



sartorius

## BATCH-X4 Process Controller



- Automatic Recipe Control with internal Material and Recipe database (100 components x 100 recipe lines)
- Free configurable In- and Outputs
- Various standard batch functions for the direct control of batch components
- Reports for batch, production and consumption
- Compact housing designed for easy installation into switch cabinets or operating panels
- Fieldbus connection and link to supervisory systems possible (serial/Ethernet TCP/IP)
- Investment protection due to various possibilities of external connections and extensions of functions

The BATCH-X4 is a weighing controller with internal recipe handling to allow automation of batching, manual additions and process steps.

### Application

In many batch processes, different kinds of raw material are processed into intermediate and end products. From raw material storage area they are dosed to the production and processed in different steps like heating, cooling, stirring etc. The production steps and the raw materials with its set-points are described in a recipe.

The Stand-alone batch controller BATCH-X4 meets the requirements of small batch applications in different industries, like food industry, chemical industry or building material industry.

### Design

The housing is designed for easy installation into switch cabinets, operating panels or direct at the machinery as a front-end unit.

The bright weight display with 7 digits plus units and status symbols guarantees a good readability even under harsh conditions.

Additional two text lines are foreseen each with 20 characters. Under the text lines functionkeys are arranged. The meaning depends on the application and guides the operator through the menu.

The keys have a double assignment. The second level enables the operator to enter also alphanumeric characters.

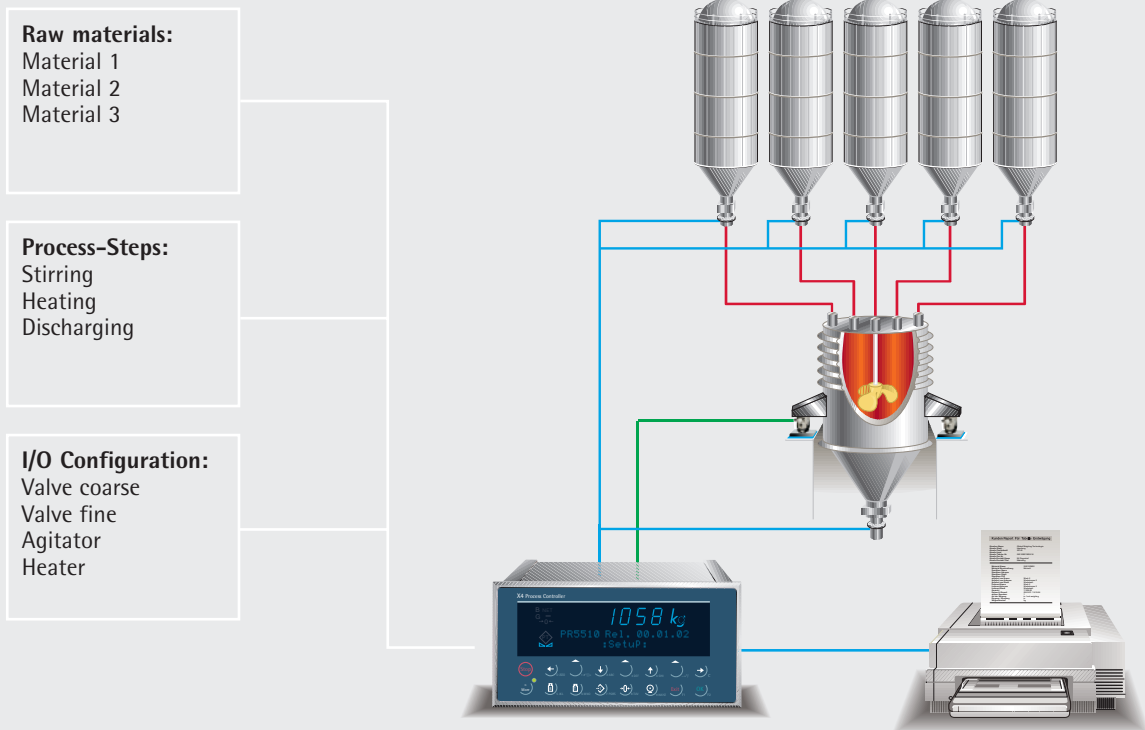
The BATCH-X4 Process Controller enables the connection of an external PC-keyboard to upgrade the operation comfort in case of data entry.

SmartCalibration allows scale commissioning without time consuming calibration with test weights.

### X4 Power Tools (Option)

The powertools are a collection of powerful programs to speed-up commissioning

- FlashIt for download of programmes
- LayoutIt driver for Nice Label Express
- DisplayIt let your PC take control of your BATCH-X4
- TransletIt for simple editing of language
- RecoverIt saves the complete configuration on your PC
- AccessIt is a tool to upload, edit all tables in the controller and downloaded back into the controller



### Easy configuration of inputs and outputs

The digital input and output interface can be defined with the help of a configuration table. In this way process functions are allocated to any physical internal and external input and output address – without additional programming!

### Standard Version

#### One internal I/O-module:

- 6 Inputs
- 12 Outputs

### Options

Several different I/O-Extensions for additional internal digital I/O's (6/12), or analogue I/O, as well as serial interfaces are provided. Furthermore the BATCH-X4 can be linked by different fieldbuses and by Ethernet to PC's or PLC's. For this there are in total 4 slots incorporated to equip the device with option cards.

Slot 1-2 are assigned for digital, analogue and serial interfaces.

Slot 3 is only designed for the analogue card PR 5510/06.

Slot 4 is designed for the Ethernet card and all other fieldbus interfaces.

By using the analog boards please take into consideration that certain restrictions regarding the power consumption have to be calculated. In case an Ethernet or Fieldbus option is used, only Slot 1 or 2 can be equipped.

### Standard I/O-Functions

Following functions are available and can be assigned to a in- and output address:

#### Inputs

- Start Recipe
- Recipe stop, Restart, Abort
- Acknowledge of manual component
- Print latest report
- Key switch locking mechanism
- Tare, Untare, Zero position
- Interlocking for batch functions

#### Outputs

- Coarse signal, Fine signal, Discharge signal
- Tolerance alarm
- Material flow alarm,
- Recipe stopped, Recipe active
- Tared, 1/4 d, Stand still,
- Limit 1, Limit 2
- Data valid, ADU error
- Material batching active

### Simple Recipes

Recipes are defined with component parameters of raw materials and with process steps directly at the device. In order to start a production, you can enter a flexible set-point and the number of batches. Control and supervision of the components and process steps are realised via the digital I/O-interface (internal or fieldbus) to achieve an excellent production quality.

Rezept			
	Component	Setpoint	
1	Material_1	100 kg	
2	Material_2	200 kg	
3	Material_3	300 kg	
4	Stirring	00:20:00.0 min	
5	Heating	60.0 °C	

Start Production

Order:  
Product 777  
Setpoint 150kg  
3 batches



#### Productions Report

Produkt 777 100 kg  
Produkt 778 200 kg  
Produkt 779 500 kg

#### Consumption Report

Material 1 300 kg  
Material 2 703 kg  
Material 3 900 kg

#### Batch Report Recipe Product 777

	Soll	Ist
Material 1	100kg	100kg
Material 2	200kg	200kg
Material 3	300kg	300kg
Stirring		9min.

### Operation – The intelligent Batch System

The BATCH-X4 controls one weighing point. With the internal PLC the BATCH-X4 Process Controller supervises the related processes independently. So a batch can be started directly at the controller or via fieldbus by a PLC. During production, the active recipe will be processed line by line starting with the first. Recipes and materials are stored in an internal database and can be modified and edited. For the production process itself there is no need for additional hardware.

### Integrated Report Function

Used raw materials and the quantity of finished products are documented in a consumption and production report. Batch reports are generated automatically and can be printed. With a separate PC tool the layout of these reports can be customized.

To redesign a layout according to special customer requirements two ways are offered by the system.

1. By means of their programming tool PR1750NT the pre-defined formats can be modified.
2. By means of the program NiceLabel-Express (NLE) formats can be free designed on a PC. The results are label files, which will be downloaded to the device and filled with variables during printout.

### Flexible System Links

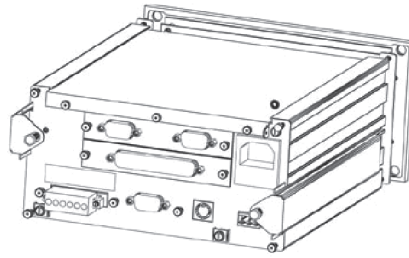
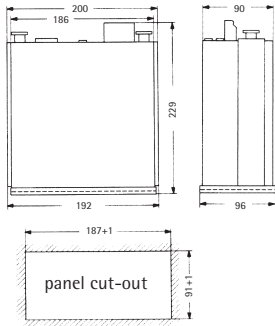
With the help of several protocols, the BATCH-X4 provides interfaces to different systems.

A link to a supervisory system can be realized via serial line or Ethernet TCP/IP. Additionally the batch controller can be connected to a PLC as a fieldbus slave via Interbus-S, Profibus, DeviceNet or CC-Link.

### Investment to Future

The BATCH-X4 provides numerous possibilities of external links and extensions of functions. By using forward-looking technologies this leads to a higher investment protection in the case of function or plant extensions.

## Technical Data BATCH-X4



### Power supply

115 - 230V<sub>ac</sub> 50 - 60Hz +10%/-15%  
max. 19VA

### Housing

Material: Aluminium  
Protection class: IP 30  
Front panel: IP 65

### Order information

Type	Description	Order Code	SLOT	1	2	3	4
PR5510/20	BATCH-X4 230V	9405 155 10201					
<b>Options</b>							
PR5510/04	Serial Interface card (RS 232/485)	9405 355 10041		o	o		
PR5510/06	1 analogue Output 0/4 -20mA *	9405 355 10061					o
PR5510/07	1 analogue Output/4 analogue Input *	9405 355 10071		o	o		
PR5510/08	BCD open emitter	9405 355 10081		o	o		
PR5510/09	BCD open collector	9405 355 10091		o	o		
PR5510/12	Digital 6 In-/12 Output, Opto/Opto	9405 355 10121		x	o		
PR5510/14	Ethernet, 10MBaud	9405 355 10141					o
PR1721/31	Profibus DP	9405 317 21311					o
PR1721/32	Interbus S	9405 317 21321					o
PR1721/34	DeviceNet	9405 317 21341					o
PR1721/35	CC-Link	9405 317 21351					o
PR1792/13	OPC Server Licence	9405 317 92131					
PR1792/20	AccessIt Licence	9405 317 92201					
PR8001/01	X-Family PowerTools	9405 380 01011					
PR8901/81	Internal Alibi-Memory (Licence)	9405 389 01811					
PR1623/10	Connecting Cable (4m)	9405 316 23101					
PR1623/20	Relay I/O Module	9405 316 23201					
PR1623/30	Terminal I/O Module	9405 316 23301					

o = optional, x = included in delivery

The documentation will be delivered on a CD, a paper version can be ordered separately.

\* Pay attention to the total load. Refer to documentation.

### Display

7-Digit plus status symbols  
text: 2 lines, 20 characters

### Load cell input

6-or 4-wire  
Load cell supply: 12V<sub>bc</sub>  
Impedance: min. 75Ω,  
e.g. 12 load cells with 1,080Ω

### Interface

- Built-in bidirectional serial interface RS 232; user selectable protocols: remote display, printer
- Keyboard interface PS2

### Accuracy

6000e OIML R76  
min. verification interval 0,5μV/e

### Linearity

< 0.002%

### Resolution

2.5 Mio. counts for 1mV/V

### Measuring time

10... 1,280ms, adjustable

### Filter

4-pole digital filter 0.1 to 5Hz

### Input signal range

0... 36mV  
Dead load suppression: 100%

### Temperature influence

Zero: < 0.05μV/K RTI  
Span: < +/-4ppm/K

### Environmental conditions

#### Temperature range

Operation: -10°C to +40°C  
Storage: -40°C to +70°C

### Electrical safety

according to IEC 61010-1

### Vibration

according to IEC 60068-2-6

### Conformity

EN61000-6-2 and EN61000-6-4  
NAMUR, CE

Specifications subject to change  
without notice.

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Sartorius Hamburg GmbH  
Meiendorfer Straße 205  
22145 Hamburg, Germany  
Tel. +49.40.67960.303  
Fax +49.40.67960.383  
www.sartorius.com