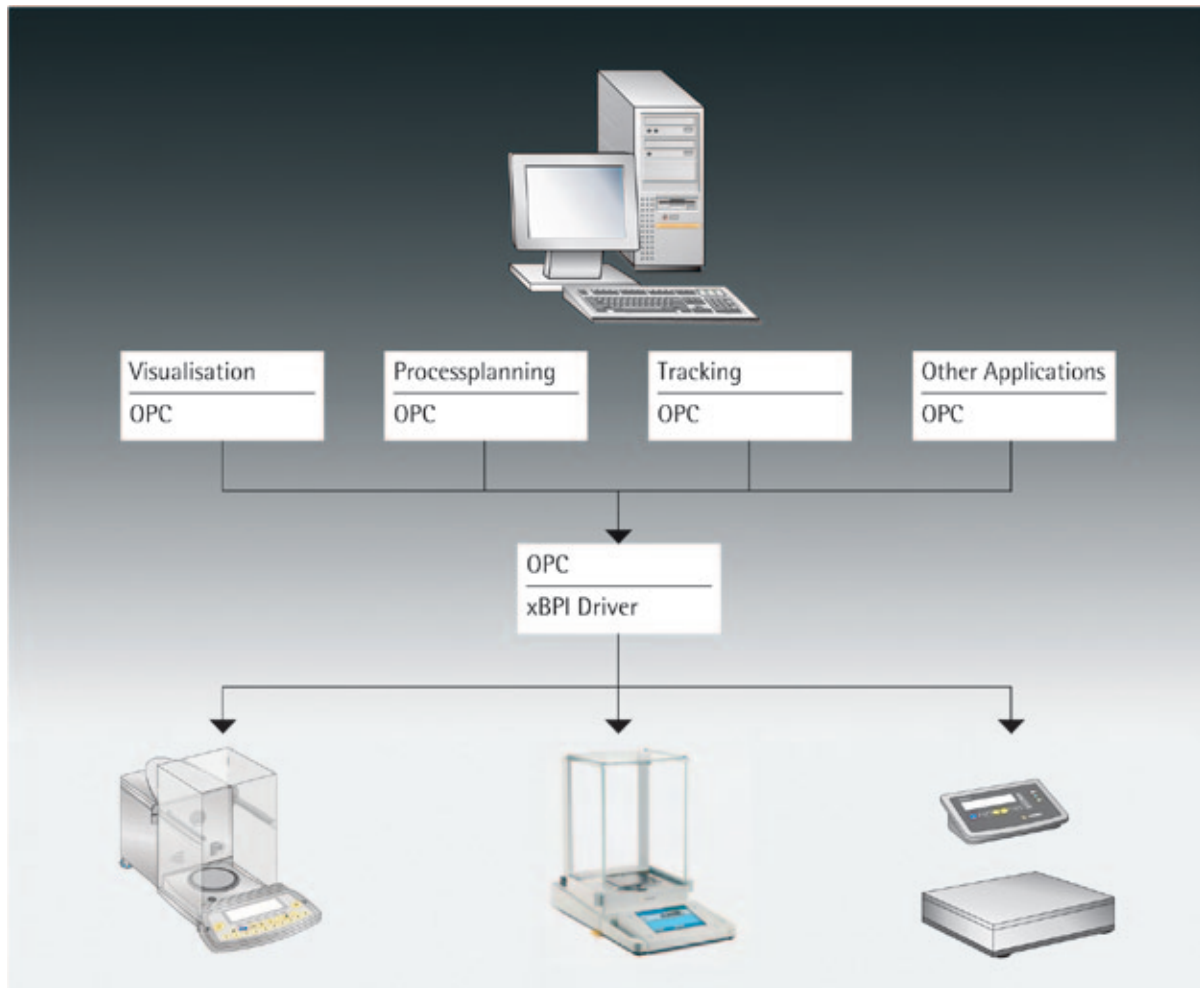


Operating Instructions

Sartorius OPC Server (62890PC, 62890PC-L)

Software for Sartorius Scales

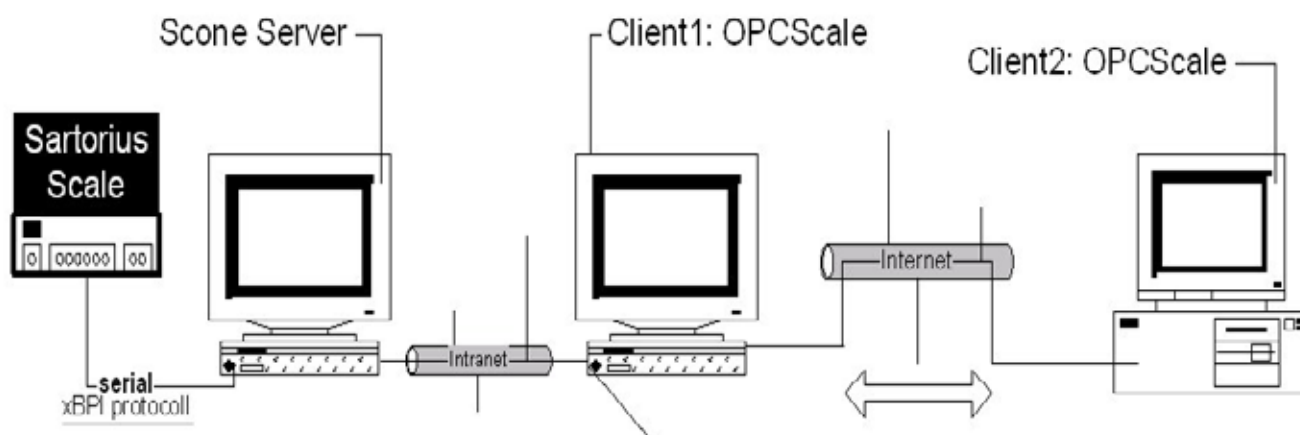


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1 Intended Use

The Sartorius OPC Server is a communications driver. It is used to input and save data from Sartorius scales according to the OPCDA and OPCXMLDA standards. Up to 10 devices can be configured over the serial interfaces of the scales. Up to three devices can be processed simultaneously. Sartorius scales must be configured in XBPI or SBI mode. We will only provide a brief description of the PC installation and deinstallation process using Windows®.



1.1 Legal Information

The software and the operating instructions are copyrighted and may not be copied or altered without express consent. The end user license agreement (EULA) is in effect for the software. Its conditions must be accepted upon installation of the software. The license holder may make a printout of these operating instructions for his own use; however, it may not be passed on to third parties.

Sartorius is not responsible for the effect that the installation or use of this software may have on the function of programs already installed. Sartorius constantly enhances, improves, upgrades and carries out requirement customizations to this software. The use of updated software versions does not indicate that previous versions may have been defective. All handling instructions described in these operating instructions are for demonstration purposes only and may not apply in some cases to the specific application.

Windows® 2000, Windows® XP, MS Windows® XP Vista 7 and Server 2003/2008 are registered trademarks of Microsoft Inc.

The installed demo program is valid for 30 days. No “license error” message will appear if the license release is obtained from Sartorius AG within this time period.

1.2 OPC Server Properties

The Sartorius SCONE OPC XBPI Server has the following properties:

DCOM Object: Name Sartorius SCONE OPC XBPI Server
 ProclD Sartorius.SconeOPCDriver.DA
 ClassID {551C9B34-3BB4-4D37-BA3B-965B925E88A8}

Windows Service: Service name Sartorius.SconeOPCDriver
 Display name Sartorius SCONE OPC XBPI Server

1.3 Supported OPC Specifications

The following specifications are supported by the Sartorius SCONE OPC XBPI Server:

- OPC Data Access Specification Version 1.0A
- OPC Data Access Specification Version 2.05
- OPC Data Access Specification Version 3.00
- OPC XML Data Access Specification Version 1.00

1.4 Supported Operating Systems

The Sartorius SCONE OPC XBPI Server can be run on the following operating systems:

- Windows XP
- Windows Vista
- Windows 7
- Windows Server 2003
- Windows Server 2008

1.5 Availability and Resource Blocking

Start option	Availability of OPC DA	Availability of OPC XML-DA	Blocking of resources
Service (manual) (Started with an OPC DA request)	After boot-up	After the first OPC DA request or after a manual start of the service	Permanent once the OPC Server has been started manually or through an OPC DA request
Service (automatic) (Always started)	After boot-up	After boot-up	Permanent
Outproc application (Started with an OPC DA request)	After log-in	After log-in	Temporary
Outproc application in auto-start (Always started)	After log-in	After log-in	Permanent

2 Software Installation

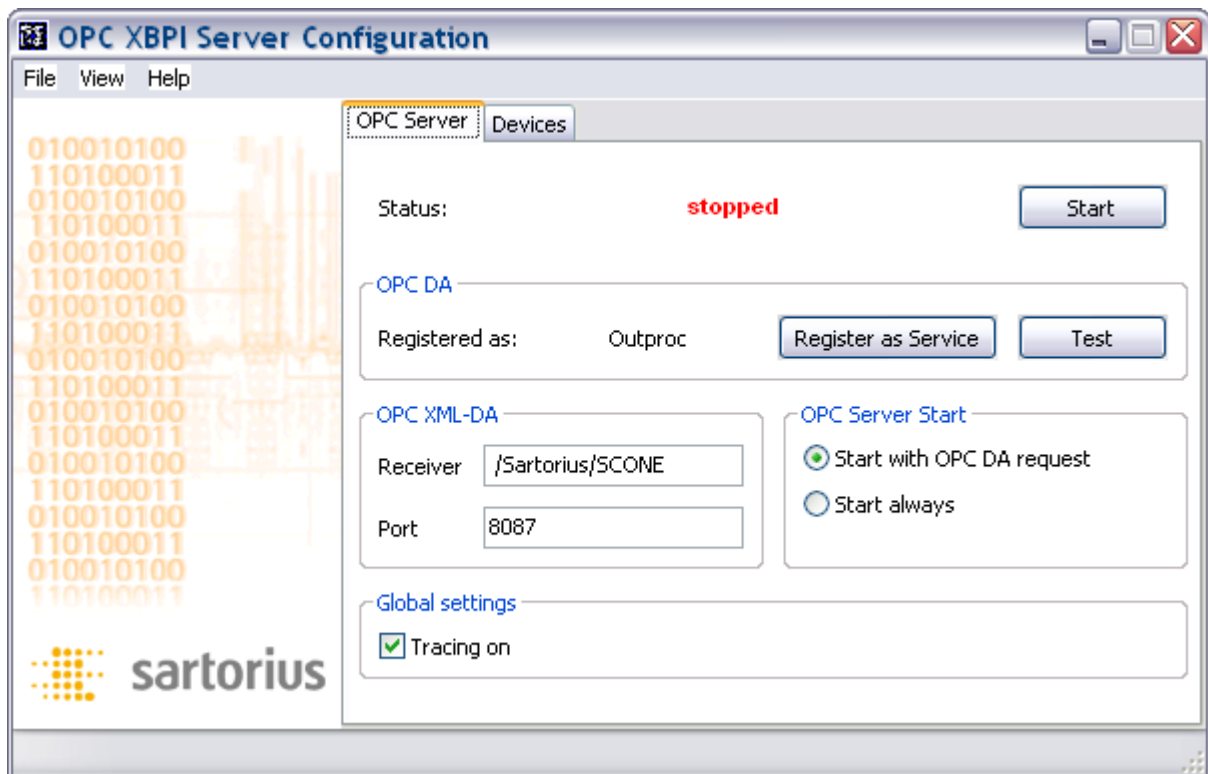
To install the Sartorius SCONE OPC XBPI Server, the installation file must be run with administrator rights. The following decisions must be taken during the installation:

- **License Agreement**
Acceptance of the license agreement
- **Installation Options**
Choose whether the OPC Server is installed as an Outproc application or a Windows service.
- **Target Folder**
Select folder where the OPC Server should be installed.

3 OPC XBPI Server Configuration

Once all settings are defined, you must reboot the OPC Server for the settings to take effect.

3.1 "OPC Server" Tab



Status

Displays whether the OPC Server is currently running. The "Start/Stop" button is used to manually start or stop the OPC Server.

OPC DA: - Registered as

Displays what the OPC Server is registered as. The "Register as Service/Outproc" button is used to register the OPC Server either as an Outproc application or a Windows service. The "Test" button is used to test the accessibility of the OPC-DA Server.

OPC XML-DA – Receiver and Port

Address and port of the OPC XML-DA Server. The portal address must be unique to the PC on which the OPC XML DA server is running. In this example, the OPC XML DA Server can be reached via the following URL:

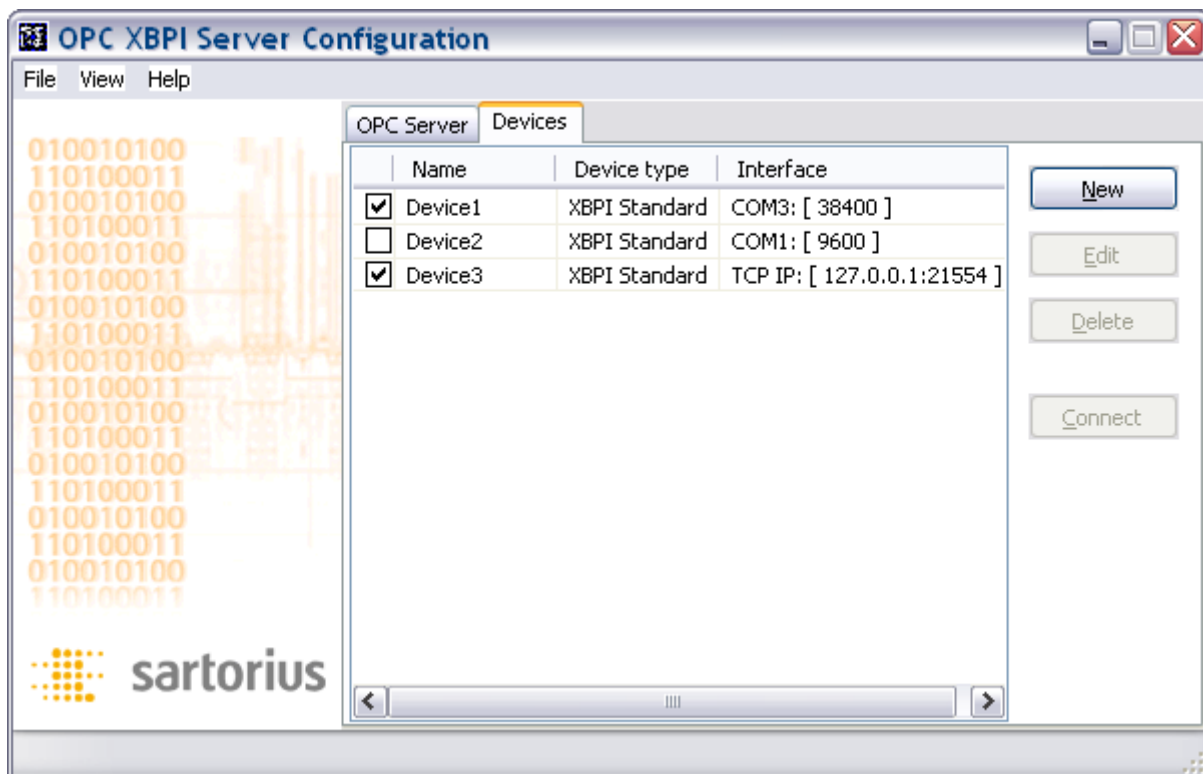
<http://localhost:8087/Sartorius/SCONE>

The OPC XML DA Server can only be accessed when the OPC Server is running.

Starting the OPC Server

	Starting with an OPC DA request	Always started
Outproc application	The OPC Server can be accessed once a user has logged on. The OPC server is started with the first client query. The OPC Server stops running once the last client has shut down.	The OPC Server starts once a user has logged on.
Service	The OPC DA Server can be accessed after boot-up. The OPC server is started with the first client query and can only be shut down manually.	The OPC Server will start automatically after booting.

3.2 "Devices" Tab



All devices that have already been configured are listed here. Device that are marked with ☒ are activated and can be accessed from an OPC client. Furthermore new devices can be created and existing devices can be edited or deleted.

4 Definition of the Process Variables

4.1 "Weight" Group Process Variables

All sub-groups of the "Weight" group contain the following process variables:

Name	Type	Meaning
Weight.*.Display	String	SMA compatible display character string (see below)
Weight.*.SBIDisplay	String	Scale display string according to SBI convention
Weight.*.Value	Double	Net weight in the current unit
Weight.*.Decimals	Integer	Number of decimal places
Weight.*.Interval	Integer	Interval of last decimal places (1, 2, 5, 10, 20, 50, ...) Set to 0 when no interval is available.
Weight.*.Unit	String	Unit character string (e.g. "g," "kg," ...)
Weight.*.Header	Integer	Info on weight type: 0 = special display 1 = cal target value 2 = cal delta 3 = gross 4 = net==gross 5 = net 6 = net 1 7 = net 2 8 = tare 9 = repl. tare 1 10 = preset tare 1
Weight.*.Range	Integer	Sensitivity/resolution area (1..3), 1 for individual area scale
Weight.*.FlagVerified	Integer	Integer info for verification scale interval: 0 = not verified 1 = verified value 2 = user-entered value 3 = value unavailable
Weight.*.FlagSign	Integer	Info for signs: 0 = is zero (1/4 d) 1 = negative value 2 = positive value 3 = shortfall 4 = excess
Weight.*.FlagStandStill	Integer	Info on stability: 0 = unstable 1 = stable 2 = super stable
Weight.*.TimeStamp	Integer	Scale time stamp (0 to 255)

4.1.1 Sub-Groups of the "Weight" Group

Name	Type	Meaning
Weight.Net.*		Net weight
Weight.NetHighRes.*		Net weight with high resolution (precision increased by 100, however not exact and stable)
Weight.NetStable.*		Only stable net values
Weight.Gross.*		Gross values
Weight.Tare1.*		Tare1 values
Weight.Tare2.*		Tare2 values

4.2 "Status" Group Process Variables

The process variables in the "Status" sub-group can change with every measurement cycle.

Status.FlagApprovedWeight	Integer	Info on signs: 0 = not verified 1 = verified
Status.ErrorCode	Integer	Error code from the scale: 0 = no error
Status.ErrorString	Integer	Descriptive error character string "" = no error
Status.LastErrorCode	String	Most recent error code from the scale; must be manually deleted.
Status.DeviceStat	Integer	Device status: 0 = standby 1 = init 2 = weighing operation
Status.PowerFail	Integer	Info on power failure: 0 = running 1 = power failure or fatal scale error – reset flag so that Status.PowerFail is set to 0. When the OPC Server is started, the flag is "1" until it is set to "0."
Status.FlagActive	Integer	Status of active command 0 = no command active 1 = command execution active
Status.AdjustmentStatus	Integer	Integer Status of the adjustment: 0 = adjustment not active 1 = adjustment active
Status.DisplayDifferences	Integer	Status of the display difference: 0 = display difference not active 1 = display difference active

4.3 "Info" Group Process Variables

The variables in the "Info" group are not changed during operation of the scale.

Info.Ranges	Integer	Range quantity
Info.Range1.Min	Double	Min. weight range 1
Info.Range1.Max	Double	Max. weight range 1
Info.Range1.e	Double	Confirmed sensitivity range 1
Info.Range1.d	Double	Sensitivity range 1 for display
Info.Range1.MarkedDigits	Integer	Quantity of marked (not confirmed) digits range 1
Info.Range2.*		Same as range 1
Info.Range3.*		Same as range 1
Info.Range4.*		Same as range 1
Info.Manufacturer	String	Name of manufacturer
Info.SerNo	String	Scale serial number
Info.Model	String	Scale model name
Info.Version	String	Scale firmware version

4.4 "Cmd" Group Process Variables

"Cmd" group process variables can be used to send commands to the scale. To execute a command, a specific value must be written to the corresponding process variable. If the OPC server receives this command, the written value can be read with the quality set to BAD until the scale accepts the command. This usually takes just a few milliseconds. After the scale has accepted the command, the written value is deleted and the quality reverts to GOOD. The reading makes it possible to determine whether the command is still being processed by the scale.

4.4.1 Tare/Zero Commands

The scale has two tare memories. The content of both memories is subtracted from the gross value to get the net value. $Net = Gross - Tare\ 1 - Tare\ 2$. The content of both tare memories can be read using the process variables WeightTare1.Value and WeightTare2.Value. The scale operator can change the content via the keyboard or by using the process variables in the "Cmd" group.

Cmd.Tare	String	Taring: 0 = stop tare command 1 = start Tare1 (not possible when the gross value is negative or Tare2 is being used) 2 = start Tare2 (not possible when the net value is negative) 3 = start Zero/Tare combo (always possible, but a Zero command is initiated when the gross value is in the zero range (normally 2 % of the max. weight))
Cmd.TareStable	String	Parameters as by Cmd.Tare only with stability. (If the command from the scale is accepted but cannot yet be carried out, Status.FlagActive is set to "1".)

Cmd.Zero	String	Zeroing: 0 = stop Zero 1 = start Zero (deletes Tare1 and Tare2 and sets gross and net weight to 0.0) This command can only be executed within the zero range (2 % of max. weight).
Cmd.ZeroStable	String	Parameters as by Cmd.Zero only with stability. (If the command from the scale is accepted but cannot yet be carried out, Status.FlagActive is set to "1".)
Cmd.SetTare2	String	Writes the required value to this element, e.g.: 100.23 – when "0" is transferred, this tare memory is deleted.
Cmd.ClearTare	String	Delete tare memory: 0 = delete Tare1 (not possible when Tare2 is being used) 1 = delete Tare2

4.4.2 Calibration Commands

It is possible to determine if a calibration command is still being processed using the AdjustmentStatus reading.

Cmd.DefCal	Integer	Default calibration: 0 = cancel default calibration 1 = start default calibration
Cmd.Cal	Integer	Calibration: 0 = cancel calibration 1 = start calibration with default weight 2 = start calibration with automatic weight detection 3 = start calibration with user weight 4 = start calibration with internal weight 5 = start linearization with default weight 6 = start linearization with user weight 7 = set preload 8 = delete preload 9 = manual adjustment weight saving
Cmd.ConfirmCal	Integer	Adjustment weight saving: 1 = apply weight

4.4.3 Other Commands

Cmd.SetAmbientConditions	Integer	Set scale installation location: 0 = very stable 1 = stable 2 = unstable 3 = very unstable
Cmd.KeyboardLock	Integer	Lock keys: 0 = release keys 1 = lock keys Not possible with every scale
Cmd.Restart	Integer	Restart scale: 0 = restart scale

4.5 "DraftShield" Group Process Variables

Only available for XBPI devices.

4.5.1 Draft Shield Status

DraftShield.Status.MotorActive	Integer	Motor activity: 0 = on 1 = off
DraftShield.Status.DoorLeft	Integer	Left door: 0 = closed 1 = open
DraftShield.Status.DoorTop	Integer	Top door: 0 = closed 1 = open
DraftShield.Status.Door-Right	Integer	Right door: 0 = closed 1 = open
DraftShield.Status.Error	Integer	Draft shield error
DraftShield.Status.Manual	Integer	Manual intervention: 0 = no intervention 1 = manual intervention
DraftShield.Status.IonActive	Integer	Ionizer activity: 0 = off 1 = on

4.5.2 Draft Shield Command

DraftShield.Cmd.Open	Integer	Opening the door: 1 = left door 2 = top door 3 = right and top door 4 = right door 5 = right and left door 6 = right and top door 7 = all doors
DraftShield.Cmd.Close	Integer	Closing the door: 1 = left door 2 = top door 3 = right and top door 4 = right door 5 = right and left door 6 = right and top door 7 = all doors
DraftShield.Cmd.Ionizer	Integer	Activating/deactivating the ionizer: 0 = deactivate 1 = activate
DraftShield.Cmd.Key	Integer	Draft shield button: 1 = left draft shield button 2 = right draft shield button

4.6 "Mem" Group Process Variables

The process variables in the "Mem" sub-group are used as a memory for reading and writing by OPC client applications. To change the name and data type of a "Mem" process variable or to create new ones, the typecfg.xml file in the installation folder must be edited.

Example:

```
<item ID="Mem.MyValues.MyIntValue"    datatype = "int" scaleCommand=""/>
<item ID="Mem.MyValues.MyRealValue"   datatype = "double" scaleCommand=""/>
<item ID="Mem.MyValues.MyStringValue" datatype = "string" scaleCommand=""/>
```

4.7 Definition of SMA Display Character String

All variables from the “Display” type in the “Weight” group send back a character string with a constant length using the following format description:

<s>	<r>	<n>	<m>	<f>	<xxxxxx.xxx>	<uuu>
<s>						Definition of scale status/example: 'Z' Center of Zero (zero range) <xxxxxx.xxx>= 0.000 'O' Over Capacity (overload) <xxxxxx.xxx>= +weight (surplus weight) 'U' Under Capacity (underweight) <xxxxxx.xxx>= -weight (not enough weight) 'E' Error (error is deleted when condition ceases) 'I' Initial Zero Error (error at initialization; this error remains until error condition ceases) 'T' Tare Error (tare error is deleted after being read) <space> Space, none of the preceding conditions Note: for error conditions “E,” “I” and “T”, <xxxxxx.xxx>= ----- (middle lines) and “Z,” “O” and “U” will be overwritten.
<r>						Range (“1,” “2,” “3,” etc.) always “1” for individual range scales
<n>						Gross/net status 'G' Gross normal weight 'T' Tare weight 'N' Net normal weight 'g' Gross weight in high-resolution 'n' Net weight in high-resolution
<m>						Motion status 'M' Scale in motion <space> Scale not in motion
<f>						Future (reserved for future or user-defined use with regard to the SMA standard): 'a' if the process variable is Tare2 'b' if the process variable is Tare3
<xxxxxx.xxx>						Weight data – this field is limited to 10 characters
<uuu>						Unit of measure. Examples: <_> <1> <G> <_> <_> <_> <_> <_> <_> <_> 5.025> <lb_> <_> <1> <N> <_> <_> <_> <_> <_> <_> <_> 100000> <lb_> <_> <1> <g> <_> <_> <_> <_> <_> <_> <_> 5.0025> <lb_> <Z> <1> <G> <_> <_> <_> <_> <_> <_> <_> 0.000> <lb_> <_> <1> <G> <_> <_> <_> <_> <_> <_> <_> 7.025> <kg_> <_> <1> <G> <M> <_> <_> <_> <_> <_> <_> 7.650> <kg_> <_> <1> <G> <_> <_> <_> <_> <_> <_> <_> 7.650> <kg_>

4.8 Process Variables for the SBI Standard Device Type

With SBPI standard device types
only the following process variables are supplied:

Weight.Net.Display
Weight.Net.SBIDisplay
Weight.Net.Value
Weight.Net.Decimals
Weight.Net.Unit
Weight.Net.Header
Weight.Net.FlagSign
Weight.Net.FlagStandStill
Weight.NetStable.*
Status.Error Code
Status.Error String
Status.DeviceStart
Status.PowerFail
Info.SerNo
Info.Model
Cmd.Tare
Cmd.TareStable
Cmd.SetAmbientConditions
Cmd.Restart
Cmd.KeyboardLock

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Status:
February 2011, Sartorius AG
Goettingen