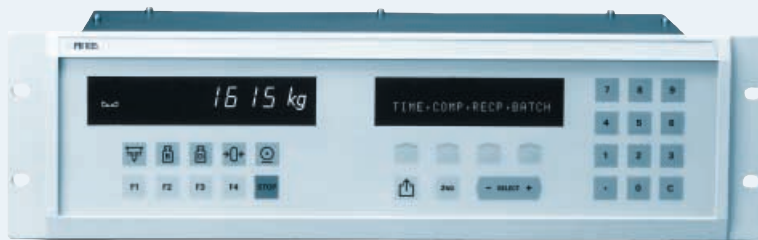


PR 1615/00 PR 1615/02 Compact Batching Controller

global weighing technologies



- All kinds of multicomponent batching processes including various control components
- EC conformity certificate 3000 d according to EN 45501 (for PR 1615/02)
- Dialogue oriented operation in selectable language using multiple choice technique
- Maximum 10,000 display divisions for weight indication
- Batch, production and consumption report on α -numeric display and via print-out
- Adaption of process interfaces by function allocation and extension by options
- Communication with supervisory systems according to various protocols

APPLICATION

The Compact Batching Controller PR 1615 is suitable for multicomponent batching processes in stand-alone applications as well as medium and complex batching applications in conjunction with higher level process automation systems. A selectable number of batches as well as continuous processing can be chosen.

Full manual control via display and keyboard in dialogue form with clear text messages in the selected language makes the PR 1615 an self-explanatory and easy to handle instrument. The two vacuum fluorescent displays assure a wide viewing angle and excellent contrast even under bad conditions. The front panel withstands rough industrial environment.

In addition to that, the PR 1615 can be fully remote controlled by supervisory systems via communication procedure. Data and command interchange according to the EW or DUST 3946R protocol can be easily made via serial communication link.

The interlock to the process is made via control inputs and outputs. The adaption of all kinds of interfaces to requirements by function allocation and extension by options enables the easy integration in industrial production plants.

Due to loadcell connection in 6-wire technique distances of up to 300 m between PR 1615 and the load cells are permitted without any loss of accuracy.

CONSTRUCTION

The Compact Batching Controller PR 1615 consists of a 19" sheet metal housing, containing the standard electronic modules. All options such as 1 input/output extension module, 1 analogue input our output and up to 2 serial interface modules can be mounted inside the housing.


The front plate contains the two vacuum fluorescent displays and the keyboard. Due to the coverage with an integral foil, it fulfils the requirements of protection class IP 65.


All cable connections are made via provisions at the rear, either pluggable screw terminals or connectors. For strain relief reasons, all cables can be fixed to a rail fitted at the rear of the instrument.



OPERATION

The Compact Batching Controller PR 1615 guides the operator fully by status indication and multiple choice technique in combination with 4 soft-keys. If there are more than 4 choices, the spaces between the soft-key labels show arrows to the right. After pushing the 2nd key, the second set of 4 choices is displayed with the arrows turned to left.

For data entries, the value to be entered or changed is framed by cursor arrows. Choices can be scrolled with the +/- SELECT key. Values can be entered by numeric keys or changed with the +/- SELECT key. The -key leads always to the next higher level.

During alarms or access to tables, the  in the weight display is flashing, during batching it is lit.

In stand-by mode the PR 1615/00 offers the following choices:

- Time
- Component table
- Recipe table
- Batching
- Alarm table
(from release 3.0 onwards)
- Consumption table
- Production table
- Setup

Time


After pushing the soft-key TIME, the display shows for 2 sec. data and time on the upper line.

Component and recipe table

Pushing the soft-key COMP leads to the component table with 30 components, pushing RECP leads to the recipe table with max. 30 recipes. If access to these tables is not protected by "pass number tables", all data can be changed. Unless



the correct passnumber is entered, the data can only be displayed and printed.


Batching


After pushing of the soft-key BATCH the display shows the batch start menu in the upper line with the data of the last batch started. As the cursor is set to total, this value can be changed directly. To change the parameters recipe number or cycle, the cursor has to be shifted to the selected data block. Data can be entered with the numeric keys or changed with the +/- SELECT key. Pushing the soft-key START starts the batch according to the displayed data. The weight display shows net and the  is lit.

For material components the upper line shows, during batching, the recipe number, component number and setpoint. These data can be changed by pushing soft-key GROS for gross weight or DIFF for difference weight. The number of cycles left can be displayed by pushing CYCL.

For timers, the display shows the remaining time instead of the setpoint.

For a wait component the  is flashing and the process has to be restarted by a control input signal. During manual additions the  is also flashing and the process has to be restarted by a control input signal.

After pushing soft-key STOP or key STOP, the batching process stops and the  is flashing. It can be either restarted with soft-key START, the running component skipped with SKIP or the whole process aborted with ABRT.

After finalising the batch, the  is blanked and the batch report can be printed.

Alarm Table

After pushing the soft-key ALRM the display shows the last alarm message of the alarm table. Up to 9 alarms are stored in the table and can be scrolled with the +/- SELECT key. If the table is full, older alarms are deleted.

Consumption and production table

Pushing the soft-key CONS leads to the consumption table with all 30 components, pushing PROD to the production table with all recipes.

If the access is not protected by "pass number tables", all data can be corrected or cleared. Unless the correct pass number is entered, the data can only be displayed and printed.

Setup

Pushing the soft-key SETUP leads to the choices configuration, calibration and test.

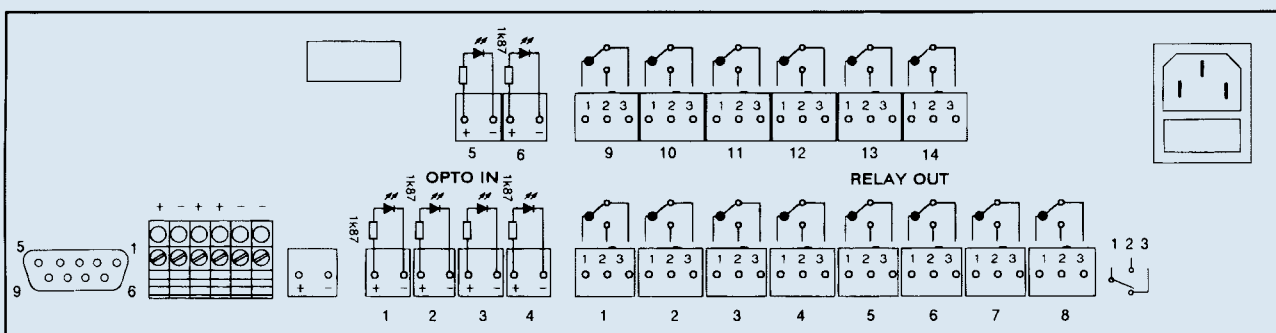
In configuration mode, all non-scale relevant data e.g. language, baud rate of serial interfaces or function allocation to control inputs and outputs can be entered, if the access is not protected by "pass number configuration". Unless the correct pass number is entered, the data can only be displayed and printed.

In calibration mode, all scale relevant data, e.g. full scale, step width and measuring time can be entered, if the access is not protected by solder link. Unless the solder link is opened, the data can only be displayed and printed.

In test mode some functions of the PR 1615/00 can be checked, e.g. displays, control inputs and outputs and keys.

OPTION PR 1615/40

Rearview



Compact Batching Controller

TECHNICAL DATA

Type	Order Number
PR 1615/00	9405 116 15001
PR 1615/02	9405 116 15021

Load Cell Connection

All strain gauge load cells, 6-wire technique

Load Cell Supply

Supply voltage:

12 V_{DC}, short circuit protected

Minimum Load: 87 Ω (4 x 350 Ω)

Measuring Range

Span: 2.4 mV to 36 mV

(for 100 % nominal load)

Dead load: 0.24 mV to 33.6 mV

There is no interaction between span and dead load adjustment.

Analogue Filter

Active butterworth filter

40 dB / decade

Cut-off frequency: 2 Hz

Measuring Principle

ADC-type:

Integrating converter, ratiometric to load cell supply

Conversion time: 30 ms

Measuring time: 60 ms and multiples of 60 ms

Internal resolution: up to 50,000 counts

Temperature Effects

Zero: 0.25 μV/K RTI 0.02 %/10 K
at 1 mV/V (PR 1615/00)

Zero: 0.15 μV/K RTI 0.012 %/10 K
at 1 mV/V (PR 1615/02)

Span: 0.02 % /10 K (PR 1615/00)

Span: 0.006 % /10 K (PR 1615/02)

Linearity

Linearity error: 0.03 % (PR 1615/00)

Linearity error: 0.007 % (PR 1615/02)

Accuracy

PR 1615/00

Up to 1000 d OIML class IIII

according to local approval

PR 1615/02

EC conformity certificate.

Accuracy class III 3000 d acc. to

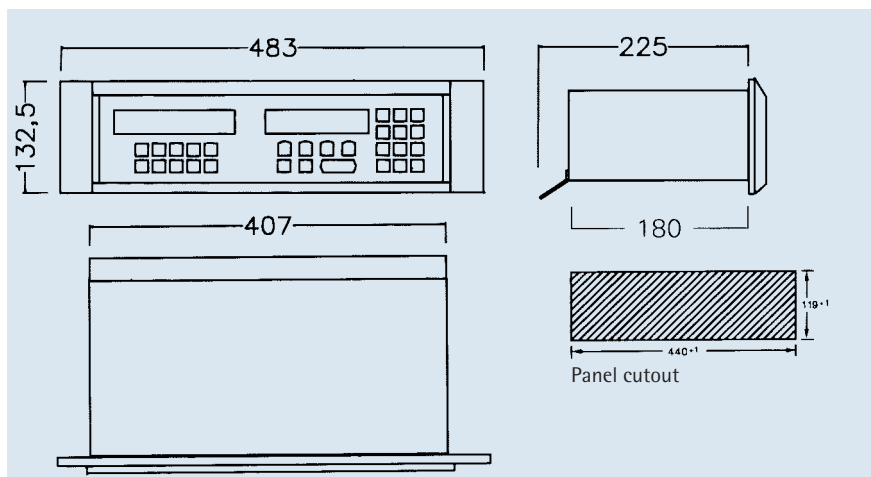
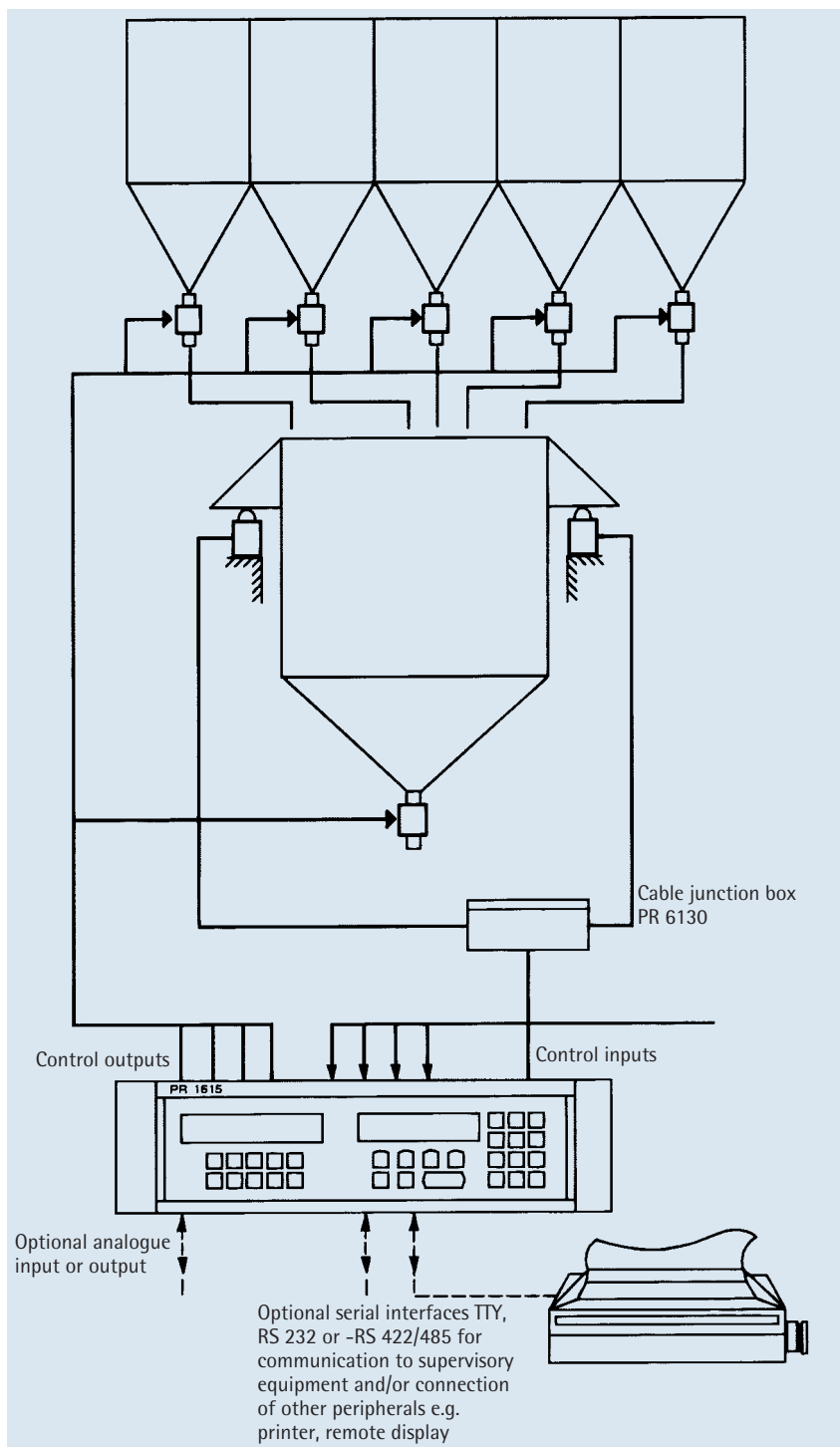
EN 45501; corresponds to OIML R 76

Digital Section

EPROM: 64 k 8

Static RAM: 32 k 8 with battery back-up

EAROM: 1024 bit (for calibration data)



Displays

Type: Vacuum fluorescent
Weight display:
7 digit 7 segment, height 12.5 mm, plus weight and status symbols
Dialogue and soft-key labelling display:
2 x 20 character dot matrix,
height 5.5 mm.

Keyboard

31 keys with tactile feedback for operation and data entry in all operating modes.

Control Inputs

Number of inputs:
4, optocoupler isolated
Input voltage:
10...31 V_{DC} for high status
30...35 V_{DC} for low status
Input current:
05 mA at 12 V_{DC}
11 mA at 24 V_{DC}
Functions: Selectable in configuration mode

Control Outputs

Number of outputs:
8, potential free relay contacts
Contact rating:
250 V_{AC} / 4 A max.
Derating for DC:
250 V_{DC} / 0.4 A max.
50 V_{DC} / 1.0 A max.
30 V_{DC} / 4.0 A max.
(Spark suppression recommended)
Functions: Selectable in configuration mode

Serial Interfaces

2 optional bidirectional serial interfaces for communication and / or connection of peripherals, to be realized by plug-in modules:
PR 1601/00 – Current loop TTY
PR 1602/00 – RS 232
PR 1604/00 – RS 422/485
Baud rates:
300 – 4,800 for PR 1601/00
300 – 19,200 for others,
selectable in configuration mode

Internal Interface Supply

Supply: 12 V_{DC}, galvanically isolated
Current output: 100 mA

Environmental Conditions

The instrument withstands the following test levels without any effect:

Vibration Test

According to IEC 68-2-8, test Fc

Static Discharge

According to IEC 801-2 level 3
8 kV with 5 mJ

Electromagnetic Fields

According to IEC 801-3 level 3

Electric Fields

10 V/m for 100 kHz to 500 MHz
3 V/m for 500 MHz to 1 GHz

Magnetic Fields

60 A/m at 50 Hz

Mains Interference

Periodical pulses with 2,000 V amplitude
Rise time/duration/repetition frequency
5 ns / 100 ns / 10 Hz
100 ns / 010 _s / 01 Hz

Interference on mains and in/outputs

According to IEC 801-4 level 3, burst pulse
Rise time / duration / amplitude
5 ns / 50 ns / 2,000 V on mains
5 ns / 50 ns / 1,000 V on in-/outputs

Noise Suppression

According to Vfg 1046/84 and
VDE 0871, levels of class B not exceeding

Electrical Security

According to IEC 1010-1, VDE 0100 part 410 and VDE 804

Mains Supply:

110 / 128 / 220 or 238 V_{AC} – 15 %
to + 10 %, 50/60 Hz ± 2 Hz, internally
settable by solder links
24 V_{AC} on request

Power Consumption

32 W / 40 VA

M.T.B.F.

35,000 hours

Temperature Range

Operation: – 10 °C ... + 55 °C
for W & M approved operation:
– 10 °C ... + 40 °C
Storage: – 10 °C ... + 70 °C

Housing

Material: sheet steel / aluminium
Protection class:
Housing IP 30
Front plate IP 65
Dimensions:
133 mm x 483 mm x 225 mm (H x W x D)

Net Weight / Shipping Weight

6.0 kg / 9.1 kg

Accessories

Voltage labels for 110 V_{AC}; 128 V_{AC};
238 V_{AC}
Fuse set
Mains cable
Operating manual

OPTIONS

Control In / Output Module PR 1615/40

Order number 9405 316 15401
2 optocoupler inputs, 6 relay outputs

Interface Module TTY PR 1601/00

Order number 9405 316 01001
0/20 mA current loop, active or passive,
optocoupler isolated, max. 4800 bd

Interface Module RS 232 PR 1602/00

Order number 9405 316 02001
max. 9.600 bd

Interface Module RS 422/485 PR 1604/00

Order number 9405 316 04001
Optocoupler isolated, max. 9,600 bd
4 wire connection

Analogue Output Module PR 1606/00

Order number 9405 316 06001
0–20 mA / 4–20 mA, max. 500 W

BCD output PR 1608

Order number 9405 316 08001
ext. supply 5–24 V_{DC}
Isource max. 25 mA

Realtime clock PR 1609

Order number 9405 316 09001

