PR 5230
Transmitter in field housing

- Ethernet TCP|IP for PC connection to OPC Server or configuration by Browser
- Modbus TCP for PC and PLC connections
- Webservice via SOAP|UPnP
- serial Interface RS485/422 and RS232
- 3 digital in- and 3 outputs (Relays)
- W&M approval for 10.000 e, class III (In preparation)
- Calibration without weights (Smart Calibration)
- Strain gauge and Sartorius digital scales can be connected
- Display for Weight and Status Information
- ATEX Ex approval for use in Zone 2/22
- Intrinsically safe load cell connection for load cells in Zone 1/21

Option cards:
- analogue output 0/4 –20 mA,
- Profibus-DP, Interbus-S, DeviceNet, CC-Link, Profinet and Ethernet|IP,
- Load Cells connection board for up to 4 Load Cells

Product profile
The Transmitter PR5230 provides an easy and reliable solution for weighing of process hopper scales with strain gauge load cells in process automation applications.

The standard RJ45 connector provides ModBus TCP and also Ethernet TCP|IP for an easy integration into existing PLC and PC networks. Information can be transferred into supervisory systems with the OPC-Server technology.

The IP address can be assigned via the 3 following possibilities:
1. Manual input of the IP address by the user
2. Automatic assignment from network server (DHCP)
3. Auto IP, self-assign by the instrument.

If the IP Address is not known by the user, a small tool is scanning the complete network and displays IP address and name of all Sartorius instruments that are connected to the network. With this function all instruments|scales can be clearly identified.

The tool will be delivered with the Transmitter and can be used without installation. For the configuration of the VNC Technology is used. This function enable the user to start the homepage of the instrument in the Microsoft Internet Explorer and do the configuration online. Additionally to this the tool ConfigureIt Professional is available. With this tool all configurations can be done online or offline and saved on the PC. This makes the administration of different systems very easy and well arranged.

The Transmitter provide a built-in RS232 and RS422/485 serial interface using the very simple and versatile SMA-Standard protocol and the protocol for a remote display. A printer can be connected to printout the configuration but also print a ticket with an incoming event (input) or e.g. every 30 minutes at regular time schedule.

As an option a high-performance 16 bit analogue output is available. Three freely configurable digital In- and Relays Outputs can control simple process functions, like limits. Additionally to the already included Ethernet TCP|IP and Modbus TCP interface different options cards allows a wide range of field busses:
Profibus-DP, Interbus-S, DeviceNet, CC-Link, Profinet and Ethernet|IP.

The housing is a polished stainless steel housing in IP66. All connections are made by compression couplings.

Do you think about Wireless LAN? Use the possibilities of the Ethernet TCP|IP. Remote Service via the Internet, allows support from every point of the world.

The high-quality Sense-amplifier supports 4 and also 6 wire Load Cells. This allows connections over long distances without losing accuracy. Additional security guarantees the fully galvanically isolated sensor input circuit and supply from supply voltage and all in-|output circuits.

Technical Data

Housing
Housing IP66
material: stainless steel
electro polished
RoHS conform

Dimensions
350 × 250 × 150 mm

Weight
Net: 1.45 kg

Display and Status
LCD, transflective, back lighted
Weight: 6-digits
Size: 128 × 64 pixel, graphic
Information can be configured
Status LEDs to signal operation
and error conditions.

Internal Keys
In the housing 3 keys for
Zero, Tare, Test

Supply Voltage
230 V_{AC}, +10/-15 %
24 V_{DC}, +/-20 %

Power Consumption
11 W

Control Outputs
Quantity: 3
Relay output, passive,
Functions: Limits, weight status...
Voltage: max. 30 V_{DC}
Current: max. 30 mA

Control Inputs
Quantity: 3
opto-isolated input, passive,
Functions: zero setting, taring...
Voltage: max. 30 V_{DC}
Current: max. 10 mA

Remote I|O
The I|O can be set internally via a
function and remote via fieldbus or PC

In-|Output
All I|O circuits fully galvanically isolated
from sensor input and supply.

Load cell connection
All strain gauge load cells;
6- or 4-wire connection

Load Cell Supply
12 V, short-circuit proof.
External load cell supply possible.

Minimum Load Impedance
min. 75 Ω
e.g. 6 load cells with 600 Ω
or 4 load cells with 350 Ω

Measuring Principle
Measuring amplifier: Delta-Sigma converter
Measuring time: min 5 ms – max. 1600 ms

Accuracy
7.5 nV (appr. 4.8 Mio. div.)
Usable resolution: 0.2 µV/d

LC Input Signal
Measuring signal: 0 bis 36 mV
(for 100 % nominal load)

W&M Approval (in preparation)
10,000 e class III acc. to EN 45501;
according to. OIML R 76,
min. verification interval: 0.5 µV/e at 160 ms

Linearity
< 0.003 %

Temperature effects
Zero: TK_0 m < 0.05 µV/K RTI
Span: TK_{span} < +/- 2.5 ppm/K

Digital filter for load cell
4th order (low pass), Bessel, aperiodic
or Butterworth

Ethernet interface (functions)
- Ethernet TCP|IP and Modbus TCP
- Definition of an IP adress:
  - AutoIP
  - DHCP Server classification
  - manual entering of an IP adress
- Automatic detection of signal transmission and corresponding change over (cross-over or patch cable)
- Webservice via SOAP|UPnP (Simple Object Access Protocol)
- Synchronal Modbus UDP

Serial Interfaces
RS 422/485 and RS232
Protocols: Remote Display, SMA, Modbus RTU, printer and Sartorius digital scales (XBPI – protocol)

Options:
Analogue output PR 5230/06 (C11)
0/4 ... 20 mA,
internal resolution 16 bit,
usable stepwidth: 0.5 µA
max. load 500 Ω, user configurable

Fieldbus PR 1721/4x (C2x)
Profibus-DP, Interbus-S, DeviceNet, CC-Link, Profinet and Ethernet|IP

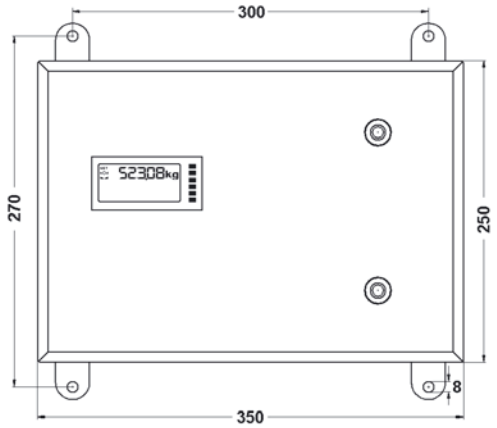
Load Cell connection Board PR 5230/22 (C31)
For the internal connection of up to 4 Load cells. (instead using a cable junction box)

Environmental conditions
Temperature
W&M: –10 °C to +40 °C
Operation: –10 °C to +50 °C
Storage: –20 °C to +70 °C

ATEX Approvals PR 5230:
II 3G Ex nA nC IIC T4
II 3D Ex tD A22 IP6X T80°C
SAG 09ATEX004X

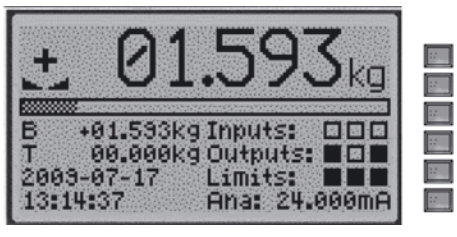
II (2)G [Ex ib] IIC
II (2)D [Ex ibD]
KEMA 10 ATEX 0065 X

Housing

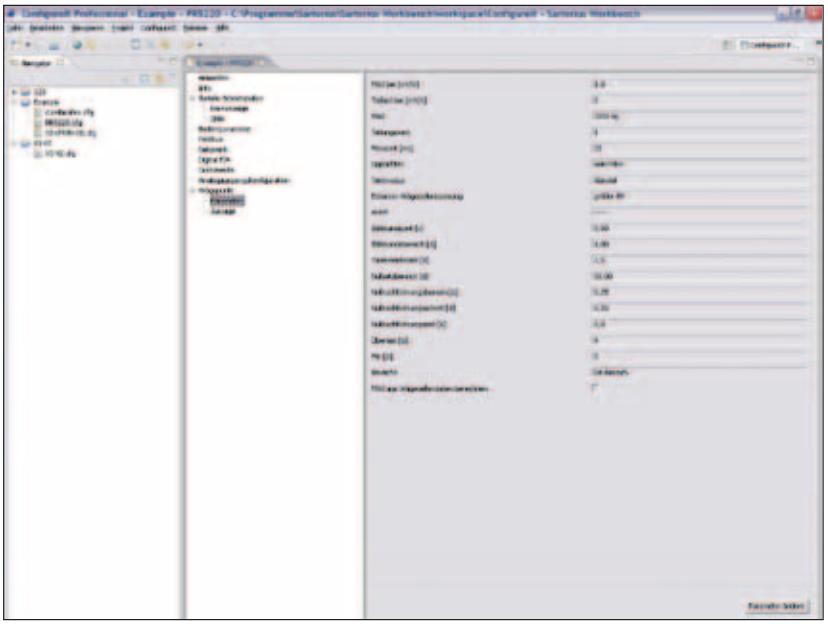


Height of Housing appr. 150 mm

Display and Status LEDs- configurable



All Dimensions in mm

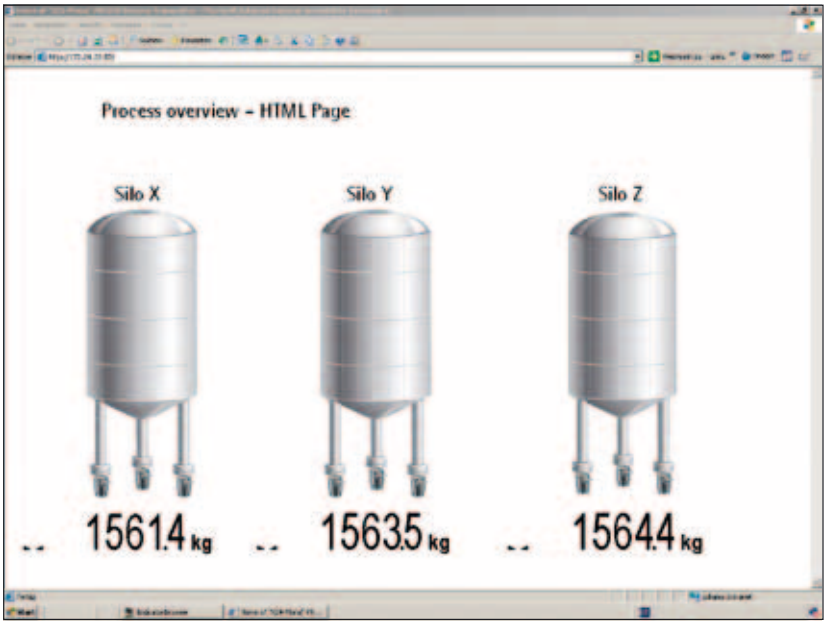


The ConfigureIt Professional program has the following features:

- Searching for an instrument in a network
- Creating and modifying an instrument configuration
- Entering the parameters of an instrument
- Calibration of an instrument using the following methods:
  - with test weights
  - by mV/V
  - using the load cell data ('smart calibration')
- Loading an instrument configuration from an instrument
- Storing an instrument configuration in an instrument or in a file
- Copying instrument configurations (cloning)
- Creating a document (PDF, XLS, etc.) with the instrument configuration

The Functionality VNC allows the following functions:

- Opens the internal Web-Page with the direct entry of the IP adress into the standard Web Browser
- Showing and modifying an instrument configuration
- Calibration of an instrument using the following methods:
  - with test weights
  - by mV/V
  - using the load cell data ('smart calibration')
- Displaying and printing the complete configuration
- Readout of the fault memory



Generate HTML side for Process Overview:

- Weight Indication on the PC Display
- Easy creation of HTML side by standard html programming
- Weight and status can be easily implemented as standard command
- Weight display is "live"

Order information

Type	Description	Order number
PR 5230	Transmitter in field housing, IP66, stainless steel, incl. Ethernet TCP|IP and Modbus TCP, RS232, RS485/422, 3 Relays Outputs, 3 Digital Opto. Inputs OPC Server License included	9405 152 30000

Options	For delivery the option will be installed	
Power Supply	230 V_{AC}	L0
	24 V_{DC}	L8
A|D Converter	To connect DMS Load Cells in Safe Area	W1
	To connect DMS Load Cells in EX Area ATEX 1/21 (intrinsically safe)	WE1
Ex Approval	ATEX Zone 2/22	Y2
Digital IN|OUT	Digital Input Passiv (external 24 V Power Supply needed)	DE1
	Digital Input Activ (internal 12 V supply)	DE2
	Digital Output Relais passiv	DA1
	Digital Output Optocouppler passiv	DA2

Option Cards			SLOT 1	2	3
	Analog Output 0/4-20 mA	C11	x		
	Profibus-DP	C21		x	
	Interbus-S	C22		x	
	DeviceNet	C24		x	
	CC-Link	C25		x	
	Profinet	C26		x	
	Ethernet|IP	C27		x	
	Load Cell connection board for up to 4 Load Cells (instead using a cable junction box)	C31			x
Ethernet RJ45	Ethernet female connector RJ45, IP66	M39			
	Ethernet cable with cable glance, 7M, RJ45 plug	M40			

Accessories	Delivery of option card will be separately	
PR 5230/06	Analog Output 0/4-20 mA	9405 352 30061
PR 5230/22	Load Cell connection board for up to 4 Load Cells (instead using a cable junction box)	9405 352 30221
PR 5230/30	Ethernet female connector RJ45, IP66	9405 352 30301
PR 5230/31	Ethernet cable with cable glance, 7M, RJ45 plug	9405 352 30311
PR 1721/41	Profibus-DP	9405 317 21411
PR 1721/42	Interbus-S	9405 317 21421
PR 1721/44	DeviceNet	9405 317 21441
PR 1721/45	CC-Link	9405 317 21451
PR 1721/46	Profinet	9405 317 21461
PR 1721/47	Ethernet|IP	9405 317 21471

The documentation and tools were be delivered on a CD.
(Tools included: Indicator Browser, ConfigureIt Professional, OPC Server, VNC Viewer, Modbus TCP examples)
Paper version of the manuals can be ordered on request.

Sartorius Mechatronics T&H GmbH
Meiendorfer Strasse 205
22145 Hamburg, Germany

Phone +49.40.67960.303
Fax +49.40.67960.383

info.mechatronics@sartorius.com
www.sartorius-mechatronics.com

Specifications subject to change without notice.
Printed in Germany.
n/sart · C
Publication No.: HPR2012-e10101
Order No.: 9498 752 30001
Version 08.2010