SIEMENS

Desigo™
Desigo Touch and Web
Installation and commissioning instructions

Building Technologies

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Desigo Touch and Web
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CM111029en_04
2014-08-15

0 About this document

0.1 Revision history

Version	Date	Changes	Section	Pages
1	01.07.2012	New document	—	—
2	2014-01-01	IT Security FW update (panels) Factory settings	1.2 2.7.2 2.8	9 21-22 22

0.2 Referenced documents

Ref.	Document title	Document type	Document no.
[1]	PXM40	Data sheet	CM1N9292
[2]	PXM50	Data sheet	CM1N9293
[3]	PXG3.W100	Data sheet	CM1N9294
[4]	Desigo Touch and Web	User's guide	CM111028
[5]	Desigo Xworks Plus	Online help (chm)	CM111006
[6]	Workflow overview XWP V5	Engineering guide	CM111000
[7]	Desigo PX automation and control system, mounting and installation guide	Mounting and installation manual	CA110396

0.3 Before you start

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Microsoft …	Microsoft Corporation siehe http://www.microsoft.com/trademarks/t-mark/nopermit.htm
Windows …	Microsoft Corporation
Windows XP[®] Windows 7[®]	Microsoft Corporation

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0.3.4 Document use/ request to the reader

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0.3.5 Document validity

This document applies to Desigo systems satisfying operation as listed in Section 2.3 – Supported browsers. It discusses the following topics in addition to administrative information:
- Brief introduction (availability of web interface, customization of views and functions).
- The topology as a context of the touch panels.
- Prerequisites of commissioning.
- Commissioning of the touch panels.
- Setting options for brightness, language, time format, date format, keypad, auto logout, change location, change network/server settings.
- System (compatibility, standard clients, browser compatibility, system limits, and further technical issues.

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Other documents describe:
- Engineering of **web interface** (PXG3.W100) and **Desigo touch panels** (PXM40, PXM50) including download of engineering data, *CM111006 – XWP online help*.

0.3.6   Target audience

This document is intended for commissioning personnel and service technicians commissioning Siemens touch panels as well as establishing and configuring a connection via web browser and PC.

The operating instructions [4] tell you how to work with Siemens touch panels.

We require that you be familiar with using a web browser as well as network technology to be able to install and configure the Siemens PXM40 and PXM50 touch panels.

0.3.7   Structuring

This document contains all practical information up front (first part).
The second part provides useful explanations and some theory on individual functions.

0.3.8   Document conventions

Terminology	**Used…**	**…for**
	Web interface	PXG3.W100
	Touch panel	Desigo touch panel, PXM40 and PXM50

Illustrations
- Illustration excerpt are *not* labeled accordingly.
- Illustrations generally are *not* titled or subtitled.

Wait…   If an action (e.g. loading a page) takes longer, the animated "Busy Indicator" (wait symbol) is displayed in the middle of the working pane.

Tap, click   Tapping an element on the touch panel is referred to as "tap". An instruction may read: "Tap "Logout".

Tapping hand   Illustrates tapping a button or function element.

1 Commissioning

The touch panel requires only a few steps to be fully functional. You may need to carry out the following tasks, however, depending on previous actions:

1. If the associated **web interface** has not been set up prior to commissioning, this must be carried out first. The touch panel cannot be commissioned without working PXG3.W100 (no control over functionality)).

   These actions must be carried out **exclusively in Desigo Xworks Plus** on the related PXG3.W100. To this end, consult the Desigo Xworks Plus online help either from within Xworks Plus or via file CM111006en.chm.

2. **Customization** of views and/or functions.
   These actions must also be carried out exclusively in Desigo Xworks Plus on the related PXG3.W100.

1.1 Topology

Touch Panels, together with a PXG3.W100, help monitor and operate Desigo PX automation stations using web communication.

They allow for:
- Local or remote plant operation.
- Displaying system texts, plant overviews, plant diagrams, simple alarm lists, schedules, and trends.
- Saving Favorites.

Context of the descriptions in this manual.
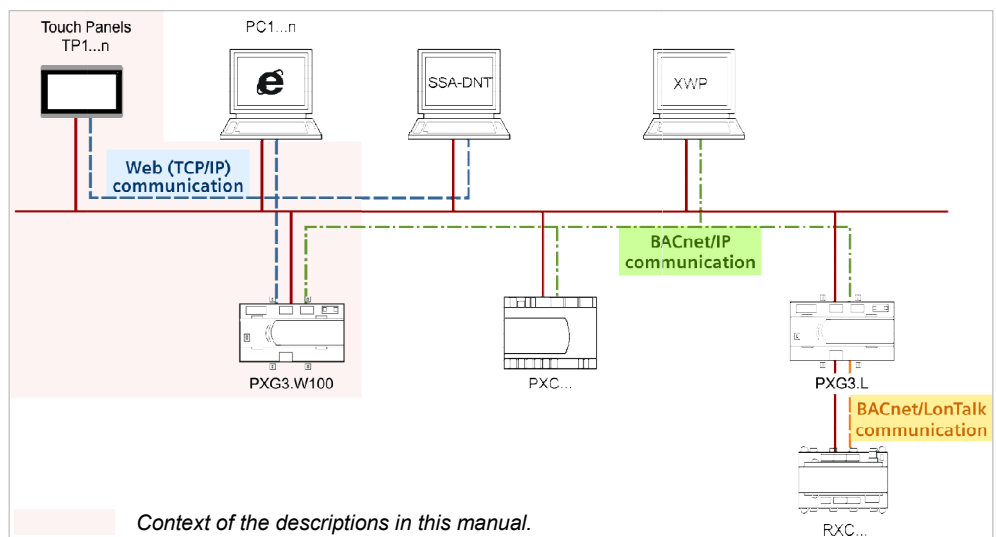
1.2　IT security

The Desigo Touch and Web products implement the latest standard communications technologies. For this reason, compliance with IT security standards of the related installation environments as well as generally valid standards of the Desigo system is a must. See also CM110663.

Note in particular the following issues with regard to Desigo Touch and Web:

- Use only strong passwords (password length, use of special characters, etc.). This applies to user login for plant operation during daily operation as well as to system operation as part of commissioning or service work.

- Do not use standard passwords. The password must always be unique and specific to the project.

- HTTPS must be used as standard communications protocol between the operator clients (Desigo Touchpanels, standard web browser) and the web interface PXG3.W100. HTTPS is entered in the URL to connect to the web interface PXG3.W100: *„https://........."*

- Desigo Touchpanels should not communicate via the Internet with the PXG3.W100 web interface.

- The PXG3.W100 web interface should be accessible only via VPN over Internet.

1.3　Prerequisites

- The touch panel is unpacked and possibly already installed in the control panel. See also:
  [4] Desigo PX automation and control system, mounting and installation guide CA110396
- The computer is operational.
- The PXG3.W100 is properly set up on the firmware side.
  ⓘ For information on firmware setup, see the related online help of DNT (Firmware **D**ownload and **N**ode Setup **T**ool) integrated in XWP.
- The configuration data is loaded properly in the PXG3.W100.
  ⓘ See the XWP online help CM111006en (chm).

ⓘ **Note**: You can browse the pages at any time during commissioning by using the buttons < Back and Next >.

# 1.4 Touch panel commissioning – Step-by-step

1.4.1 About procedures

The following step-by-step procedures consider all actions, settings, etc. It is possible that, in the past, you may have applied and now wish to continue a different procedure. The procedure described here merely shows the procedure identified as best by development.

1.4.2 Procedure

1. If not yet done: Connect the Desigo touch panel to the corresponding network plug using the **network cable** (RJ45).

2. If not yet done: Connect to **power**.

3. Wait for the touch panel to **start**.
   ---> *This process may take a few seconds; the **Language** page is displayed.*

4. Select the **language**.
   ---> 16 languages are integrated. English is the default language.

5. **Save** with **Next**.
   ---> The page "Network Settings – IPv4" opens.
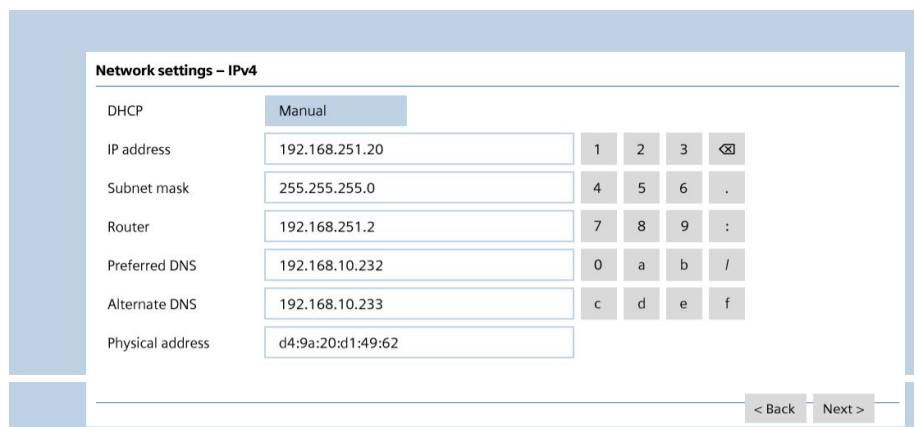
⚠ Note

Two ways are available for the following step:
   a. Automatically using DHCP (self-explanatory).
   b. Manual via the alphanumeric keypad.

Below, we describe how to proceed with a manual entry. The procedure for IPv4 is virtually automatic for the DHCP method.

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1. Tap **Manual**.

2. Complete all **fields**.

3. Finish with **Next**.
   ---> *The server connection page opens.*
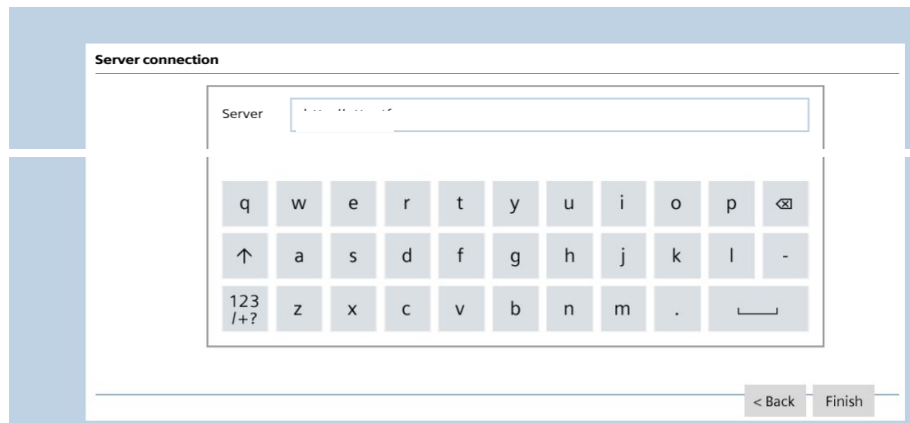
4. **Enter IP address or URL** of the PXG3.W100.
   ---> *This ought to be defined in XWP prior to this action.*

5. Complete with **Finish**.
   ---> *The process may take a few seconds. The page with the location definition opens.*
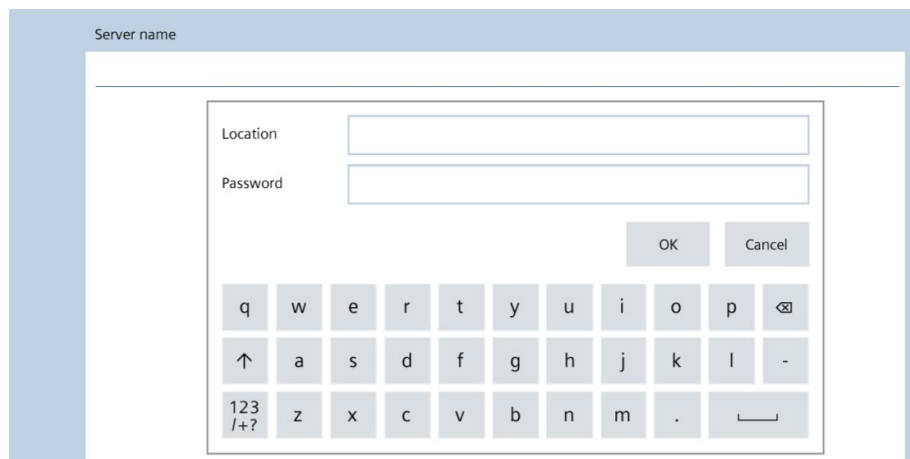
6. Enter both **Location** and **Password**.
   ---> 🗅 *This is not the user password, and it must also not match the user password!*

7. Tap **OK** to finish.
   ---> *This concludes "Binding". The main view for the desired project is displayed within a few seconds.*
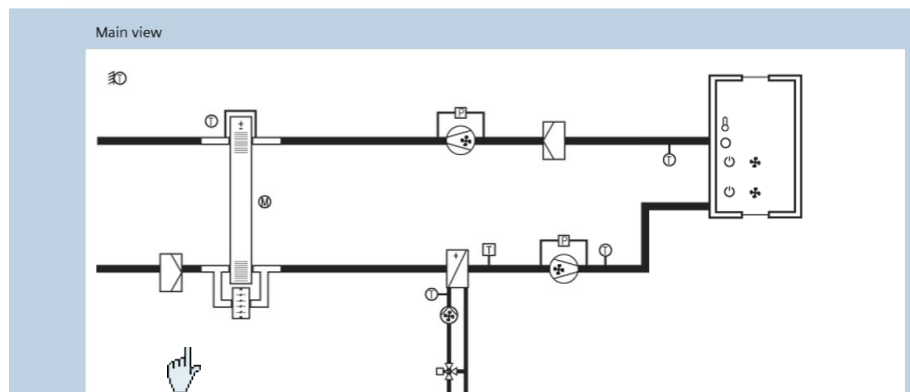
8. Tap a blank area anywhere on screen.
---> *This opens the login page.*

Main view

Login

Username	
Password	

OK   Cancel

q w e r t y u i o p ⌫
↑ a s d f g h j k l -
123/+? z x c v b n m . ␣
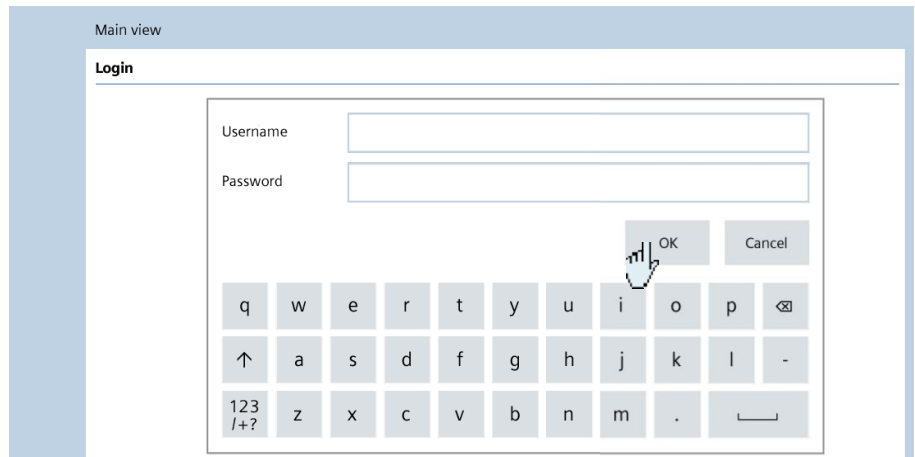
9. Enter both user name and password.

10. Tap **OK**.
---> The touch panel checks the entry. After successful login:
- *The main functions and information as per the user rights are displayed.*
- *The user name is displayed in the status bar:*

SIEMENS   Air Handling Unit 03.2840   15:17 07/06/2012   Immanuel Goldstein

Main view   Air Handling Unit 1 ▼

Plant View
Alarms
Scheduler
Favorites
Trend
Settings
Logout

18.2 °C   21.0 °C   Off   Normal
Off   21.5 °C   24.0 °C   0.0 K   QAX
0 %   Auto
Normal   Off
Closed   24.3 °C
0 %
Plant control On

▽ 1 △

Login error

Users immediately receive the following feedback for incorrect or improperly entered login information:
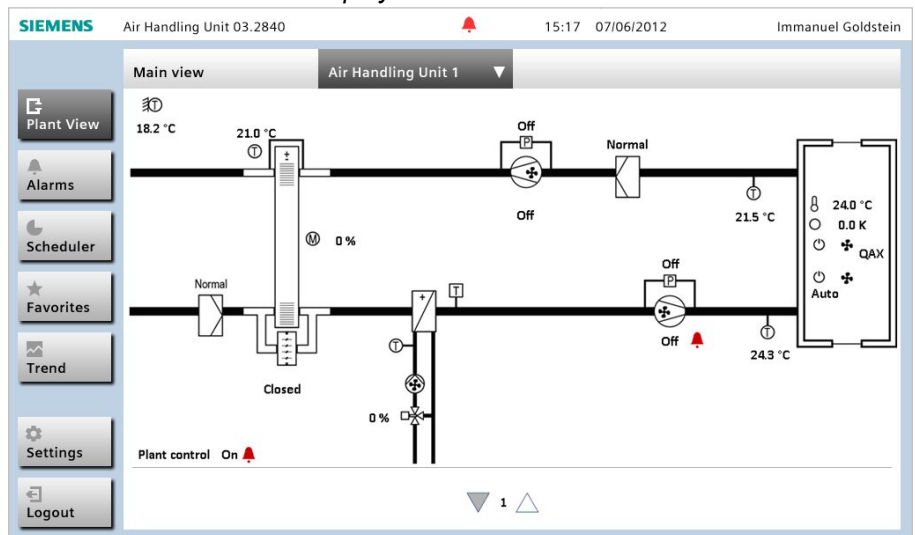
SIEMENS   Location   Time / Date   User Name

Overview

Username	
Password	

Invalid login information   OK   Cancel

q w e r t y u i o p ⌫
↑ a s d f g h j k l -
123/+? z x c v b n m . ␣

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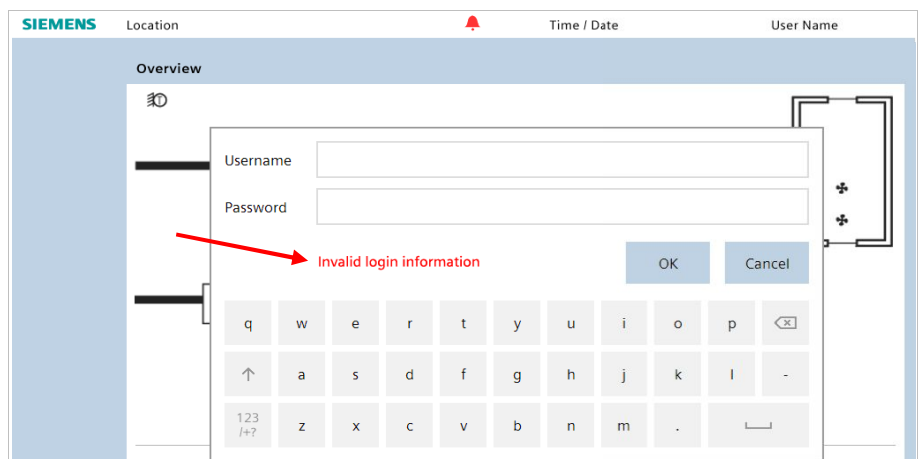
Procedure in case of login error	You can select between two options: • Retry *or* • Tap Cancel to return to the home page.
Switch user	Proceed as follows to switch user (e.g. shift work): 1. Tap **Logout**. ---> *This logs out the current user.* 2. Log in the new user (as per **Login,** see above). ⓘ The login page is displayed automatically every time the touch panel is started. See also the following paragraph on
Options	This completes the technical part of commissioning. Different settings are available, however, for user-friendly operation of the touch panel. They can be edited after login. To do this, see a detailed description in the operating instructions [4].

2 Compatibility & limitations

2.1 Desigo touch panel and standard clients

The **PXG3.W100 web interface** supports local operation via Desigo touch panels as well as operation via standard web browser on commercial operator units. Due to the open interface based on standard web technology and dependent on the different use cases, users can clearly benefit from advantages offered by the various operator units.

The **Desigo touch panels** are an integral part of the plant, optimized specifically to operate the Desigo building automation and control system:

- No end user access to lower operating system functions.

- Alarms are displayed on the operator unit even if the screen is inactive.

- Siemens guarantees compatibility and product replacement or system upgrades throughout the entire life cycle.

- Special functions for permanent connection and plant monitoring (7/24 Watchdog).

Standard operator units (tablets, PCs, notebooks, smart phones, etc.) supplement local operation and allow for remote access and operation using personal devices. Standard operator units are designed for temporary plant access and are subject to other innovation and lifecycles.

2.2 Desigo Touch and Web – Application examples

PXM40/PXM50	Standard Clients	
✘	✔ ✘	**Mobile use**
✔	✘	**Integration in control panel door**
✔	✘	Full screen – no user access to operating system.
✔	✘	LED for alarm indication.
✔	✘	Permanent alarm monitoring - reliable 7/24 operation.
✘	✔	Temporary plant operation via WAN/LAN.
✔	✘	System compatibility, product life cycle.

When using a standard client, the following must be considered.

Security-related settings

- Desigo Touch and Web uses **cookies**. As a result, the **security settings** on the related client may require **redefinition.**

- If a standard client is connected to PXG3.W100, and if **no user action** occurs during 3 hours on this client, the **location definition** of the standard client is **disconnected** automatically**.**

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2.3 Supported browsers

Compatibility issues take a central place due to the large variety of standard web browsers, devices, and versions.

Assessment

The following assessment provides an overview of how standard web browsers are supported.

Grade A	**Firefox ≥ 4.0, Internet Explorer ≥ 10.0** Recommended web browser for standard operator units. • Fully tested and approved browser. • Supported officially by Siemens BT. • All functions are available and can be executed as documented.
Grade B	**Safari–iPad2, Safari–iPad3** Compatible web browser. • Fully tested and approved browser. • Supported officially by Siemens BT. • All functions are available and can be executed as documented. Minor deviations in terms of display and operation to recommended browsers are possible (fonts etc.).
Grade C	This category includes all **HTML 5.0** capable browsers. **Examples: Chrome 10.0, Safari 5**. Partially compatible standard web browsers. • Minimally tested browsers. • Not supported by Siemens BT. • Access to the PXG3.W100 web interface is possible in principle. • Location binding and user login works.

2.4 System compatibility

BACnet Objects	• All standard BACnet objects supported in Desigo Classic are also supported by Desigo Touch and Web.
	 • Exceptions
	   – Trendlog Multiple
	   – Any schedulers (only Desigo Multistate and Binary)
	   – Analog scheduler
	   – Third-party devices: No scheduler and Trend objects

Desigo System	• Optimized for operation of Desigo PX primary plants • Downward compatibility to Desigo V4.0 • Proprietary objects (such as Light and Blind) are not supported. • Xworks Plus from version V5.00.28x

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2.5   System limits

2.5.1   XWP project

Item	Limit	Description
PXG3.W100	10*	Max number of PXG3.W100 per XWP project

2.5.2   PXG3.W100

2.5.2.1   General

Item	Limits	Description
Automation Station (PX…)	—	The number of PX is not limited (only depends on BACnet objects and the number of customized views). Note: The specified Desigo PX.. limits must be adhered to (see Technical principles).
Total size of configuration data	7 MB*	The limit is given by the available memory for the sum of all configuration data (Configurationdata.tar).
BACnet objects total	2000*	Max. number of BACnet objects engineered on the PXG3.W100.
BACnet objects permanently displayed	300	Total number of permanently displayed BACnet objects the PXG3.W100 must update.
Customized views	25*	Max. number of customized views (PXG3.W100 memory limit).

2.5.2.2   Customized views (CVs)

Item	Limits	Description
BACnet objects	100*	Max. number of BACnet objects per customized view.
Trends	10	Number of trends per customized view.
Schedulers	10	Number of schedulers per customized view.
Graphic pages	5	Number of graphic pages per customized view.

2.5.2.3   Graphics pages

Item	Limits	Description
BACnet objects	60*	Max. number of BACnet objects per graphics page

2.5.2.4 Connected web clients

Item	Limits	Description
Touch panel	10*	Max. number of touch panels per PXG3.W100 with overview page.
Web clients, max. system design	3*	Max. number of registered users per PXG3.W100, where the limit of permanently displayed BACnet objects of all clients may not be exceeded at maximum system design[1].
		At low system design, more than 3 users can be logged in concurrently. *Example: 1 customized view at 3 graphics pages at 10 BACnet objects each. If 10 web clients are connected to it, the system limit (300 permanently displayed BACnet objects) is reached.* **All system limits must be adhered to simultaneously.**

Limit*   Technical limit, tested.
Limit   Recommended limit, tested.
[Limit]   Recommended limit, not tested.

[1] **Example for max. system design**
⇨ **with system limits**

- 20 customized views
- 5 graphics pages per customized view
- 20 BACnet objects per graphics page
- ⇨ *2000 BACnet objects total*
- ⇨ *100 BACnet objects per customized view*
- 3 Web clients with the above design
- ⇨ *300 permanently displayed BACnet objects*
- 10 trends per customized view
- 10 schedulers per customized view
- ⇨ *Important: The configuration data size < 7MB applies to all of the above*

2.5.3 Supported graphics formats

The wide-screen format **2144 x 1112 pixels** achieves the best results for the work screen. If the image ratio is not correct, the image is adapted automatically to the work screen. The ratio, however, is always the same.

ℹ **Note:** The work screen of both Desigo touch panels (PXM40 and PXM50) is 1072 x 556 pixels.

Format	Description
png	Recommended for plant diagram graphics [1]
jpg	For photos[1], e.g. of the own building as home screen
gif	For graphics without animation
svg	Rendered by browsers, thus resulting in possible differences. **Inkscape** is recommended as the tool to create graphics. SVG exported from Microsoft Visio is **not** supported.

[1] The best results are achieved at the above resolution (2144 x 1112).

ℹ **Special note:** Compress photos from high-resolutions cameras.

ℹ **General recommendation:** Format **png** or **jpg** is the preferred format depending on the application, as this format allows for achieving best results relative to resolution and min. memory requirements.

2.5.4 Supported BACnet objects

Text #	Name	Type #	Description
0	DEV	8	Device
1	AI	0	Analog input
2	AVAL_OP	2	Analog value for operation
3	AO	1	Analog output
4	AVAL	2	Analog value
6	BI	3	Binary input
7	BVAL_OP	5	Binary value for operation
8	BO	4	Binary output
9	BVAL	5	Binary value
10	BSCHED	17	Binary scheduler
11	MI	13	Multistate input
12	MVAL_OP	19	Multistate value for operation
13	MO	14	Multistate output
14	MVAL	19	Multistate value
15	MSCHED	17	Multistate scheduler
16	CLN	6	Calendar
18	TRNDLOG	20	Trend log
19	CI	24	Counter input
20	CMD_CTL	216	Command Control
21	PWR_CTL	216	Power Control
22	AI_RED	0	Analog input, reduced function
23	AO_RED	1	Analog output, reduced function
24	BI_RED	3	Binary input, reduced function
25	BO_RED	4	Binary output, reduced function
26	MI_RED	13	Multistate input, red.function
27	MO_RED	14	Multistate output, red.function
31	CI_ACC	23	Counter input, accumulated
35	SCHED	17	Schedule*
50	USRPRF	207	User profile
58	Block	201	Block**
69	CMN_ALM	214	Common alarm
70	DevInfo	217	Device information for alarming

* no analog scheduler

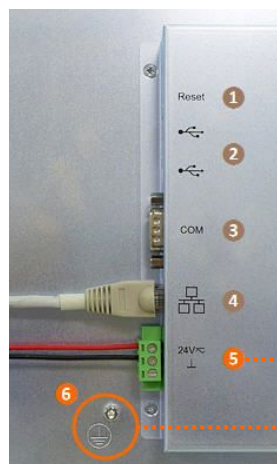** Block types are Desigo-specific

ℹ **Note**

MSCHED

MSCHED can have 6 different states, and 10 for **TREND**.
If more states exist, only the first 6 or 10 are displayed.

USRPRF

– The PXG3.W100 web interface supports user profiles with access level
  ≥ Extended Operation, allowing for resetting and confirming alarms.
– Read/write access rights to the BACnet object level are not processed.

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2.6 Touch panel wiring

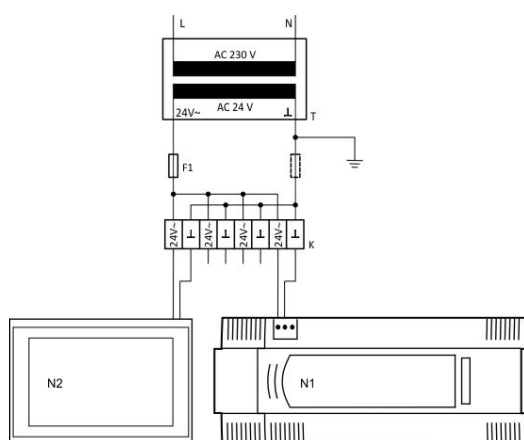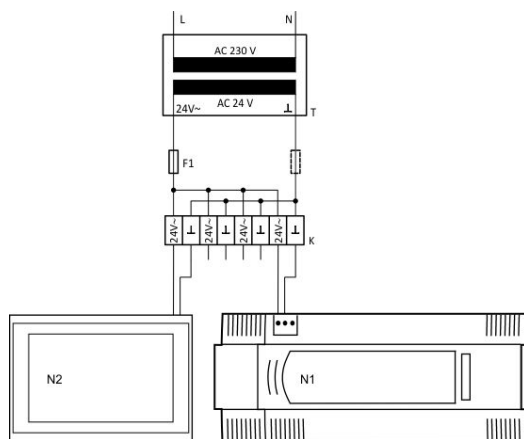|	
1	Reset
2	USB 2.0 ports (1 standard, 1 micro)
3	Serial ports (15-pin DIN sub)
4	RJ45 LAN connection
5	24 V AC/DC terminal strip *3rd terminal is not connected.*
6	Earth connection (bolted) *Use may vary as per local rules and/or conventions.*

Grounding as per PELV

Grounding as per SELV

Reference point for ground

When grounding the reference point (system neutral or symbol ⊥), note the following:

- As a rule, both grounding (PELV) as well as non-grounding (SELV) the reference point ⊥ of AC 24 V operating voltage is allowed. Local laws must be adhered to.

- To prevent earth loops, systems with **PELV must be connected to ground** in the system at one point only, normally the transformer unless indicated differently..

T	Safety transformer AC 230 V / AC 24 V as per EN 61 558
K	Terminal block to star-like distribution of AC 24 V and ⊥
N1	PXG3.W100
N2	PXM40/50
F1	Extra-low voltage fuse for max. power consumption at AC 24 V, depending on line cross-section

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2.7 Firmware updates

2.7.1 General

With the devices PXG3.W100 (all versions) and PXM40 / PXM50 (>1.15.30.497) the firmware is updated in XWP using SSA-DNT; see E-learning module "Commissioning the web server". To ensure operation of the devices on the most current firmware, the **current** firmware must be downloaded.

2.7.2 PXM 40 / PXM50 ≤1.15.30.497

As a rule, the firmware of any PXM40/50s (referred to as "device") can be updated using the FWDT (Firmware Download Tool). This is particularly important if a FW update is not possible via DNT (**D**iscovery and **N**ode Setup **T**ool) due to technical issues. –
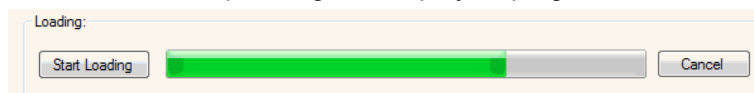
⚠️ In devices with FW version ≤1.15.30.497, updating the firmware via FWDT is **mandatory,** to be able to update the device using DNT in the future.

Procedure

1. **Disconnect** the device from power**.**
2. **Press/hold** the **Reset** button, **reconnect** the device to power**.**
3. Wait until the **orange LED flashes** (ca. 10 seconds), then
4. **release** the **Reset** button.
5. **Start** FWDT**.**
6. Connect the device to the PC **via USB connection.**
   ---> *FWDT discovers the device and enters the mode specific to these devices.*
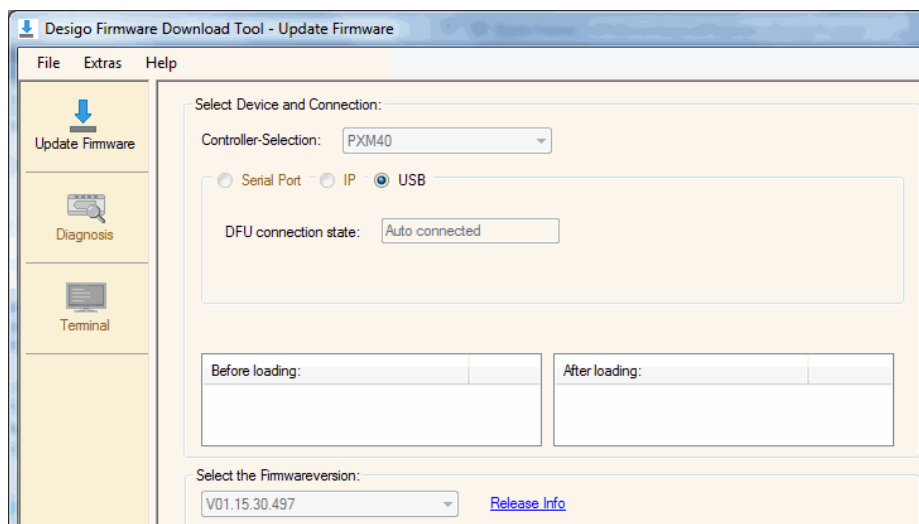
7. Group box **Select the firmware version** > drop down list > select the accurate firmware version for your device.
   🔲 The **Select the firmware version** dropdown list will appear only if there's more than one firmware version available.
8. Click **Start Loading**.
   ---> FWDT starts uploading and displays a progress bar.

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9. When the upload process has reached a certain level, an error message is displayed.

Time	Log
03.02.2014 08:01:08	The firmware library with version 'V5.10.211' has been loaded.
03.02.2014 08:01:12	Unzipping started
03.02.2014 08:01:26	The dfu-util with the label 'CCP_01.17.05' is used.
03.02.2014 08:01:29	Download started
03.02.2014 08:01:29	Write command: -D MLO -a spl
03.02.2014 08:01:32	Write command: -D MLO -a spl.backup1
03.02.2014 08:01:33	Write command: -D MLO -a spl.backup2
03.02.2014 08:01:35	Write command: -D MLO -a spl.backup3
03.02.2014 08:01:37	Write command: -D u-boot-pxm2.img -a u-boot
03.02.2014 08:01:42	Write command: -D u-boot-pxm2.env -a u-boot.env
03.02.2014 08:01:43	Error during writing command to device. Exit code: 74

10. Repeat now steps 1-8 above.
This time the upload will completely run the process:

Time	Log
03.02.2014 08:04:10	Unzipping started
03.02.2014 08:04:24	The dfu-util with the label 'CCP_01.17.05' is used.
03.02.2014 08:04:24	Download started
03.02.2014 08:04:34	Write command: -D u-boot-pxm2.env -a u-boot.env
03.02.2014 08:04:36	Write command: -D uImage-pxm2.bin -a kernel_a
03.02.2014 08:05:03	Write command: -D uImage-pxm2.bin -a kernel_b
03.02.2014 08:05:30	Write command: -D pxm40+50-release-image-01.16.34.537-pxm2.ubi -a rootfs
03.02.2014 08:18:00	Download finished. Please disconnect the power supply of the DFU device for rebooting.

11. Wait until the device has **restarted** following upload completion.
12. **Disconnect** the USB connection.

ℹ️ **Note**
After device restart, the orange LED no longer is lit, and FWDT has returned to normal mode.

2.7.3   Factory reset web interface PXG3.100

Given certain circumstances it may be desirable or necessary to factory reset the device. If so, please exactly follow the procedure given below.

⚠️ **Attention:** The device will lose any password and other settings. Only the IP network settings remain the same as before.

Procedure

1. Power **off** device.
2. Power **on** device.
3. Wait for all LEDs to **light up and turn off** again, then
4. Press **SVC** button and hold until the green **RUN** LED **flashes.** Then
5. Release **SVC** button.
6. Wait for the device to fully start up unconfigured. (**RUN** LED is **on**, **SVC** LED **flashes.**)
7. Start firmware download process with SSA-DNT.

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