

PR 1614/01 PR 1614/02

Single Component / Batching Controller

global weighing technologies



- Operator controlled single component batching or multicomponent batching in conjunction with supervisory systems
- EC conformity certificate 3000 d according to EN 45 501 (for PR 1614/02)
- Maximum 10,000 display divisions for weight indication
- Dialogue oriented operation
- Batch and consumption report via print-out
- Freely programmable functions for control inputs and outputs
- Weight data output and/or communication via max. 2 optional serial interfaces

PROFILE

The Single Component Batching Controller PR 1614 is specially designed for that range of batching applications which require only one component to be batched in charge or discharge mode. Furthermore the conjunction of a charge and discharge process can be selected.

Single batches, a predefined number of cycles or even continuous processing can be chosen. In conjunction with higher level process control equipment even multicomponent batching processes with maximum 30 components can be performed. The data and command interchange can be easily made by communication via serial interface, the interlock to the process via control inputs and outputs.

The PR 1614 can be fully manually controlled via display and keyboard. The bright and rich in contrast vacuum fluorescent display assures good readability over wide viewing angles even under bad conditions, and the IP65 front panel

withstand rough industrial environment.

Due to a loadcell connection in 6-wire technique, distances of up to 300m between the PR 1614/01 and the load cells are permitted without any loss of accuracy. Maximum 6 load cells of 650 Ω or 4 of 350 Ω input resistance can be connected.

DESCRIPTION

The Single Component Batching Controller PR 1614 consists of an aluminium housing containing a main printed circuit board on which all components including the analogue module are mounted. The well proven analogue module itself consists of a small pcb in a sheet metal housing which ensures good protection against interference.

The front panel contains a small pcb with keyboard and a vacuum fluorescent tube for weight data, parameter and status display. Due to the coverage with an integral front foil, it fulfils the requirements

for protection class IP 65.

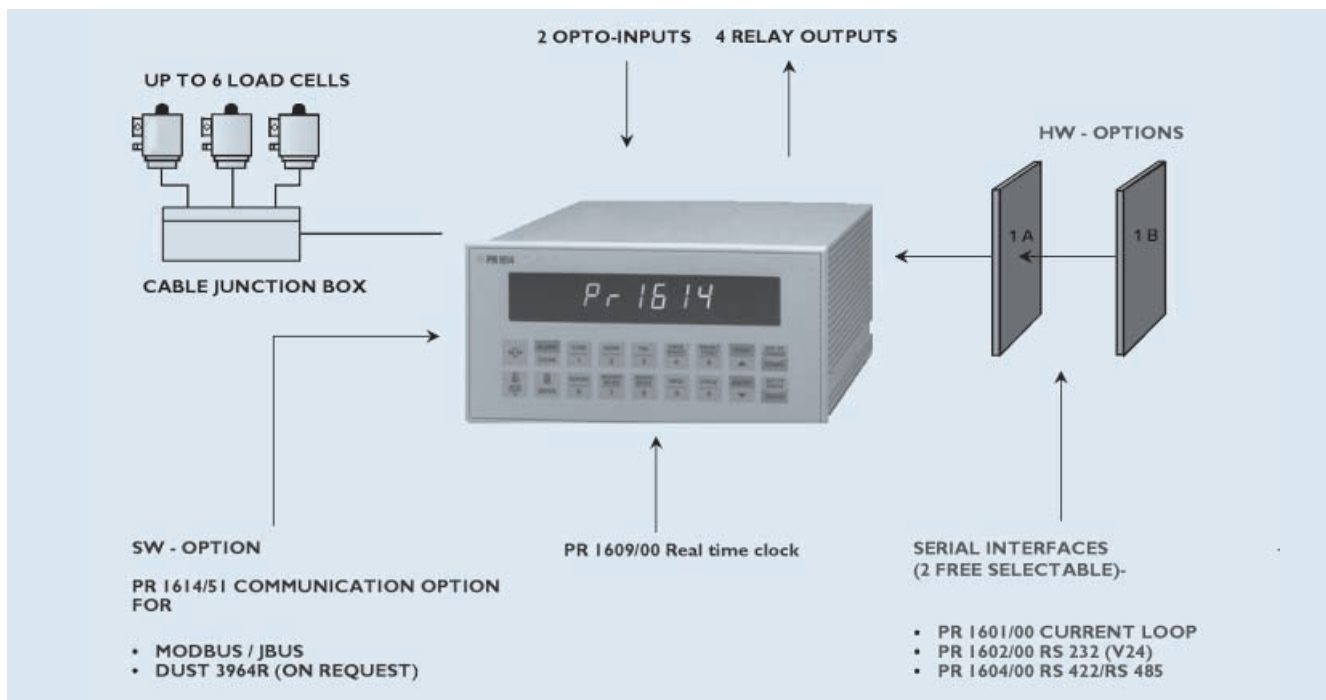
All cable connections are made via provisions at the rear, either connectors or pluggable screw terminals. All settings and adjustment are executed by keyboard and display.

OPERATION

The Single Component Batching Controller PR 1614 can be used in the following operating modes:

- Stand-by
- Configuration / Calibration / Test
- Data entry
- Batching
- Data output

All operating modes end automatically by return to the Stand-by mode showing gross weight. Furthermore, all operating modes except Batching and Data output can be left by actuating the /ENTER key. This also effects a return to the Stand-by mode.



Configuration / Calibration / Test

Access to these modes is initiated by pushing the keys /ENTER and ABORT/> simultaneously. The last entered parameters appears.

Configuration parameters indicated by Cxx comprise all non-scale adjustment relevant parameters (e.g. baud rate of serial interface or function allocation of control outputs). All parameters can be scanned with the keys DISCH (Next) and TEST (Prev). With the keys = and > either the choices can be scrolled or the value increased respectively decreased.

In addition to that new values can be entered by using the numeric keys. If the configuration parameters are protected by pass number, the corresponding pass number has to be entered first to enable the changes.

Calibration parameters indicated by Fxx, comprise all parameters concerning the scale adjustment. They can also be scanned, but only be changed, if the switch at the rear is in position CAL. The way of changing values or choices is the same as mentioned above.

The test functions indicated by txx can be used for function tests of the instrument e.g. display. The access can be protected together with the access to configuration parameters.

Parameter entry

Access to batching parameters is only possible in Stand-by mode. It is given by pushing the corresponding key followed by CHARGE and DISCH. The last displayed

data are stored after pushing the ENTER - key. During the entry the symbol ◊ is flashing.

If these parameters are protected by pass number, the corresponding pass number has to be entered first to enable the changes.

Batching

The operating mode Batching can be used for charge or discharge batching applications. In addition to that the combination of charge and discharge batching can be selected.

After pushing of the key SET PT CHARGE or SET PT DISCH the corresponding last used setpoint is displayed and the symbol ◊ is flashing. Changes are possible via = and > or numeric keys.

The batching process starts after pushing the corresponding key again. Now net weight is displayed and the symbol ◊ is lit.

The batching sequence works as follows:

- Coarse batching until present point is reached
- Switch-over to fine batching until overshoot setpoint is reached
- If net weight minus setpoint is negative and bigger than the overshoot, fine batching is restarted
- If net weight minus setpoint is bigger than the tolerance setpoint tolerance alarm is activated, which has to be accepted

- In case of alarms the symbol (is flashing until the alarm is cancelled

After finalizing the component, symbol ◊ is blanked and the component data can be given out via serial interface to printer or supervisory system.

Data output

The configuration, calibration and batching parameters can be printed out for recording purposes.

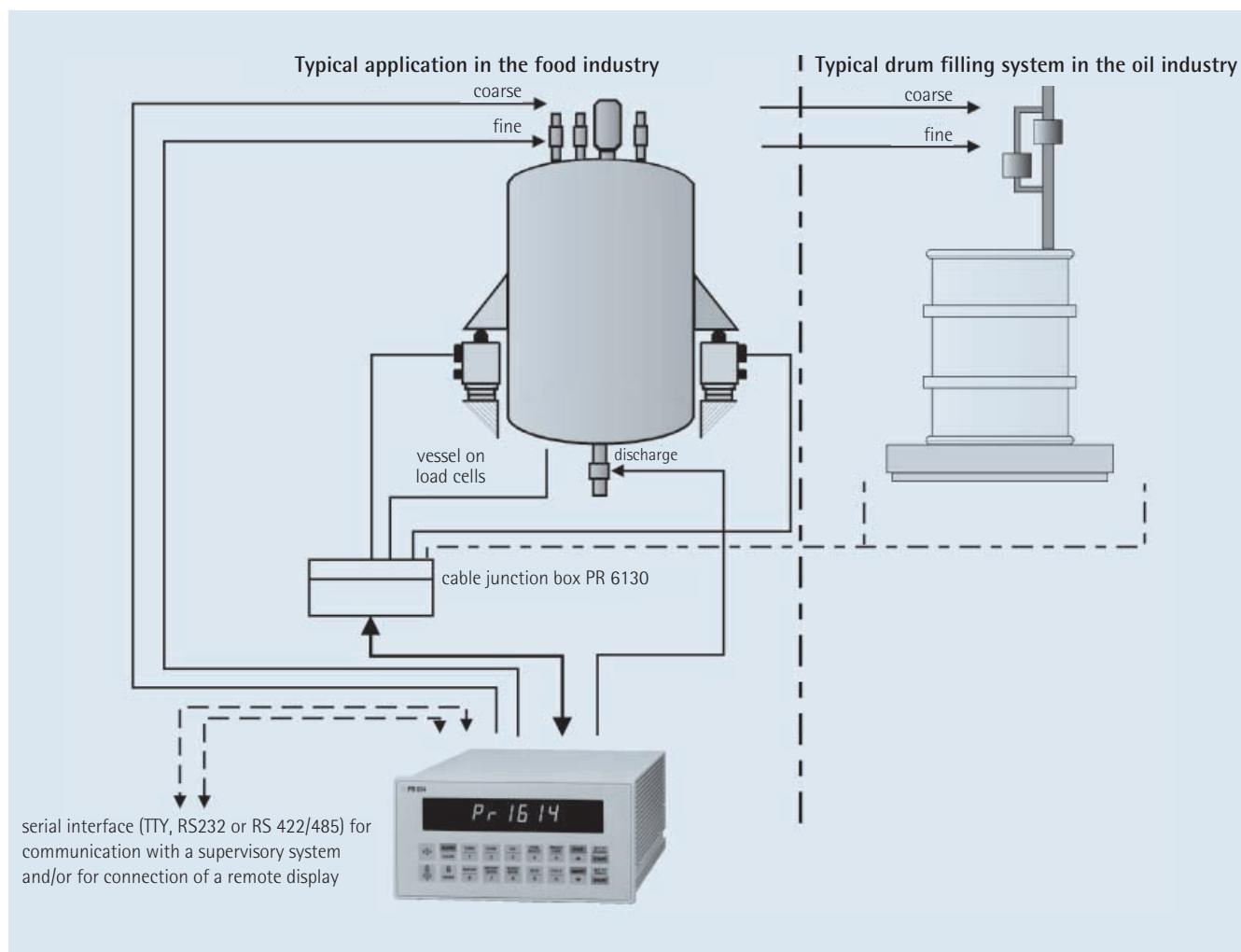
Furthermore the contents of the parameter and the consumption table can be printed out.

Benefits

- Minimum costs for installation and commissioning (due to its standardised interfaces and simple set-up)
- Minimum costs for training and operating errors (due to its simple and clear operation)
- Minimum maintenance cost (due to its long-term stability and reliability)
- Minimum costs for function errors (due to continuous self-test)

TECHNICAL DATA

Type	Order Number
PR 1614/01	9405 116 14011
PR 1614/02	9405 116 14021



Load Cell Connection

All strain gauge loadcells;
6-wire connection for Weight & Measurements recommended,
4-wire technique possible,
cable length max. 300 m.

Load Cell Supply

Supply voltage:
12 V_{DC}, shortcircuit 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...33.6 V
There is no interaction between span and dead load adjustment.

Analogue Filter

Active Butterworth low pass filter,
40 dB / decade, usable frequency $f_c=2$ 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 1614/01)
Zero: 0.15 μV/K RTI = 0.012 %/10 K
at 1 mV/V (PR 1614/02)
Span: 0.02 % /10 K (PR 1614/01)
Span: 0.006 % /10 K (PR 1614/02)

Linearity

Linearity error: 0.03 % (PR 1614/01)
Linearity error: 0.007 % (PR 1614/02)

Accuracy

PR 1614/01: Up to 1000 d OIML class IIII according to local approval
PR 1614/02: EC conformity certificate.
Accuracy class III 3000 d acc. to EN 45 501; corresponds to OIML R 76

Digital Section

EPROM: 64 k8
Static RAM: 8 k8
EAROM: 1024 bit (for calibration data)

Display

Type: vacuum fluorescent display
Elements:
7-digit 7 segment, height: 12.5 mm, plus weight and status symbols

Keyboard

Elements:
18 keys with tactile feedback for operation, calibration, configuration and test.

Control Input

Number of inputs: 2, optocoupler - isolated
Input voltage:
10...31 V_{DC} for high status
0...5 V_{DC} for low status
Input current:
5 mA at 12 V_{DC}
11 mA at 24 V_{DC}
Functions:
Selectable in configuration mode

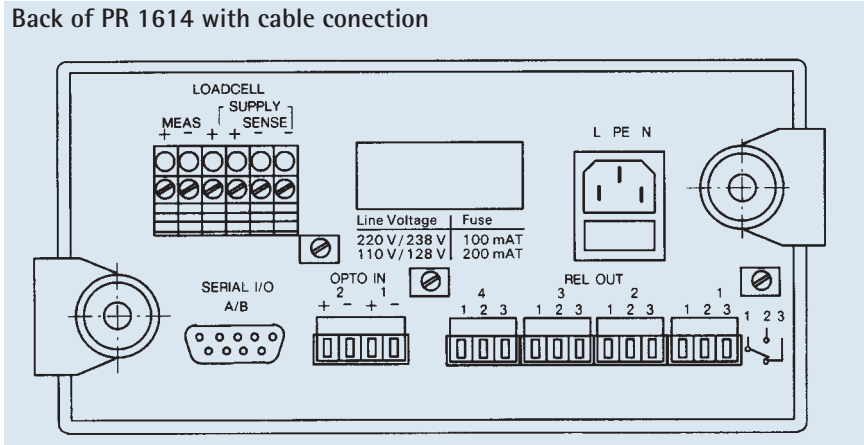
Control Outputs

Number of outputs:
4, potential free relay contacts
Contact rating:
250 V_{AC} / 4 A max.
Rating 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 realised by plug-in modules:
PR 1601/00 - Current loop TTY
PR 1602/00 - RS 232
PR 1604/00 - RS 422/485

Back of PR 1614 with cable conection



Baud rates:

300–4.800 for PR 1601/00
300–19.200 for others
selectable in configuration mode

Environmental Conditions

The instrument withstands the following test levels without any effect:

Vibration:

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 from 100 kHz to 500 MHz

3 V/m from 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 / 10 µs / 1 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 -/output

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

Power consumption

12 W /15 VA

M.T.B.F.

35.000 hours

Temperature Range

Operation: -10 °C to +55 °C

For W&M approved operation:

-10 °C to +40 °C

Storage: -40 °C to +70 °C

Housing

Material: Aluminium

Protection class:

Housing: IP 30

Front plate: IP 65

Dimensions:

96 mm x 192 mm x 229 mm (H x W x D)

Options

Type	Order Number
Current Loop TTY	PR 1601/00
RS 232	PR 1602/00
RS 433/485	PR 1604/00
Realtime clock	PR 1609/00

Net Weight / Shipping Weight

3.6 kg / 4.5 kg

Accessories

Voltage labels for 110 V_{AC}; 128 V_{AC};

238 V_{AC}

Fuse set

Operating manual

OPTIONS

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. 19200 bd

Interface Module RS 422/485

PR 1604/00

Order Number 9405 316 04001

Optocoupler isolated, max. 19.200 bd

Realtime clock

PR 1609/00

Order Number 9405 316 09001

