PR 1730
Multi-Point Weighing and Batching Controller

global weighing technologies

- Control of weighing or batching processes at up to ten weighing points
- Process control for 30/60 internal dig. 1/O and via Interbus-S up to 500 dig. 1/0s
- Weight data handling from external devices
- Complete I/O programmable control, according to the IEC 61131 standard
- Dialogue oriental operation via PC or programmable terminal interface
- Digital I/O control via Profibus DP Master Card

Profile

The modular design of the PR 1730 Hardware and Software functions will make it easier for the instrument to be applied to different applications required by the customers. This design philosophy removes unnecessary functions but still enables upgrading the device when demands on the system increase.

The PR 1730, multipoint weighing and batching controller may be applied to a wide spectrum of applications like weighing and batching in industrial processes.

Performance of the PR 1730 is determined by the specification request on the system. The advantages offered by the complete solution from a single unit saves costs and time for setting up configurations and systems interfacing

With up to four weighing points, two megabytes of programmable on board memory, and up to 500 digital I/O's, the PR 1730 is ideally suited for costumisation of complex weighing and batching processes.

Twin front panel weighing displays show any of the weighing points independently of one another for both gross, net, tare or differential weights.

The weight displays includes status indication for standstill, tared $^{1}/_{4}$ d range and weight mode. The actual weighing point is indicated by a weighing point LED.

Housing

The multipoint weighing and batching controller PR 1730 is contained in a 19" metal housing. The frontplate meets the IP 65 standard (dust and splash resistance). The unit maybe panel mounted or installed in 19" racks and cabinets, with the option of telescopic mounts. Telescopic mounts provide the advantage of not having to disconnect the unit from the system when carrying out servicing & maintenance or device upgrading.

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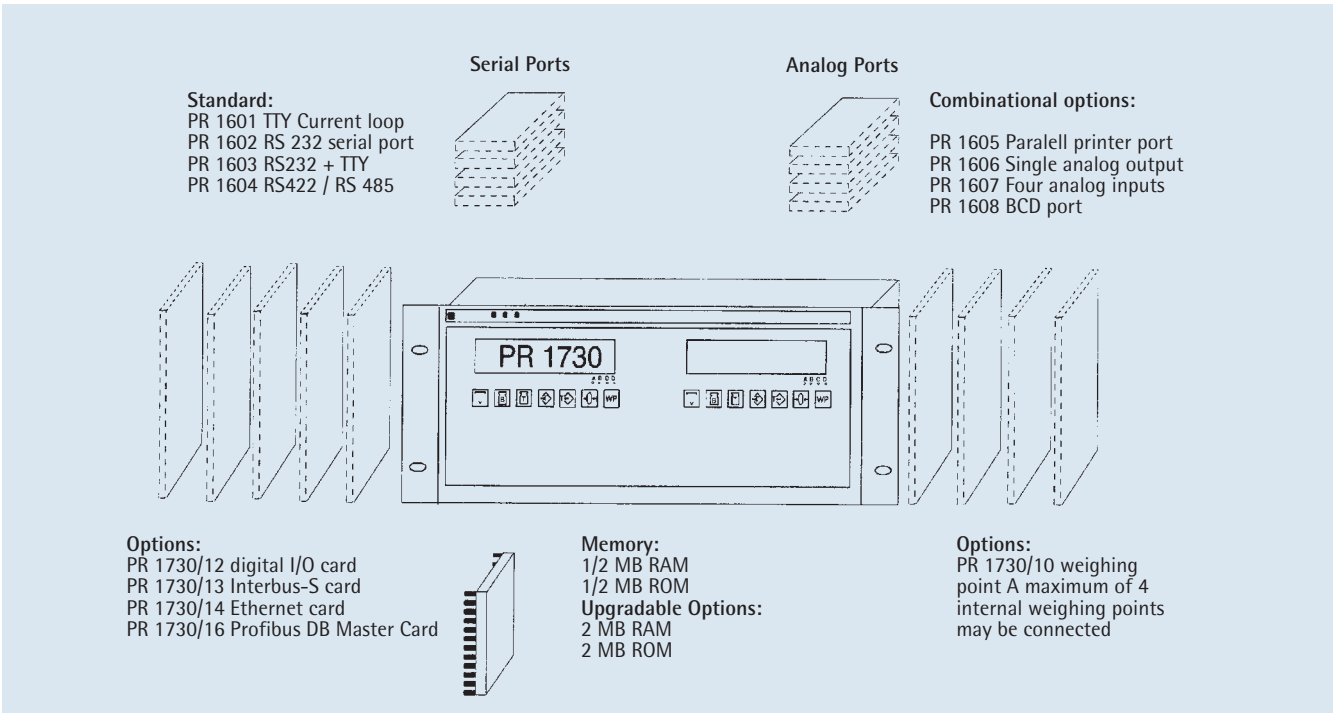


Diagramm of PR 1730 – HW-Options

Interface-Cards:

On the motherboard of PR 1730 are socket connectors for the following process interface cards:

- A maximum of five digital I/O cards, each card has 12 dig. output and 6 dig. input connections.
- A maximum of four analog cards as parallel printer analog input/output and BCD-output.
- Four serial port sockets maybe configured with a combination of either current loop, RS 232, RS 422 or RS 485.

Basis device units are supplied with a single serial port like RS 232 to connect to a PC. One connector (SLOT 8) is available for an Interbus-S master card (PR 1730/13) controlling up to 500 digital I/O's or a Profibus DP Master Card (PR 1730/16). Another connector (SLOT 9) may be used for an Ethernet Interface card (PR 1730/14).

Four (internal) weighing point modules, PR I 730/10 for measuring weighing data, can be adapted. Instead of only internal weighing point modules, PR 1730 can operate with a combination of internal weighing points and up to 6 external weighing devices like PR 1720 via Interbus-S.

Memory:

Currently, the standard memory supplied on the motherboard is
2 MB for RAM and ROM.

OPERATION

Setup:

In different setup-menues Configuration and Calibration of PR 1730 can be carried out via a VT 100 terminal. Beside calibration parameters of the four weighing points (A-D), all configuration parameters e.g. type of an interface card or the baud rate of the communication, can be defined. Special user menus will help the operator to initialize the device.

Batching:

For batching applications a Recipe-Management systems, PR 1740 is available. It runs on a PC and enables the operator to develop recipes and to control productions. A production can be executed up to 10 weighing points with simultaneous parallel operations of subrecipes corresponding to the weighing points.

Weighing:

For weighing applications like weighbridges, PROLOC-programmes (PROcess-LOgic-Control) are available. For new applications the control and weighing algorithms plus the user interface software can be developed in PROLOC conforming to IEC I 131. The user interface hardware may be a VT 500 terminal or PR 1628 with PR 1629.

TECHNICAL DATA

Accurasy

Approval 5000d OIML R76. Complies to local weights and measures standards.

Load cell types

All standard strain gauge load cells or any other type of mV source with linear output.

Load cell supply

Supply voltage: 12 or 20 V_{DC} selectable (short circuit proof). External loadcell supply possible.

Maximum load

6 load cells 600 Ω, each connected in parallel (100 Ω) or 4 loadcells 350 Ω, each connected in parallel (87.5 Ω).

Measuring range

Total range: 36 mV

Minimum span: 2.4 mV

Dead load range: 0 mV ... 33.6 mV
Measuring voltage input impedance: >10 MΩ

Span and dead load adjustment: via software during calibration

Analog filter

Active low pass filters
(Butterworth, 2-pole)

Cut-off frequency
fc1 = 2 Hz or fc2 = 9.3 Hz

Measuring principle

A/D conversion: integrating, ratiometrically to the load cell voltage supply Conversion time: 50 ms

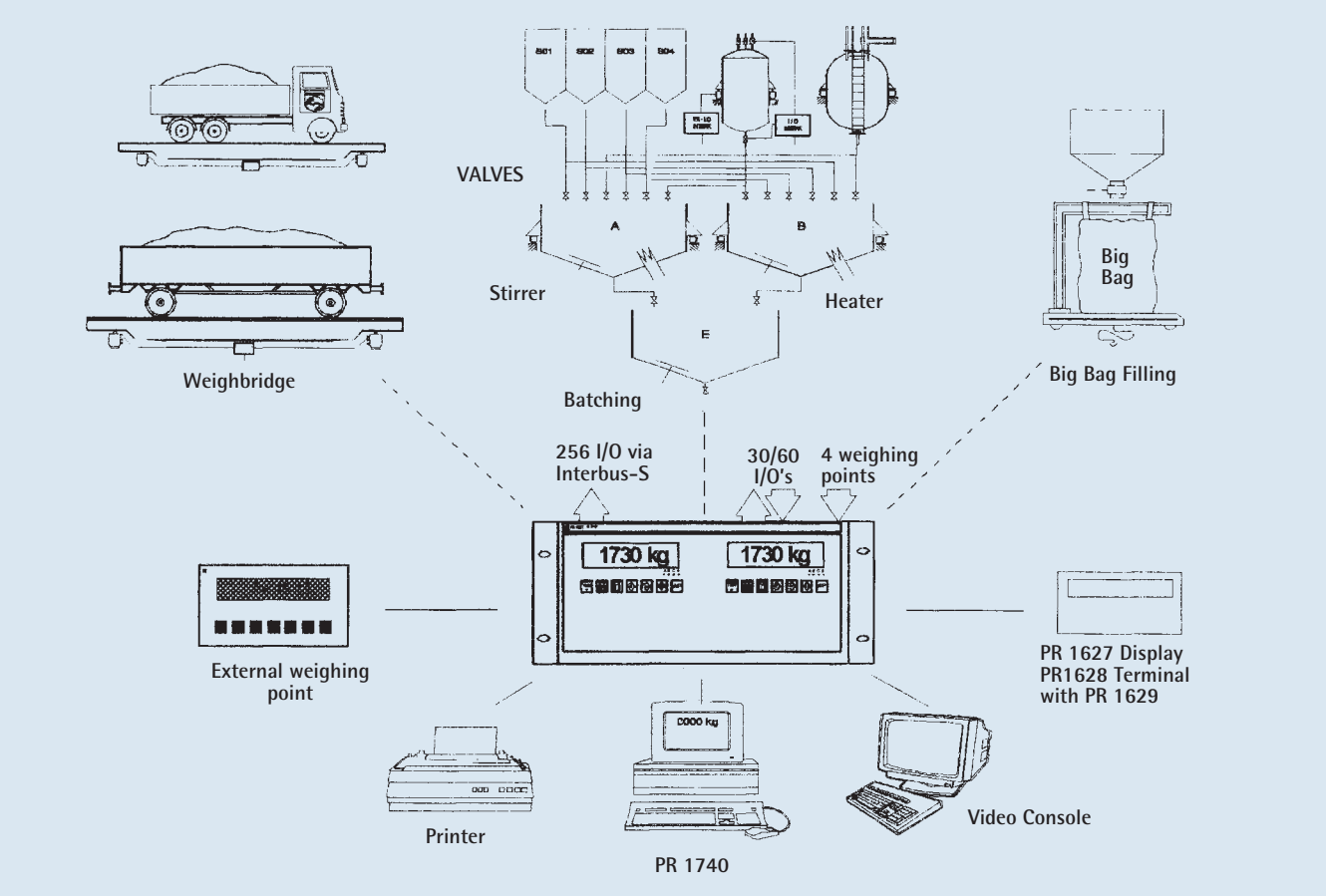
Update time: 0.1 s to approx 2 s, adjustable at intervals of 0.1 s depending on desired settling rate internal resolution: 0.16 µV/count

Temperature effects

Zero = <0.1 mV/K RTI
Span <0.006 %/10K (6 ppm/K)

Linearity

<0.007 %



PR 1730 application possibilities

Weight display
Type: vacuum fluorescent
Elements: 7 digits (7 segments) plus dimension sign and status indicators
Height: digits and dimension signs 12.5 mm
Colour: bright green
Weigh point indicator: LEDs

Digital section
Memory capacity
EPROM: $^1/_2$ MB (Expandable up to 2 MB)
SRAM: $^1/_2$ MB (Expandable up to 2 MB)

Serial interfaces
(any combination up to 4 cards)
Bidirectional current loop (PR 1601)
Current level: 0/20 mA, active or passive, optocoupler isolated
Baud rates: 300 to 4800 Bd
Bidirectional RS 232 interface (PR 1602)
Baud rates 300 to 19200 Bd
Bidirectional RS 232 + TTY current loop interface (PR 1603)
Bidirectional RS 422/485 interface (PR 1604)
Baud rates 300 to 19200 BD
Interbus-S (PR 1730/13) with max. 500 digital I/O's

Analog I/O
Per card

Analog input	(PR 1607)
Input voltage:	0...+10 V
Input resistance:	100 kΩ
Input current:	0... 20 mA
Input resistance:	250 Ω
Number of inputs:	4
Analog output	(PR 1606)
Output voltage:	0/2...+10 V
Resistance load:	>5 kΩ
Output current:	0/4... 20 mA
Resistance load:	<500 Ω
Number of outputs:	1 voltage & 1 current
Resolution:	12 bit

Digital I/O Control Ports
Per digital card
Logical inputs:
6 potential free opto-isolated inputs
Input voltage:
'0', low logic level 0 .. 5 V_{DC}
'I', high logic level 10 .. 3I V_{DC}
Input current: <11 mA at 24 V_{DC}
Logical outputs:
12 potential free opto-isolated outputs (passive)
maximum voltage 31 V_{DC}
maximum current 25 mA

Mains supply
115 V_{AC}, 230 V_{AC} +10/-15 %
48..62 Hz. (Jumper selectable)
24 V_{DC} (18...36 V_{DC})
24 V_{AC} (-15 %/+10 %)

Power consumption
Max 90 VA, 66 W

Backup battery
3 V Lithium 1.2 Ah
(average duration 5 years)

Temperature range
Storage and transport: –40...+70 °C
Operation (W&M applications): –10...+40 °C
Industrial operational applications: – 0...+55 °C

Device protection classes
Front panel: IP 65
Main housing: IP 20 (ventilation slots < 4 mm)

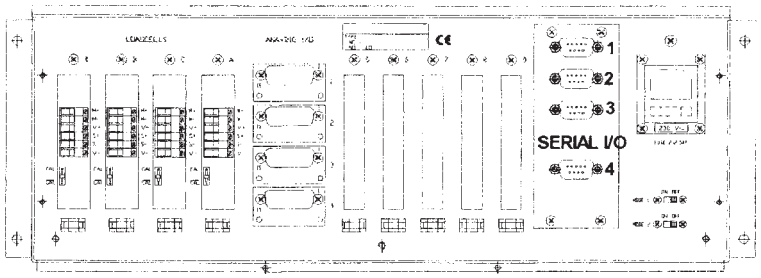
Carriage weights

Net weight:	8.75 Kg (max)
Shipping weight:	11.25 Kg (max)

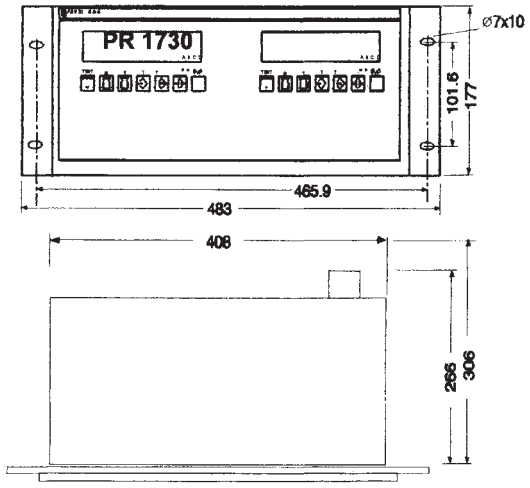
Pin	No.	I/O Signal	Function	Pin	No.	I/O Signal	Function	Pin	No.	I/O Signal	Function
	1	signal GND (HOUSING)									
		A B								C D	
A	2	+ output	Coarse	A	8	+ output	Standstill	C	14	+ input	Stop-WP
B	20	– output		B	26	– output		D	32	– input	
A	3	+ output	Fine	A	9	+ output	Device tared	C	15	+ input	Abort-WP
B	21	– output		B	27	– output		D	33	– input	
A	4	+ output	Discharge	A	10	+ output	free	C	16	+ input	Continue-WP
B	22	– output		B	28	– output		D	34	– input	
A	5	+ output	Tol-Alarm	A	11	+ output	free	C	17	+ input	Stop-Recipe
B	23	– output		B	29	– output		D	35	– input	
A	6	+ output	Flow-Alarm	A	12	+ output	free	C	18	+ input	Abort-Resipe
B	24	– output		B	30	– output		D	36	– input	
A	7	+ output	WP-Stop	A	13	+ output	free	C	19	+ input	Continue
B	25	– output		B	31	– output		D	37	– input	Recipe

Type number	Order number
HARDWARE	
OPTIONS	
Current loop TTY	
PR 1601/00	9405 316 01001
RS 232 (V 24)	
PR 1602/00	9405 316 02001
RS 232 + TTY	
PR 1603/00	9405 316 03001
RS 422/485	
PR 1604/00	9405 316 04001
Parallel printer interface	
PR 1605/00	9405 316 05001
Analogue output	
PR 1606/00	9405 316 06001
Analogue Input	
PR 1607/00	9405 316 07001
BCD output	
PR 1608/00	9405 316 08001
Weighingpoint module	
PR 1730/10	940S 317 30101
Digital 1/0-Card	
PR 1730/12	9405 317 30121
Interbus-S	
PR 1730/13	9405 317 30131
Ethernet	
PR 1730/14	9405 317 30141
Profibus DP Master	
PR 1730/16	9405 317 30161

Digital I/O connector 37 pole



Rear panel layout for cable connections



Unit dimensions

Standard Connection of a digital Input/Output card PR 1730/12 together with PR 1730/20.
The I/O-parameter are related to one weighing point.
I/O card 5 = > WP A
I/O card 6 = > WP B
I/O card 7 = > WP C
I/O card 8 = > WP D

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