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Question

What cost-effective options do Thin Clients provide as operator panels in a plant?

Answer

Follow the instructions and notes listed in this document for a detailed answer to the above question.
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1 Thin Client

SIMATIC Thin Clients provide a very cost-effective option as operator panels in a plant.

1.1 What is a SIMATIC Thin Client?

A Thin Client is an industry-compatible panel that is permanently connected to a server via Ethernet and on which no local applications run (except for the integrated browser).

All Thin Clients receive the operator display from the server sent via the network and show this operator display without the applications being installed on the Thin Clients themselves. Entries on the Thin Client are transferred to the server and processed accordingly.

Operation on the Thin Client is the same as if you were operating on the server itself.

![Figure 1-1 - Functional principle of the SIMATIC Thin Client.](image)

The SIMATIC Thin Client has a closed operating system and supports the following functions that can be selected via the taskbar:

- Sm@rtAccess Client
- RDP Client
- Web Browser (for connections via HTTP)

Parameterization of the separate connections is done via the integrated web server of the Thin Client. The web technology enables you to parameterize on the Thin Client or centrally from a PC via the network.
1.2 What versions of the SIMATIC Thin Client are available?

- For integration in control cabinets:
  - SIMATIC Thin Client 10" Touch
  - SIMATIC Thin Client 15" Touch

- For mounting on a support arm:
  - SIMATIC Thin Client PRO 15" as device with complete IP 65 protection

Various adapter sets are available for mounting the SIMATIC Thin Client PRO 15". This means that you can use the Thin Client with different types of support arm systems.

Note: More information on the adapter sets is available in the Catalog ST80, chapter 8 under "Accessories for completely protected HMI devices".
2 Which applications are possible with the SIMATIC Thin Client?

There is a wide variety of possible applications. In the following, we describe just some of the options for the following fields of application:

- WinCC flexible
- WinCC
- Windows, Office, etc.
- Web Browser

2.1 Applications with Sm@rtAccess

Sm@rtAccess provides the option of accessing from a Sm@rt client remote PCs or operator panels working as a Sm@rt server. The PC or operator panel can be operated and monitored completely from the Thin Client that functions as a Sm@rt client.

2.1.1 Application of a Thin Client and Multi Panel with WinCC flexible

Coordinated operator control and monitoring of WinCC flexible via Sm@rtAccess.

![Diagram showing Sm@rtAccess setup](image)

Figure 2-1 All the connected panels show the same operator display.

Description of application:

SIMATIC Thin Client Panels are connected to a Multi Panel via Sm@rtAccess and show the same WinCC flexible operator display as the Multi Panel.

**Coordinated operation** of the connected panels is possible. This means that if the Multi Panel or a Thin Client Panel is operated, operation on all the other connected panels is locked. However, you can continue to monitor on all the other operator panels. It is possible to transfer operator authorization.
2 Which applications are possible with the SIMATIC Thin Client?

This is important when it is a matter of visualizing and operating the same process at multiple points and of excluding operating errors at the same time.

Customer Benefits:

- Significant cost savings:
  - By implementing cost-effective SIMATIC Thin Clients.
  - Clear reduction of engineering and maintenance costs by eliminating additional configuration of the clients and through simple device replacement.

- Operating safety:
  - Since the operator panels are interlocked, you can ensure that several operators do not operate the plant at the same time.

- Flexibility:
  - You can interconnect the Thin Clients to different servers in the plant by simply pressing a button during operation, which permits variable process operating.

- Increased plant transparency:
  - Additional and cost-effective operator stations permit process monitoring and operation at more points in the plant.

Sample applications:

- Coordinated operator control and monitoring on a remote machine.
- Additional operator station at points in the plant where until now only one panel was implemented because of the costs.

The following components are required among others:

Table 2-1

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Server</td>
<td>1 x SIMATIC MP 377 15” Touch</td>
</tr>
<tr>
<td></td>
<td>1 x Sm@rtAccess License</td>
</tr>
<tr>
<td>Clients</td>
<td>2 x SIMATIC Thin Client 15” starter packages</td>
</tr>
</tbody>
</table>
2.1.2 Application of a Thin Client and Panel PC with WinCC flexible

Complete solution consisting of PC, controller and coordinated operator control and monitoring of WinCC flexible via Sm@rtAccess.

Figure 2-2 All the connected panels show the same operator display.

Description of application:
SIMATIC Thin Client Panels are connected to a Panel PC via Sm@rtAccess and show the same WinCC flexible operator display as the Panel PC.

Coordinated operation of the connected panels is possible. This means that if the Panel PC or a Thin Client Panel is operated, operation on all the other connected panels is locked.

This is important when it is a matter of operating the same process at multiple points and of excluding operating errors at the same time.

Customer Benefits:
- Significant cost savings:
  - By implementing cost-effective SIMATIC Thin Clients.
  - Clear reduction of engineering and maintenance costs by eliminating additional configuration of the clients and through simple device replacement.
- Operating safety:
  - Since the operator panels are interlocked, you can ensure that several operators do not operate the plant at the same time.
- Flexibility:
  - You can interconnect the Thin Clients to different servers in the plant during operation, which permits variable process operating.
  - You can also enable access to PC functions (Desktop, Office, etc.) via Thin Clients.

Sample applications:
PC customers who need operator stations in addition to the controller and visualization and who appreciate performance and openness in hardware and software.

The following components are required among others:

Table 2-2

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Server</td>
<td>1 x SIMATIC Panel PC 477B HMI/RTX (PN)</td>
</tr>
<tr>
<td></td>
<td>1 x Sm@rtAccess License</td>
</tr>
<tr>
<td>Clients</td>
<td>2 x SIMATIC Thin Client 15&quot;</td>
</tr>
</tbody>
</table>

2.1.3 Application of a Thin Client and Microbox with WinCC flexible

WinCC flexible visualization on a SIMATIC Microbox.

![Diagram](image)

Figure 2-3 - All the connected panels show the same operator display.

Description of application:

SIMATIC Thin Client Panels are connected to a Microbox via Sm@rtAccess and each shows the same WinCC flexible operator display.

Coordinated operation of the connected panels is possible. This means that if a Thin Client Panel is operated, operation on all the other connected Thin Client Panels is locked.

This is important when it is a matter of operating the same process at multiple points and of excluding operating errors at the same time.
2 Which applications are possible with the SIMATIC Thin Client?

**Customer Benefits:**

- **Cost savings:**
  - Distances between the Microbox and the Thin Clients of up to **100m** are possible (even more via a switch). This means that you can install the Thin Clients flexibly in the plant using cost-effective Ethernet cabling.

- **Operating safety:**
  - Since the operator panels are interlocked, you can ensure that several operators do not operate the plant at the same time.

- **Flexibility:**
  - You can interconnect the Thin Clients to different servers in the plant during operation, which permits variable process operating.
  - You can also enable access to PC functions (Desktop, Office, etc.) via Thin Clients.

**Sample applications:**

PC customers who need visualization on remote operator stations and who appreciate performance and openness in hardware and software.

**The following components are required among others:**

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Server</td>
<td>1 x SIMATIC Microbox 427B-HMI</td>
</tr>
<tr>
<td></td>
<td>1 x Sm@rtAccess License</td>
</tr>
<tr>
<td>Clients</td>
<td>2 x SIMATIC Thin Client 15&quot;</td>
</tr>
</tbody>
</table>
2.2 Applications via RDP

The Remote Desktop Protocol (RDP) is a Microsoft network protocol for displaying and controlling desktops and user interfaces. For this communication, you need a PC with a Windows-based operating system that acts as Terminal Server. The Thin Client functions as Terminal Client and can therefore access the Terminal Server. Operation via keyboard and mouse is also supported.

2.2.1 Application of a Thin Client and Industrial PC with WinCC as Server PC

Independent operator control and monitoring of WinCC via RDP.

Description of application:

SIMATIC Thin Clients can be connected with a Server PC via RDP, which permits each Thin Client full access to all the WinCC Web Navigator operator displays.

Each Thin Client connected can be used as a full-function, independent operator station. This means that you can operate and monitor different screens simultaneously and independently on all the Thin Clients.
Customer Benefits:

- Cost savings:
  - By implementing cost-effective SIMATIC Thin Clients.
  - Further savings in engineering and maintenance costs by eliminating additional configuration of the clients and through simple device replacement.

- Automatic scaling:
  - The resolution of the WinCC display can be changed automatically to the resolution of the Thin Clients so that the full picture is displayed without the need for a scrollbar.

Sample applications:
Installation of distributed WinCC operator stations in the plant.

Sample application and detailed description:
http://support.automation.siemens.com/WW/view/de/28309119
2.2.2 Application of a Thin Client and Server PC with Office applications

Vertical integration – Office applications in the plant via RDP (Windows Server operating system).

![SIMATIC Thin Clients connected with Windows server systems](image)

Figure 2-5 SIMATIC Thin Clients are connected with Windows server systems

**Description of application:**

By connecting Thin Clients to Windows server operating systems via RDP, you can **operate the Windows applications** provided on the Thin Clients. Thus, for example, the ERP system (**Enterprise Resource Planning**) or Office applications in the plant can be operated on the Thin Client.

**Customer Benefits:**

- **Significant cost savings:**
  - Implementation of cost-effective Thin Clients in the plant instead of more Industrial PCs.
  - Further savings in engineering and maintenance costs by eliminating additional configuration of the clients and through simple device replacement.

- **Flexibility:**
  - You can interconnect each Thin Client as required to the application servers provided.

- **Automatic scaling:**
  - The desktop can be changed automatically to the resolution of the Thin Clients so that the full picture is displayed without the need for a scrollbar.
2 Which applications are possible with the SIMATIC Thin Client?

Sample applications:
Entry in the ERP system in the plant.

The following components are required among others:

Table 2-4

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Server</td>
<td>1x Industrial PC with Windows 2003 Server System + Licenses</td>
</tr>
<tr>
<td>Clients</td>
<td>1x SIMATIC Thin Client 15”</td>
</tr>
</tbody>
</table>

2.2.3 Application of a Thin Client and Windows PC with Office applications

Alternative operating and monitoring units in the plant via RDP (Windows standard operating system).

Description of application:
By connecting Thin Clients to Windows PCs via RDP, you can operate the Windows applications provided on the Thin Clients.

Here, the Windows standard operating systems (e.g. Windows XP) only ever permit one active operation of the PC. This means that if Windows is
being operated on one of the Thin Clients, the user on the PC is logged off. If the PC user logs on again, the Thin Client is logged off.

Thus, for example, the ERP system (Enterprise Resource Planning) and Office applications can be operated on the Thin Client or on WinCC in the plant. You can also operate programs of other providers via the Thin Client.

Customer Benefits:

- Cost savings:
  - Distances between the Microbox and the Thin Clients of up to 100m are possible (even more via a switch). This means that you can install the Thin Clients flexibly in the plant using cost-effective Ethernet cabling.
  - Implementation of cost-effective Thin Clients in the plant instead of more Industrial PCs.
  - You do not need a Windows server system for this solution.
  - Saving of license costs, because the same program is operated with the Thin Client.
  - Further savings in engineering and maintenance costs by eliminating additional configuration of the clients and through simple device replacement.

- Flexibility:
  - You can interconnect each Thin Client as required to the application servers provided.

Sample applications:

Implementation of a Panel PC 677B with a remote operating and monitoring unit so it is possible to operate locally on the Panel PC and alternatively on the Thin Client as remote operator unit (distance of 60 meters, for example).

The following components are required among others:

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Server</td>
<td>Industrial PC with Windows XP</td>
</tr>
<tr>
<td>Clients</td>
<td>SIMATIC Thin Client 15&quot;</td>
</tr>
</tbody>
</table>
2.2.4 Application of a Thin Client and SIMATIC Embedded Controller RTX

Complete solution consisting of PC and controller with RDP connection.

![Diagram showing RDP Server, SIMATIC EC31 - RTX, RDP Client, SIMATIC Thin Client connected via Industrial Ethernet]

Description of application:

A SIMATIC Thin Client Panel is connected with the Embedded Controller via RDP.

Via RDP, you can operate the Windows applications provided via the Thin Client (for example, visualization applications).

Customer Benefits:

- **Cost-effective cabling:**
  - No need for an additional VGA module, because the connection is via Ethernet.
  - Distances between the Embedded Controller and the Thin Clients of up to 100m are possible (even more via a switch). This means that you can install the Thin Clients flexibly in the plant using cost-effective Ethernet cabling.

- **Flexibility:**
  - You can interconnect the Thin Clients to different servers in the plant during operation, which permits variable process operating.
  - Access to PC applications and functions (Word, Desktop, etc.) via Thin Clients.

Sample applications:

Controller customers who need a visualization in addition to the controller and wish to retain central, modular I/O peripherals and who appreciate the performance and openness of a PC.
The following components are required among others:

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Server</td>
<td>1 x SIMATIC EC31 - RTX</td>
</tr>
<tr>
<td>Clients</td>
<td>1 x SIMATIC Thin Client 10&quot;</td>
</tr>
</tbody>
</table>
2.3 Application as Web Client via HTTP

The Thin Client's integrated web browser permits access via the Hypertext Transfer Protocol (HTTP) to devices that have a web server. This permits you to call information and settings via the websites and edit them as required.

2.3.1 Application of a Thin Client with Web Browser and Web Server

Access to websites in the industrial environment.

Figure 2-9 Via the integrated web browser SIMATIC Thin Clients access devices with integrated web server

Description of application:
A web browser is integrated in the SIMATIC Thin Client, with which simple websites can be displayed. The browser supports the following web functions:

Table 2-7 - Functions of the web browser integrated in the Thin Client

<table>
<thead>
<tr>
<th>Web functions</th>
<th>Display for SIMATIC Thin Clients</th>
</tr>
</thead>
<tbody>
<tr>
<td>XML</td>
<td>Yes</td>
</tr>
<tr>
<td>HTML</td>
<td>Yes</td>
</tr>
<tr>
<td>JavaScript V1.7</td>
<td>Yes</td>
</tr>
<tr>
<td>CSS</td>
<td>Yes</td>
</tr>
<tr>
<td>ActiveX</td>
<td>No</td>
</tr>
<tr>
<td>Java VM</td>
<td>No</td>
</tr>
<tr>
<td>Plug-ins</td>
<td>No</td>
</tr>
</tbody>
</table>
Which applications are possible with the SIMATIC Thin Client?

Customer Benefits:
- Very cheap and industry-compatible web client in plant.

Sample applications:
Display of the integrated websites from SIMATIC S7 controllers or SIMATIC HMI operator panels.
Further Information

The Thin Clients listed in chapter 1 are in the ST80 · 2009 catalog (HMI Systems).

More information is available in the Internet at the following websites:

Information on the product:
http://www.automation.siemens.com/hmi/html_00/products/hardware/thin-clients/index.htm

Link to the online catalog: