



sartorius

## BATCH-X5 System 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.
- 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-X5 is a weighing controller with internal recipe handling to allow automation of batching, manual additions and production 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-X5 meets the requirements of small batch applications in different industries, like food industry, chemical industry or building material industry.

### Design

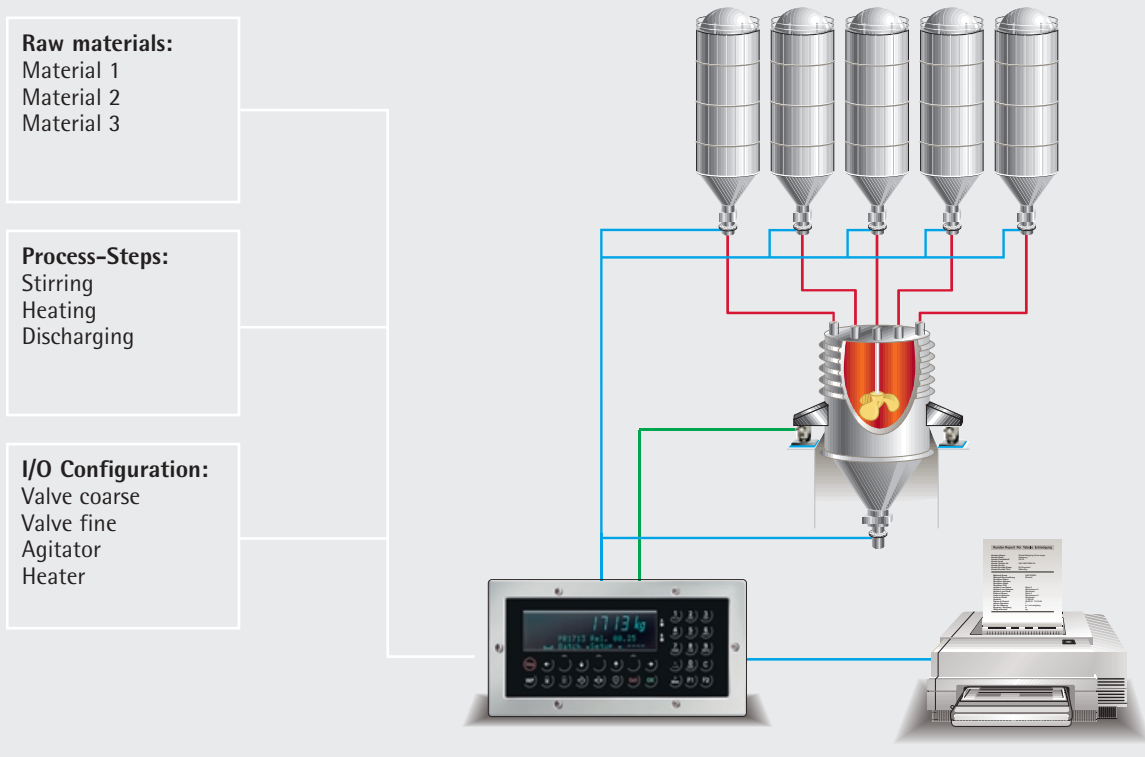
The robust stainless steel housing allows use under rough environmental conditions. It provides a two-line display for a text based dialog with the operator.

A convenient user interface is implemented to supervise the complete process. Operation can be via soft-keys at the front of the BATCH-X5 or an external keyboard. There is also a PC-tool available for the input of data to material and recipe tables in a comfortable way.

### Additional advantages

Furthermore, remote control is possible by using a PC as terminal, connected to the BATCH-X5 via serial or network connection (Ethernet TCP/IP).

Moreover the BATCH-X5 supports several languages on operator level. For service purposes a powerful back-up tool is available to minimize any down time of the production facilities.



### 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

#### 2 internal I/O-modules:

- 12 Inputs
- 16 Outputs

### Optional

#### I/O-Extension DIOS-Master:

- 32 Inputs
- 32 Outputs

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 150 kg  
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-X5 controls one weighing point and provides a complete user interface. With the internal PLC the BATCH-X5 supervises the related processes independently. So a batch can be started directly at the controller. 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.

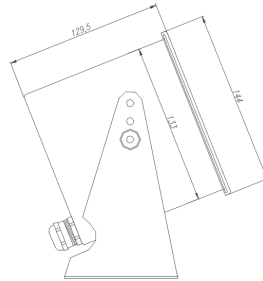
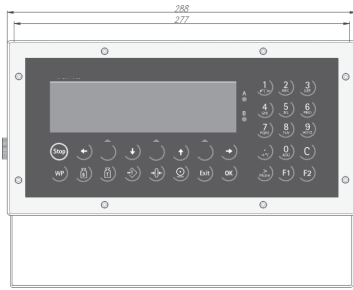
### Flexible System Links

With the help of several protocols, the BATCH-X5 provides interfaces to different systems: The batch controller is able to control up to 256 in and outputs via Interbus-S Master. 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 or DeviceNet.

### Investment to Future

The BATCH-X5 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-X5



### Power supply

115/230 V<sub>AC</sub> 50-60 Hz or 24 V<sub>AC/DC</sub>  
Max. 19 W / 25 VA

### Display

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

### Housing

Stainless steel DIN 1.43 01 (B.S. 304)  
Ingress Protection: IP 65 eq. to (NEMA: 4X)

### Order information

Type	Description	Order numbers					
PR 5610/20	BATCH-X5 230 V	9405 156 10201					
PR 5610/21	BATCH-X5 24 V <sub>AC/DC</sub>	9405 156 10211					
PR 5610/22	BATCH-X5 Ex-Zone 2/22 (230 V)	9405 156 10221					
PR 5610/23	BATCH-X5 Ex-Zone 2/22 (24 V)	9405 156 10231					
<b>Options</b>							
PR 1713/05	RAM Memory Extension 1MB	9405 317 13051					
PR 1799/99	W&M Approval Labels (1 set)	9405 317 99991					
PR 8901/81	Internal Alibi Memory (Licence)	9405 389 01811					
PR 8001/01	X-Family PowerTools	9405 380 01011					
PR 1713/31	Extended EW Commands	9405 317 13311					
PR 1792/20	AccessIt Licence	9405 317 92201					
PR 1713/91	Panel Mounting kit	9405 317 13911					
PR 1792/13	OPC Server Licence	9405 317 92131					
			<b>SLOT</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
PR 1713/04	Serial Interface (RS 232/485)	9405 317 13041		o	o	o	
PR 1713/06	Analogue Output 0/4-20 mA	9405 317 13061	*	o	o	o	
PR 1713/07	1 Analogue Output/4 Analogue Input	9405 317 13071	*	o	o	o	
PR 1713/08	BCD 24 out, 1 in	9405 317 13081				o	
PR 1713/12	Digital 4 In-/4 Output, Opto/Opto Output: 31 V, 25 mA	9405 317 13121		o	o	o	
PR 1713/13	DIOS-Master (add. Software required)	9405 317 13131				o	
PR 1713/15	Digital 4 In-/4 Output, Opto/Relais Output: 31 V, 1 A	9405 317 13151		o	o	o	
PR 1713/17	Digital 6 In-/8 Output, Opto/Opto Output: 31 V, 25 mA	9405 317 13171		x	x	o	
PR 1721/11	Profibus-DP interface	9405 317 21111					o
PR 1721/12	Interbus-S interface	9405 317 21121					o
PR 1721/14	DeviceNet interface	9405 317 21141					o
PR 1713/14	Ethernet interface, 10 MBaud	9405 317 13141					o

o = optional, x = included in delivery

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

\* max. 1 Analogue Output Card

Specifications subject to change  
without notice.

Printed in Germany.

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Version 06.2004

### Interfaces

Bi-directional serial interfaces RS 232;  
user selectable protocols: EW Com, remote  
string, printer, XON, Jbus, ModBus, Dust 3964R

### Linearity

< 0.007 %

### Resolution

Max. 330,000 div. (internal)  $\pm$  0.11  $\mu$ V/d  
Usable stepwidth 0.4  $\mu$ V/d

### Accuracy

5000e class III acc. to EN 45 501;  
OIML R 76 min. verification interval 1.0  $\mu$ V/e;  
Suitable for automatic weighing instruments

### Load cell input

6- or 4-wire  
Load cell supply: 12 V  
Impedance: min. 75 Ohm,  
e.g. 8 load cells with 650 Ohm

### Measuring principle

Ratiometric integrating A/D converter  
Conversion time: 50 ms  
Update: 100 ms to 2 s,  
adjustable in 100 ms steps

### Input signal range

Net range 2.4 mV to 36 mV  
Tare range: 0... 33.6 mV  
(for 100 % maximum capacity)

### Temperature influence

Live zero T<sub>K</sub>: < 0.1  $\mu$ V / K RTI  
Span T<sub>K<sub>span</sub></sub>: < 0.006 %/10 K

### Environmental conditions

#### Temperature range

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

### Electrical safety

According to IEC 1010-1

### Vibration

According to IEC 68-2-6, Test Fc

### Electrostatic discharge

According to IEC 1000-4-2 Level 3

### Supply line

According to IEC 1000-4-4 Level 3

### Electromagnetic fields

According to IEC 1000-4-3 Level 2

### Radio interference

According to EN 55011

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