



## FILL-X5 System Controller



- Programmable logic System Controller for filling applications with fluids (according to IEC 61131).
- Approval as a EC type Weighing Controller for non automatic scales class III, 5000e
- Options
  - Ethernet
  - Field bus-cards: Profibus DP, DeviceNet, Interbus-S
  - Serial Interfaces
  - Analogue inputs and outputs
  - Digital inputs and outputs
- Easy integration into automation structures
- Lance control with 3 selectable filling position modes

FILL-X5 is a System Controller for manual and automatic filling of drums and containers with fluids. Operator interface, the control of the filling process and additional control functions are combined in a single compact unit.

The device is designed for the handling of all current container and drums. It contains a powerful and reliable controller and a very easy to understand and comfortable operator interface.

### Benefits

- Integrated direct control of valves and feeders
- Convenient material database
- Lance control in 3 positions
- Material balancing and reporting

Various options for interfaces allow an optimal integration of Fill-X5 into all modern automation environments.

Communication via:

- Serial RS232/485
- Ethernet
- Interbus S
- DeviceNET
- Profibus DP

The design and the multifunctional stainless steel housing with a high class of protection (IP 65) allows the use as desktop, wall or panel mounted device. The large and full in contrast seven digit weight display (with the associated unit and the status symbols) guarantees good readability even under difficult conditions.

In addition to that 2 lines for text with 20 characters each are provided. Under those lines are function keys, which guide the operator through the application. Via the alphanumeric keypad numbers and text can be entered or edited. The standard controller has an interface for an external PC keyboard which allows the entry of data in a comfortable way.

### По вопросам продаж и поддержки обращайтесь:

Астана+7(7172)727-132, Волгоград(844)278-03-48, Воронеж(473)204-51-73, Екатеринбург(343)384-55-89,  
Казань(843)206-01-48, Краснодар(861)203-40-90, Красноярск(391)204-63-61, Москва(495)268-04-70,  
Нижний Новгород(831)429-08-12, Новосибирск(383)227-86-73, Ростов-на-Дону(863)308-18-15, Самара(846)206-03-16,  
Санкт-Петербург(812)309-46-40, Саратов(845)249-38-78, Уфа(347)229-48-12

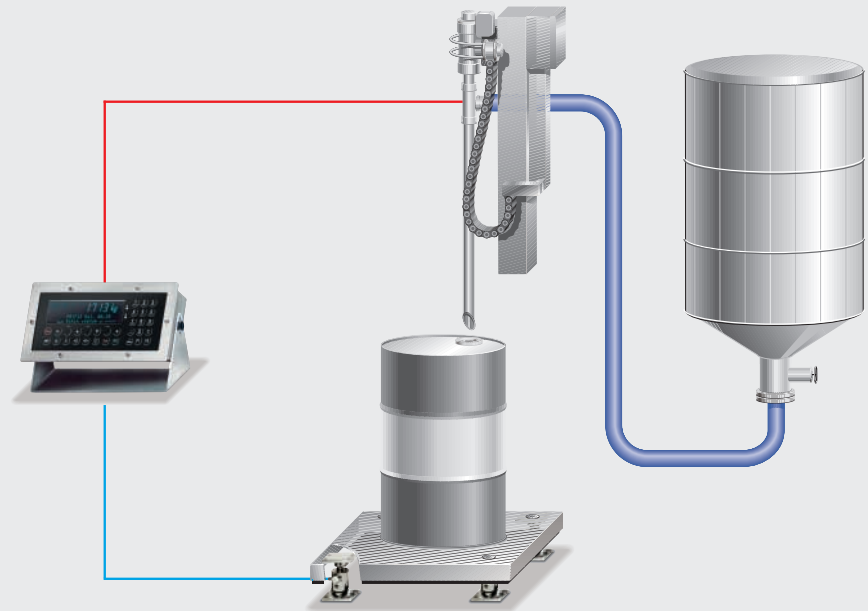
**sst@nt-rt.ru || sartorius.nt-rt.ru**

## Material Parameter

Material table  
New # Edit # Delete

2002.11.31 13:47:32

Name of material	Azucar - 200
Number of material	2345678901
Pre set point	20.0 kg
Overshoot	15.0 kg
Tolerance +	2.5 kg
Tolerance -	2.5 kg
Minimum flow	1 kg
Calming time	3s
Restart mode	3
Filling mode	top position
Start level tracking	1.5 kg



### Operation

Fill-X5 is designed to allow the filling of drums with fluids on a scale. First, the material, the material name and number are recorded in the material database. The parameters are defined according to the properties of the material and the chosen container. Those parameters are stored in an internal database. As a result the data are available at all times.

In addition to the filling parameter, such as - pre set point, overshoot, tolerance, min. flow, calming time and restart mode - the material parameters also include the parameters for lance control, such as the filling mode. These are the positioning of the lance and the weight for starting level tracking, at which the lance is removed to its starting point.

In order to start the process the operator can select the material by entering the material name or number. With the help of a supervisory PLC the process can be started by remote control (communication via field bus, digital input or serial line).

The process is started after entry of the desired filling weight.

Fill-X5 checks before every start that the container is in the correct position.

According to the adjustment the lance is moved to the correct position and the filling starts. After the filling a signal indicates that the process is finished.

The integrated PLC allows the control of the complete plant or is ideal for the realization of the procedures as a subsidiary electronic.

### Lance control

The filling is realized by a motor controlled lance, which can be immersed into the fluid in the container. The lance provides three different positions to fill the material into the container

- 1) „Top“: The lance fills the container from its top position.
- 2) „Normal“: The lance lowers to a predefined position (for example under the bung hole of the drum).
- 3) „under fluid level“: In case of foaming material the lance stays under the fluid level. The lance is moved to the bottom of the drum and it is slowly lifted during the filling.

## Examples

```
Fill Controller
Start #Setup #ATest
```

```
+Fillmode      †
$Top position  $
```

## E/A configuration

### Function of the inputs

lance is up, lance is at the height of the bunghole,  
lance is down, start / restart, stop,

### Function of the outputs

lance fast upwards, lance slowly upwards, lance fast  
downwards, AD converter error / tolerance alarm/no  
material flow, lance touch-down, Grobstromsignal,  
Feinstromsignal, Produktion aktiv

## X5-PowerTools e. g. DisplayIt



## Format 2:

```
2002-11-30-11:06:59 #27  Gross: A <0687.5 kg>
```

## Format 1:

Report of production	
Date	2002.11.31
Time	14:22:58
Name of product	Oel501
Number of product	12998
Nominal value	50.0 kg
Actual value	50.0 kg
Number of sequence	123
Error status	-----



## Label

(designed with the  
help of LayoutIt  
and NiceLabel  
Express)

## I/O configuration

The configuration of the inputs and outputs  
is predefined.

## Option card

4 slots for option cards are available.  
Slot 1-3 are for digital and serial interface  
cards. The FILL-X5 slot 1 is already equipped  
with a digital 8 inputs and 6 outputs card.  
Slot 4 is for Ethernet and fieldbus card.

## High flexibility

The FILL-X5 provides high flexibility.

### 1. Free programmability

In case the customer asked for some  
adaptations of the FILL-X5 to the own  
process the free programming possibility  
does fulfill every requirement. The customer  
can modify the program himself or it can  
also be done by Sartorius

### 2. X5-PowerTools

X5-PowerTools are a collection of powerful  
PC programs. They are of great help in  
getting the most out of the X5 System  
Controller: FlashIt, DisplayIt, TranslatIt,  
LayoutIt, RecoverIt and AccessIt.

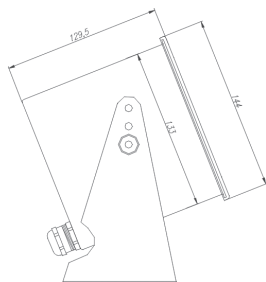
### 3. Housing 19"

The FILL-X5 is also available in a 19" housing  
(FILL-X6).

## Print out

Two different print outs are already included  
in the application as shown above) as  
predefined reports. The print outs can be  
adjusted to the needed requirements. There  
are two different possibilities:

1. With the help of the programming tool  
PR 1750NT the predefined formats can be  
adjusted.
2. With the help of the program NiceLabel-  
Express (NLE) the printouts can be  
designed freely on a PC. The format can be  
saved on the PC and afterwards filled with  
the variables for the printout.



**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 5610/50	FILL-X5 230 V	9405 156 10501
PR 5610/51	FILL-X5 24 V <sub>AC/DC</sub>	9405 156 10511
PR 5610/52	FILL-X5 Ex-Zone 2/22 (230 V)	9405 156 10521
PR 5610/53	FILL-X5 Ex-Zone 2/22 (24 V)	9405 156 10531

**Options**

PR 1713/05	RAM Memory Extension 1MB	9405 317 13051
PR 1799/99	W&M Approval Labels (1 set)	9405 317 99991 add. SW required
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

			SLOT	1	2	3	4
PR 1713/04	Serial interface card (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 Opout: 31 V, 25 mA	9405 317 13121					
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, 1A	9405 317 13151					
PR 1713/17	Digital 6 In- / 8 Output, Opto/Opto Opout: 31 V, 25m A	9405 317 13171		x			
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

**Interface**

Bi-directional serial interface RS 232; user selectable protocols: Remote Display, Printer XON, Jbus, ModBus, Dust 3964R, XBPI

**Accuracy**

5000e class III acc. to EN 45 501;  
OIML R 76 min. verification interval 1.0 µV/e;  
suitable for automatic weighing instruments

**Linearity**

< 0.007 %

**Resolution**

Max. 330,000 div. (internal) ± 0.11 µV/d  
Usable stepwidth 0.4 µV/d

**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  
4-pole digital filter 0.1 to 5 Hz

**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 µV / K RTI  
Span T<sub>K,spn</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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