



# FILL-X4

## Process 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, 6000e
- 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-X4 is a Process 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-X4 into all modern automation environments.

Communication via:

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

The design with the standard dimensions allows the ideal use as 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.

### PowerTools (Option)

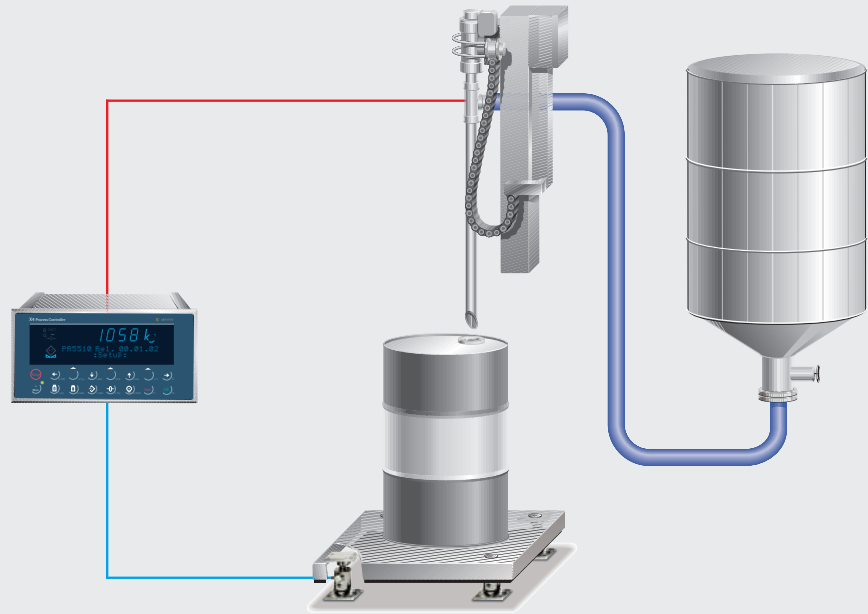
- FlashIt for download of programs
- LayoutIt driver for NiceLabelExpress for designing and printing of labels
- DisplayIt gets your FILL-X4 on the screen of your PC
- TranslatIt for editing of language tables
- RecoverIt saves the complete configuration data on your PC
- AccessIt for working with databases of the controllers and loading into the PC

## 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	20.0kg
Overshoot	15.0kg
Tolerance +	2.5kg
Tolerance -	2.5kg
Minimum flow	1kg
Calming time	3s
Restart mode	3
Filling mode	top position
Start level tracking	1.5kg



## Operation

Fill-X4 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-X4 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, coarse signal,  
fine signal, production activ

## 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	50.0kg
Actual value	50.0kg
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-X4 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-X4 provides high flexibility.

### 1. Free programmability

In case the customer asked for some adaptations of the FILL-X4 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. PowerTools

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

### 3. Housing 19"

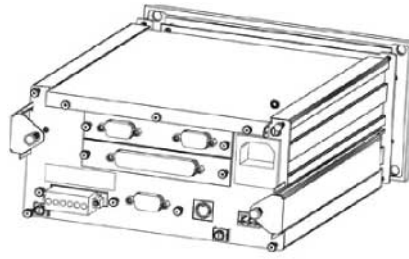
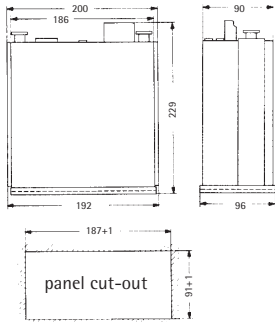
The FILL-X4 is also in a stainless steel housing (FILL-X5) and in a 19" housing as FILL-X6 available.

## 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.

## Technical Data FILL-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 number	SLOT	1	2	3	4
PR5510/50	FILL-X4 230V	9405 155 10501					
<b>Pluggable Options Cards</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
<b>Further Options</b>							
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>DC</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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