documenting the count for later confirmation of the sealing status.

If sealing of the access to the interior of the indicator is desired, it can be done by affixing a sealing label across the junction between the upper and lower part of the enclosure.

The status of the event counters can be displayed by pressing the PAGE key for about three seconds. The top menu of the instrument is then displayed.



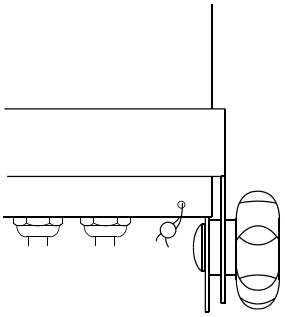
By pressing the CHECK key, audit trail (event counter) information will be displayed.



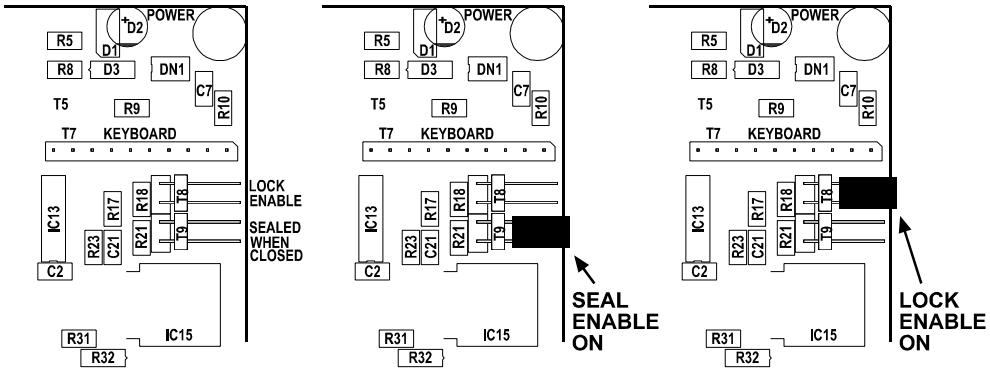
See the following text for an explanation of the Lock and Seal Enable Jumpers.

External wire and a plumb seal

An internal jumper switch, T9 or Seal Enable, will make it impossible to change the sealed configuration of the instrument. The indicator can then be sealed by a wire and a plumb seal through holes where the top cover meets the bottom part on the left and rear side of the indicator.



Wire and plumb seal



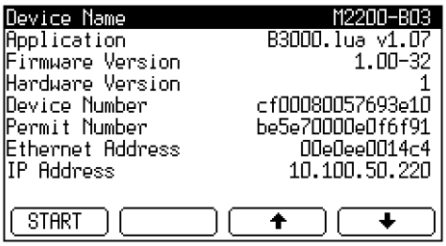
Seal Enable and Lock Enable jumper switches

Seal Enable: When the Seal Enable jumper is ON (contacts closed), the essential parameters and adjustment of the instrument cannot be changed and the indicator can be sealed using a wire and a plumb seal.

Lock Enable: When the Lock Enable jumper is ON (contacts closed), the Service Password can be changed. The Service Password is needed to access the essential parameters and the adjustment of the instrument. The default Service Password is 62735 (as the text “MAREL” mapped on the keypad of a GSM phone). When the Lock Enable is ON, the password can be changed to a more secure one, or it can be cleared for easier access.

W&M Config Password: For further protection against accidental breaking of the Event Counter Seal, a password must be entered before the Weighing Configuration can be changed. The password is 322225.

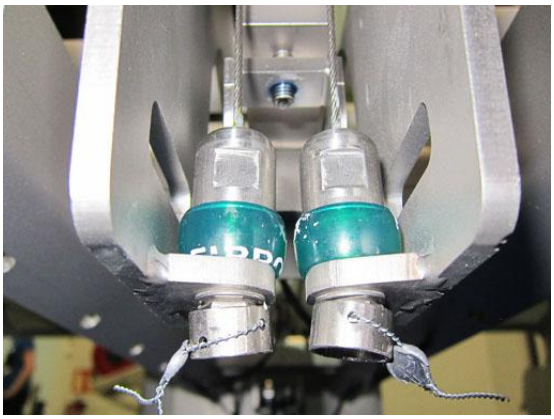
Hardware Identification: By pressing the PAGE key for about 3 seconds, the top menu of the instrument is displayed (see the previous text). This is a list of numbered items, each for accessing a different function or information. Item "0-Identity" will display the following information:



It shows the software or *Device Name* and software version. The electronics has built-in hardware identification and the V2201B board is number 1. The *Device Number* is a unique identification number read from a chip soldered to the V2201B board. No two are the same. The *Permit Number* and the *Ethernet Address* are read from a removable chip. The idea is to be able to copy protect application software using the Permit Number, and still be able to service the indicator. The *Ethernet Address* is needed for the correct operation of the Ethernet.

7.1.3 Mechanical adjustments

The center height of the conveyor belt is sealed by the manufacturer and should not be adjusted again. If this seal is broken and the height re-adjusted, the flow scale should be tested and verified again.



The conveyor center height adjustment bolts and the sealing.

7.2 Verification marks

A sticker with verification marks is to be placed on or partly on the inscription plate of the instrument.

8. Location of CE mark of conformity and inscriptions

8.1 Inscription plate

All inscriptions for the instrument shall be placed on the Inscription plate, which is to be located on a visible place on the measuring instrument.

8.1.1 CE mark

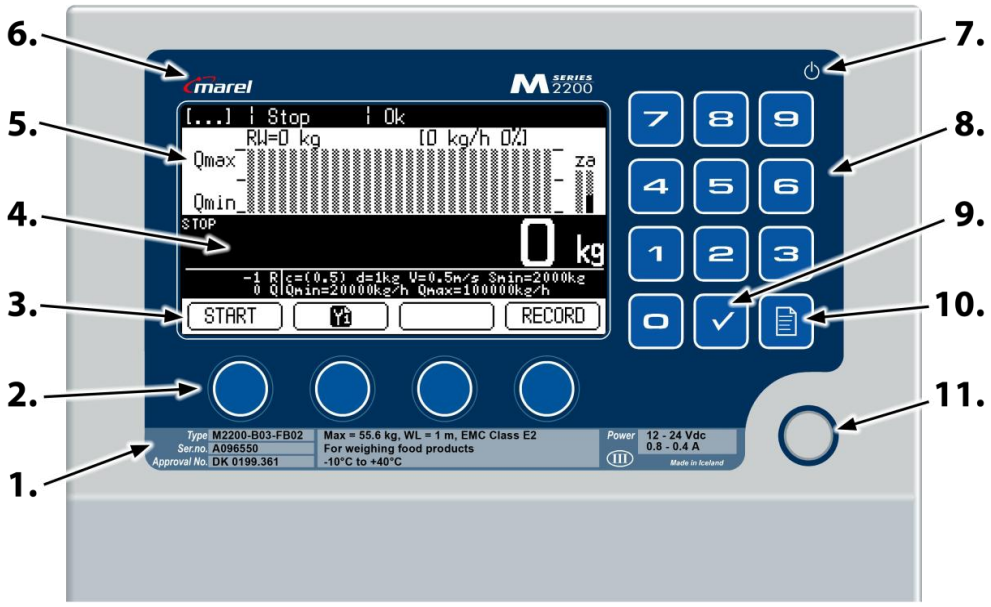
A sticker with the CE mark of conformity and the supplementary metrology marking consisting of the capital letter “M”, surrounded by a rectangle, and the last two digits of the year of its affixing shall be located on the Inscription plate.

8.1.2 Inscriptions plate

The Inscription plate shall bear the following inscriptions:

- Manufacturer's trademark and / or name
- Type designation
- Serial number
- Accuracy class
- Maximum flow rate Q_{max}
- Minimum flow rate Q_{min}
- Minimum totalized load Σ_{min}
- Scale interval for totalization d
- Belt speed v (fixed speed)
- Temperature range: -10°C to +40 °C
- Electromagnetic class: E2
- Type examination certificate number

9. Pictures



The M2200-B03 Indicator			
1	Rating plate	7	Power-On indication light
2	Four programmable function keys	8	Ten key numeric keypad
3	Display for marking function keys	9	The “Check” key (Enter key)
4	Firmware display; The Master Weight Totalizer (General Totalization Indicating Device), markings and indicators	10	The “Page” key
5	The Lua script display (flow rate history)	11	The iButton reader pin
6	The manufacturers mark (Marel)		

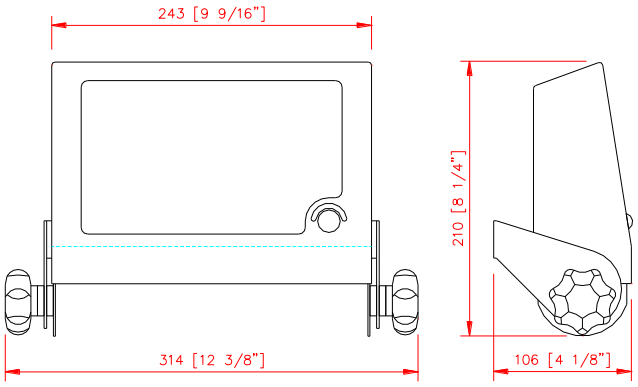


Fig. 1 The M2200-B03 indicator

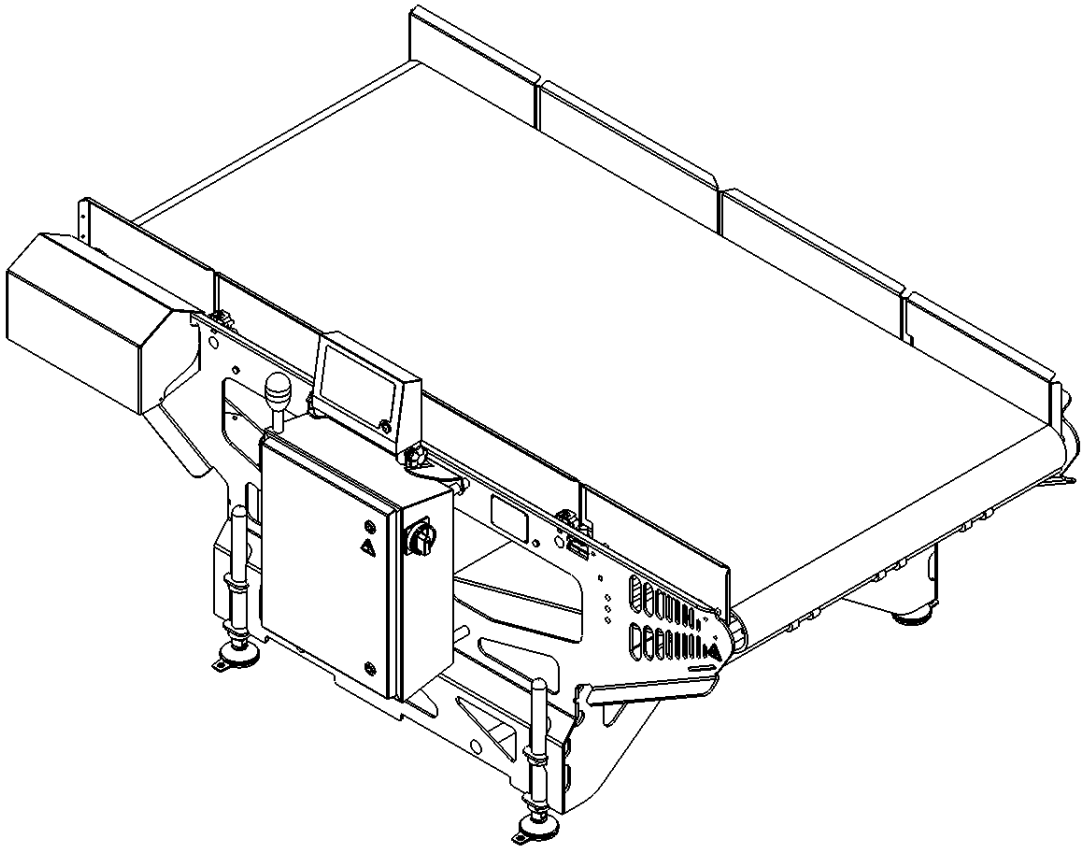
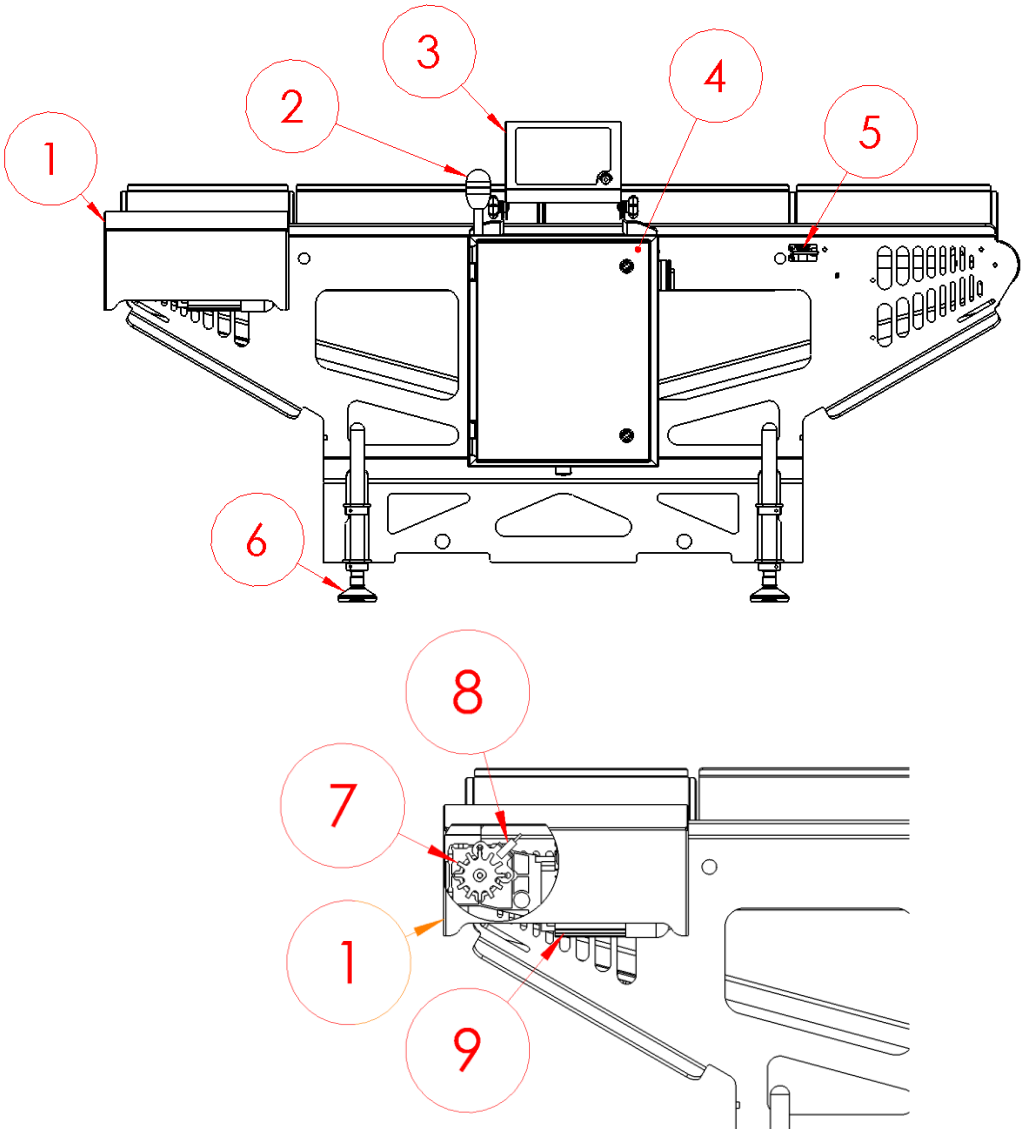
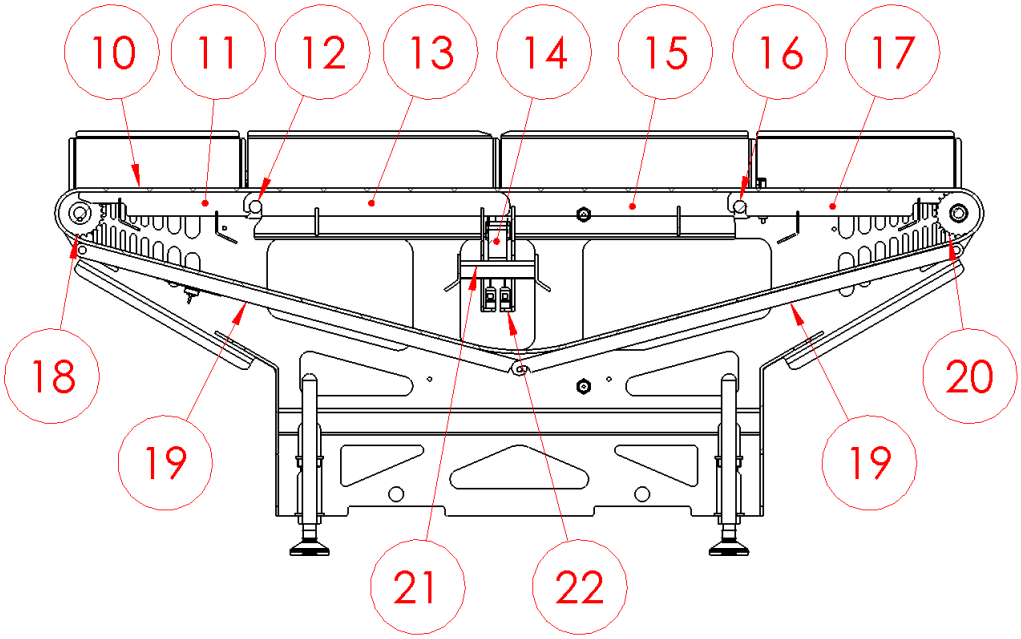


Fig 2 The M2200-B03-FB02-900 Belt weigher



The FB02 belt unit	
1	Motor cover
2	Alarm light
3	The M2200 indicator
4	The electrical cabinet
5	The product sensor
6	Adjustable feet (+150mm)
7	Tacho sprocket wheel (belt travel or displacement)
8	Tacho sensor (belt travel or displacement sensor)
9	Gear motor

Fig 3 FB02 location of elements



The FB02 belt unit	
10	Conveyor belt
11	Outfeed plate (fixed)
12	Fixed weighbridge bearing
13	Outfeed weighbridge plate
14	Load cell
15	Infeed weighbridge plate
16	Fixed weighbridge bearing
17	Infeed plate (fixed)
18	Motor drive sprocket wheel (belt drive)
19	Lower belt support
20	Idle sprocket wheel (belt drive)
21	Load cell mounting support
22	Center weighbridge bearing (wire rope). The adjustment bolts are sealed by the manufacturer and do not need to be re-adjusted.

Fig 4 FB02 location of elements (cont.)