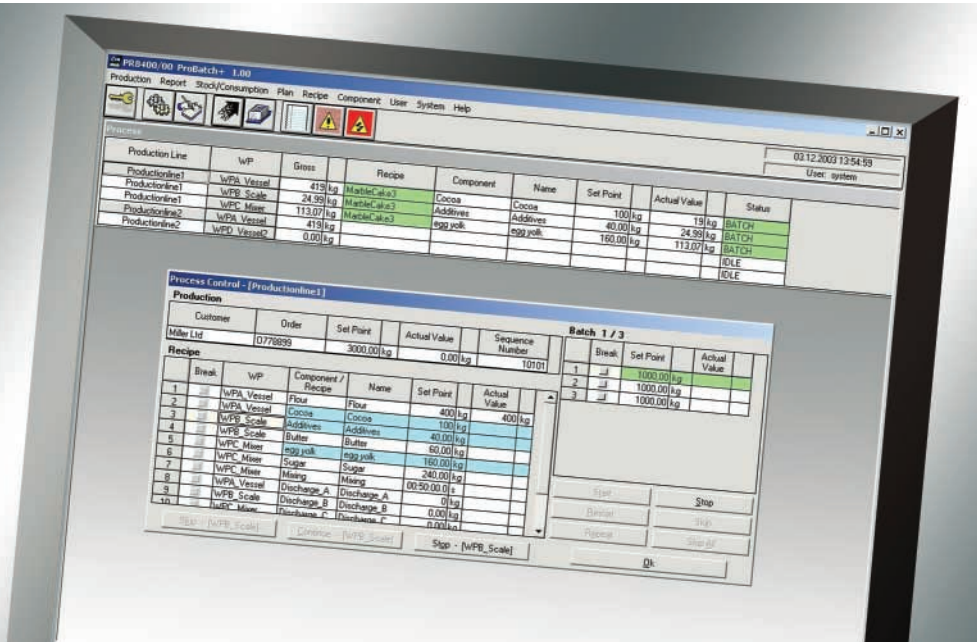




Sartorius ProBatch+ Recipe Management System



- Open batch system for X-Family and other PLC controllers, such as Siemens S7
- Simple, user-friendly operation with clear process information
- Material management with stock monitoring and tracking
- Integrated script language for customer specific process requirements
- Connection of controllers in accordance with Batch Standard ANSI/ISA S88.01 via OPC
- Production and batch reports in addition to consumption quantity lists

The Sartorius ProBatch+ for Windows Recipe and Production Management System is used to carry out batch-oriented production processes.

Product profile

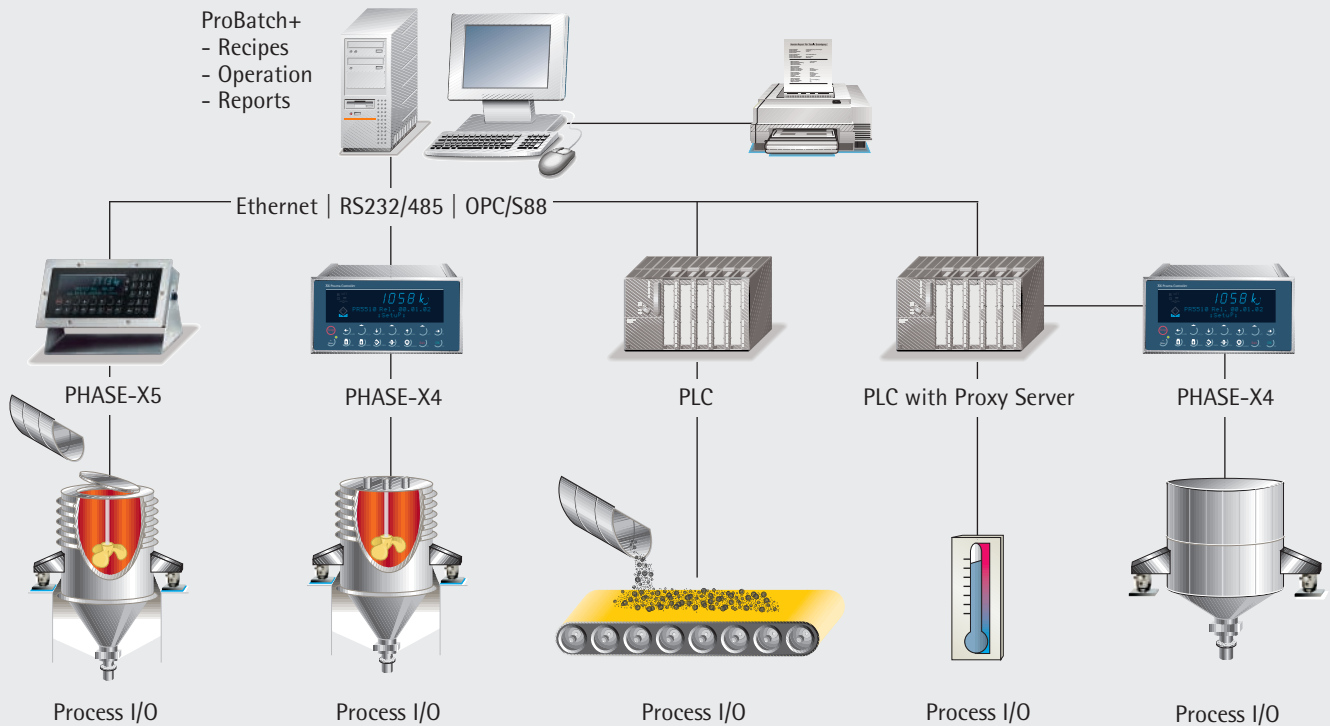
The ProBatch+ recipe and production - management system is powerful software for the operation, supervision and control of batch applications with X-Family and other PLC controllers. ProBatch+ offers the user both efficient management of original raw material and recipe data, based on a database, and a clear presentation of the running process, which enable all batch procedures to be monitored and controlled easily.

Simple applications with just a single automatic balance and also larger process automation tasks with up to 16 production lines operating in parallel and with up to 16 automatic balances can be achieved. All balances run in parallel and can be operated and supervised simultaneously. Thereby the X-Family batch controllers guarantee the highest precision and reliability in the process.

The simple adaptation of batch parameters to variable raw material characteristics, automatic calculation of batch sizes and the optional automatic start from the daily production plan, all enable intelligent and practical process control. Batch processes are optimised and production resources put to optimum use.

The simple operation makes quick training possible and guarantees safe operation. This is strongly supported by the availability of the majority of European languages, which can be changed over during running operation. A security system permits various functions to be locked or made accessible to individual users. Meaningful batch, production and consumption reports are produced automatically. Volume statistics can be called up easily in respect of time, raw material or product.

By consistent use of established standards ProBatch+ is an open structure and permits simple data exchange with process visualisation and other applications. In this way ProBatch+ can also be integrated into larger installations without problem.



System architectures

In ProBatch+ raw materials are managed, recipes created and production runs prepared and started. The operator can observe and control the process centrally. Reports are generated and stored. The recipe steps (phases) are executed in the batch controllers, i.e. the control of the batch valves and other actors and sensors takes place there. Since the batch controllers execute individual phases, or recipe steps, the corresponding X-Family batch controllers are called PHASE controllers, and are available in versions PHASE-X4, PHASE-X5 and PHASE-X6.

Due to the high flexibility of ProBatch+, various automation concepts can be realised. For this purpose, ProBatch+ can be connected to the X-Family controllers and other (PLC) controllers in various ways:

- Direct connection of the X-Family controllers serially or via the Ethernet. Recipe steps are pre-programmed functions of the X-Family controllers.
- Indirect connection via an PLC. The X-Family batch controllers are connected to the PLC via field buses. In this way PLC functions can easily be synchronised with the pre-programmed batch functions of the controllers. The locking of all process I/Os takes place in the PLC.
- Recipe steps can be carried out directly on an PLC.

The ProBatch+ recipe lines can also be carried out in three different ways:

1. Directly in the Sartorius batch controller.
2. In the Sartorius batch controller, controlled by the Siemens S7.
3. Direct in the PLC, e.g. Siemens S7.

A so-called Proxy Server is provided for simple connection to the Siemens S7 controller. The Proxy Server is a programme, which runs on the Siemens S7 and transmits parameter- data from ProBatch+ to the batch controller. The programming work on the S7 is significantly reduced with the Proxy Server.

Combinations of the three variants are also possible: in an installation controllers can be controlled directly or indirectly and recipe steps can be carried out simultaneously on an PLC. In the same way different X-Family batch controllers (PHASE - Controllers) can be connected in one system.

Operators can also start recipes and operate the connected balance directly on the batch controller, in the production field.

Process status display and consumption quantity report

The top-left screenshot shows the 'Process Control' window with a table of production lines and their components:

Productionline	Wp	Gross	Recipe	Component	Name	Setpoint	Actual Value	Status
Productionline1	WPA_Vessel	432.32 kg	Mieble Cake	Floor	Floor	400 kg	287 kg	OK
Productionline1	WFB_Scale	34.43 kg	Mieble Cake	Additives	Addives	40.00 kg	20.41 kg	OK
Productionline1	WPC_Mixer	149.95 kg	Mieble Cake	egg.yolk	egg.yolk	190.00 kg	90.66 kg	OK
Productionline2	WPA_Vessel	432.32 kg						IDLE
Productionline2	WPA_Vessel2	0.00 kg						IDLE

The middle-left screenshot shows the 'Recipe' window with a table of recipe steps and components:

Break	Wp	Component / Recipe	Name	Setpoint	Actual Value
1	WPA_Vessel	Floor	Floor	400 kg	
2	WPA_Vessel	Cococo	Cococo	100 kg	
3	WFB_Scale	Butter	Butter	40.00 kg	
4	WFB_Scale	Butter	Butter	40.00 kg	
5	WPC_Mixer	egg.yolk	egg.yolk	190.00 kg	
6	WPC_Mixer	Sugar	Sugar	240.00 kg	
7	WPC_Mixer	Mixing	Mixing	00:50:00 s	
8	WPA_Vessel	Discharge_A	Discharge_A	0 kg	
9	WFB_Scale	Discharge_B	Discharge_B	0.00 kg	
10	WPC_Mixer	Discharge_C	Discharge_C	0.00 kg	

The right screenshot shows the 'Consumption' window with a table of material consumption over time:

Date	Productionline	Recipe	Component	Consumption
1 27.10.2003	Productionline1	*	Sugar	2678.34 kg
2 28.10.2003	Productionline1	*	Sugar	959.9 kg
3 28.10.2003	Productionline1	*	Sugar	1806.34 kg
4 07.11.2003	Productionline1	*	Sugar	0 kg
5 12.11.2003	Productionline1	*	Sugar	1463.65 kg
6 13.11.2003	Productionline1	*	Sugar	1279.44 kg
7				
8				6198.67 kg

Batch management

ProBatch+ can manage a large number of materials pertaining to a production line. With only a few operator steps, raw material quantities used and recipe quantities produced can be called up. Automatic stock monitoring is included. Material tracking with three freely selectable batch parameters and one data field can be activated optionally. In ProBatch+ recipes are created in the well-known Windows user interface. Batch and special procedure steps, such as mixing, heating, cooling etc. are registered in the recipes. In addition, recipe steps can execute powerful script functions for humidity corrections of specified set points, for synchronisation of process steps or for the display of user dialogues. The script functions make it possible to implement rapid adaptations to new process requirements without the need to carry out expensive programming in the PLC. Data can be processed and stored at the recipe level, production line level and installation level. In addition, sub-recipes and correction recipes, which can be repeated recurrently to optimise product quality, are possible.

With ProBatch+ several batches of a recipe can be executed within one production run. Production plans can be produced for each production line individually and executed both automatically and by user enabling. At any time the user has a clear overview of the entire production and can intervene when necessary. Operating errors are avoided by means of graphic highlighting of currently permitted commands.

The current process status is constantly indicated for each balance and each production line. This includes gross weights, orders, current recipes and components with specified and actual values, and the status of the batch controllers. Alarms and system messages are each highlighted in colour and gathered in a separate list window.

At the end of every recipe run ProBatch+ generates batch and production reports. Material management makes available reports on consumption, production quantities and stock levels. All reports can be adapted to customer requirements, since they are generated using the Crystal Report Generator. By means of an integrated security system users with different access rights can be logged on. This prevents operator error and avoids unnecessary batch faults.

The clear and user-friendly operator interface is supported by the incorporation as standard of almost every European language (see below). All texts can be adapted to location or installation specific conditions. The languages can be changed during operation. In this way ProBatch+ is applicable globally and is quick to learn. A detailed Help function is integrated and is available in English and German.

Technical data

ProBatch+ controls...

- Maximum 16 batch controllers
- Maximum 16 parallel running real and logic balances
- Maximum 16 production lines
- One PHASE controller normally controls 1 balance but can control up to 2 balances (1x internal / 1x external)
Exception: Only 1 balance can be controlled via Interbus S, and with the PHASE-X4 in general.
- Max. 9999 recipes per production line
- Max. 9999 components per production line
- 30/20 place recipe name / ID
- 30/20 place component name / ID
- 3 x 30 character + Date for raw material batch identification
- MS ACCESS database with data security also in ZIP files

Production start modes

- Start direct on the controller
- Start single production
- Start number of batches
- Start production quantity with automatic calculation of batch quantities
- Start in accordance with % details

Production plans

- Each production line
- For various shifts, days, customers, etc.
- Execute production plan manually or automatically

User access rights

Access rights for the following areas:

- Production
- Production planning
- Recipe production
- Report access
- Production data security
- System functions

Reports

- Batch report
- Production report
- Consumption quantities
- Stock
- Pro-duction quantities, recipe related
- Alarms
- Messages
- Generating of Reports with Crystal Reports from Seagate
- Printing...
- Automatically at the end of a production run / batch
- On request by the operator

Languages

- English, English (USA)
- German
- French, Italian
- Spanish, Dutch
- Swedish, Danish, Finnish
- Specific "customer language"
- Online Help in English and German

Attention: X-Family controllers are supplied with the English and German languages. However, all operator texts can be translated into other languages using the "Translatelt" tool.

Standard interfaces

- Serial RS232, RS485
- Ethernet TCP / IP
- Batch standard: S88
- Database interfaces: ODBC / SQL
- Dynamic data exchange with other Windows programs: OPC / DDE
- PC-PLC-Link for Siemens S7-300/400, Phoenix RFC430
For further PLC on request:
Allen Bradley in future
- PLC connections/field buses: Profibus, Interbus, DeviceNet, CC-Link, Modbus

Minimum PC requirements

- WindowsXP with SP1:
- Pentium III, 700MHz
- 256MB RAM
- 10GB hard disk
- USB Port for Hardware Key
- SVGA-Graphics: Resolution of 1024 x 768
- Serial or
- Ethernet interface
- UPS with PC Interface to prevent data losses due to power failure
- ProBatch+ and the OPC Server run on the same PC
- One ProBatch+ installation is possible per computer

Order information

Type	Description	Order number
PR8400/00	Sartorius ProBatch+ for Windows (CD ROM and Manuals)	9405 384 00001
PR8400/11	Sartorius ProBatch+ Basis Licence for 4 balance points (Hardware Key, Dongle)	9405 384 00111
PR8400/12	Sartorius ProBatch+ Upgrade Licence from 4 to max. 8 weighing points (Supplementary licence for Dongle)	9405 384 00121
PR8400/13	Sartorius ProBatch+ Upgrade Licence from 8 to max. 12 weighing points (Supplementary licence for Dongle)	9405 384 00131
PR8400/14	Sartorius ProBatch+ Upgrade Licence from 12 to max. 16 weighing points (Supplementary licence for Dongle)	9405 384 00141
PR8400/21	Sartorius ProBatch+ Production Plan + Stock Management Licence (Option)	9405 384 00211
PR8400/31	Sartorius ProBatch+ DDE – Interface Licence (Option)	9405 384 00311
PR8400/41	Sartorius ProBatch+ Remote Control Licence (Option)	9405 384 00411