

HMI software and Web servers

Vijeo Designer configuration software



Presentation

The cross-platform Vijeo Designer configuration software can be used to create operator-dialog applications for controlling automation systems for:

- New Technology Magelis XBT G and XBT GT terminals
- Magelis Smart iPC HMI edition and Magelis Compact iPC HMI edition

Vijeo Designer and a suitable terminal can be combined to provide a solution for each and every control station requirement, at the cost of a simple software reconfiguration.

Because it supports video-image streaming, the Magelis Vijeo Designer offer provides access to new types of application. Users can visualize their processes immediately or subject to a delay, on the same screen as the HMI dialog. Vijeo Designer uses Magelis Ethernet TCP/IP connectivity and is, therefore, able to support WEB Gate remote access, the sharing of application data between terminals, the transfer of recipes and logs for variables, and much more - all with total security.

Applications can take on an international nature, thanks to the ability of Vijeo Designer to support up to 10 languages simultaneously in one project (38 alphabets are available on the XBT GT terminal). The interface and documentation for Vijeo Designer are available in 6 languages: English, French, German, Italian, Simplified Chinese, and Spanish.

Vijeo Designer will run on any PC with Windows 2000 or Windows XP Professional. It supports WYSIWYG (1) simulation of the expanded application (without XBT G/GT terminal or target Magelis iPC), the simulation of PLC variables (I/O, internal bits and words), and ensures that the application runs in total security on the XBT G/GT terminal or Magelis Smart/Compact iPC HMI edition.

Note: For other Magelis XBT displays and terminals, see the XBT L1003 development software on pages 36355/2 to 36355/5.



Configuration

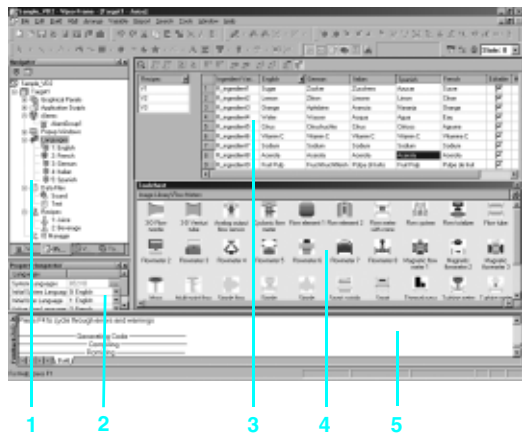
Vijeo Designer configuration software enables operator-dialog projects to be processed quickly and easily thanks to its advanced ergonomics using up to five configurable windows:

- 1 Browser window
- 2 Object List window
- 3 Recipes window
- 4 Library of Animated Graphic Objects and Image Objects window
- 5 Report window

The software also offers a complete set of application-management tools for:

- Project creation, whereby a project comprises one or a number of applications for XBT G/XBT GT/Smart iPC/Compact iPC with sharing of variables between terminals (up to 8 terminals and 300 variables)

- Recipe management (32 groups of 256 recipes with up to 1024 ingredients)
- Cross-referencing of application variables
- Documentation of views for an application
- A simulation mode enabling easy testing of the application from the design office
- Bar code reader management via:
 - USB port on multifunction XBT GT terminals and Magelis Smart iPC and Compact iPC HMI edition industrial PCs
 - COM1 serial port on XBT G, or COM2 on XBT G and XBT GT (2)
- Recovery of symbols files for PLC variables generated by TwidoSuite, PL7, Concept, ProWORX 32, and Unity Pro software (3)



(1) WYSIWYG: What you see is what you get on the screen of the target terminal.

(2) Except XBT GT11 terminals.

(3) With the exception of "unlocated" or structured "Derived Data Type" Unity Pro variable symbols.



Graphics editor

The graphics editor in Vijeo Designer offers interface consistency for simple objects as well as for more sophisticated ones. It enables application developers to create views easily based on:

- Simple objects to be configured:
 - Points, lines, rectangles, ellipses, arcs
 - Bar graphs, meters, tanks, fillers, pie charts, curves
 - Polylines, polygons, regular polygons, Bézier curves, scales
 - Texts, images or alarm summary, etc.
- Preconfigured advanced objects: Switches, radio buttons, indicators, buttons, tanks, bar graphs, potentiometers, selector switches, text or number fields, enumerated lists, etc.



Object animations

8 types of graphic-object animation support the rapid creation of animated views on the basis of:

- Pressing the touch panel
- Change of color
- Filling
- Movement
- Rotation
- Size
- Visibility
- Display of associated value

Library of animated graphic objects

The library of animated graphic objects makes the creation of views very efficient thanks to the numerous "ready-made" animation objects. It includes more than 4,000 vector images of an "industrial" nature in 2 or 3 dimensions. Simply "drag and drop" the object using the mouse to position it on the view being created. User-defined objects can be added to this library using the same simple "drag and drop" method.

```

@Script Created: 10/09/2001
if
  Description:
  if
  -----
  if Replace this line with your script
  not pos;
  if (moveBottles.getValue() != 0) if conveyor is OFF, do not move bottles
  {
    pos = BottlePos.getValue();
    if (pos >= 1000)
      pos = 0; // if bottle position has been the out of display area, reset position.
    pos = pos + 10 + 2 * ConveyorSpeed.getValue();
    BottlePos.write(pos);
  }
  }
  
```

Java scripts

Vijeo Designer supports the processing of information using Java language scripts. This function facilitates the running of complex animations, the automation of tasks within the terminal and the management of calculations in order to relieve the load on the PLC programs.

The scripts (50 lines, max.) can be associated with:

- Variables
- Operator actions
- Screens
- The application itself

User-customizable resources

To enable applications to be customized in accordance with customer requirements, Vijeo Designer V4.5 features a new resource concept, i.e., the possibility of defining styles (colors, images, character fonts, text lists).

To customize a generic application in accordance with customer requirements quickly, simply assign these styles to the objects concerned.

The resource concept is supported by the following native objects: *Meter*, *Bar Graph*, *Slider*, *Potentiometer*, *Selector*, *Text List* and *Image List*.



Data Manager: Transfer recipes, videos, images, etc. simply by clicking with the mouse.

Advanced functions

Based on new information technologies, Vijeo Designer features a large number of advanced functions for processing a higher volume of data, both faster and more reliably:

- Multimedia data management in the most popular formats:
 - Image display (jpeg, bmp, emf, and png files)
 - Text display and processing (txt files)
 - Sound-message processing (wav files)
- Alarm or curve logs recorded for data storage and transfer
- Alarm management. All variables can be categorized as "Alarms" and can be customized in respect of visualization and acknowledgment. These Boolean and analog-threshold type alarms can be printed in real time.
- Multimode application transfer: via serial link, Ethernet and Compact Flash memory card (on multifunction terminals)
- Backup of application source files on the terminal or iPC to facilitate maintenance
- User-friendly data exchange between PC and terminal using the Data Manager tool
- Integrated FTP server for downloading/uploading recipes via Ethernet TCP/IP and restoring logs to XBT G/GT terminals
- Multiport communication for multifunction terminals - 2 serial links and 1 Ethernet network can be active simultaneously.
- Action table for associating a particular behavior with an event.

WEB Gate remote connection

Vijeo Designer can provide a WEB Gate remote connection for any platform equipped with an Ethernet port and Compact Flash or hard disk memory, i.e., XBT G, XGT GT (XBT GT2 and higher), Magelis Smart and Compact iPC HMI edition.

WEB Gate supports remote visualization of Vijeo Designer applications with Internet Explorer on any PC running Windows 2000 or Windows XP. The size of the page displayed is determined by the terminal.

WEB Gate supports the display of pages similar to those in the Vijeo Designer application, or of different pages, i.e., startup pages and navigation pages can be differentiated in order to indicate the type of access (terminal/WEB Gate).

WEB Gate's high-security mode excludes any risk of applications jamming as a result of variables being modified via the terminal and WEB Gate at the same time.

For increased confidentiality:

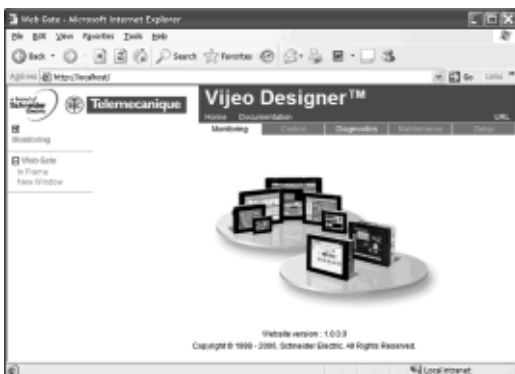
- WEB Gate access can be restricted to only those PCs whose IP address appears in the licensing list.
- Some Vijeo Designer functions are not supported by WEB Gate:
 - Application shutdown, restart
 - Terminal configuration
 - Alarms: Suppress, clear
 - Recipes: Load, send, save, compare
 - Read an acoustic animation (sound file)
 - Display a recorded video sequence

WEB Maintenance remote diagnostics

In addition to WEB Gate, Vijeo Designer V4.5 features the embedded diagnostics service WEB Maintenance - Transparent Ready WEB Server Class B15 (1). This server's navigation bar features an option for accessing the WEB Gate function.



WEB browser: Providing remote and totally secure access to the Vijeo Designer application.



WEB maintenance: Embedded diagnostics

(1) Please consult our "Control and automation, Ethernet TCP/IP and the Web" catalog.

Characteristics of Vijeo Designer applications

General characteristics						
Number of targets	32 (XBT GT terminals or Magelis Smart iPC HMI edition (1) and Compact iPC HMI edition industrial PCs)					
Number of internal and external variables	8,000					
Number of lines per Java script	50 (2)					
Sharing data between terminals	Up to 300 variables between 8 terminals, without router PLC Proprietary protocol above TCP/IP					
Internationalization	Up to 10 languages supported by 34 western alphabets and 4 Asian alphabets:					
Western alphabets	Afrikaans	Belarusian	Spanish	Dutch	Lithuanian	Romanian
	Swedish	Albanian	Bulgarian	Estonian	Hungarian	Macedonian
	Russian	Czech	German	Catalan	Finnish	Indonesian
	Norwegian	Serbian	Turkish	English	Croatian	French
	Italian	Polish	Slovak	Ukrainian	Basque	Danish
Asian alphabets	Greek	Latvian	Portuguese	Slovenian		
	Simplified Chinese	Korean	Japanese	Taiwanese		
Functions	Languages can be programmed or selected dynamically via the menu. The character fonts are embedded in the application. The process is based on the export/import of texts in CSV format, which can be edited by the translator (each text is stamped with a unique ID).					
Keyboards that can be used to enter data	Three types of keyboard are available: - Standard AZERTY or QWERTY - Alphabetical - Compact, suitable for small screens and for pages with priority display zones					
Storage of source code	- The application source code can be stored either on the terminal or on the iPC. - A password ensures confidentiality. - On request, the application can be verified each time the terminal starts up by means of a CRC calculation (<i>High Security</i> function) .					

Characteristics of pages

Internal or external variables	800
Objects	800
Switches	30
Pop-up windows	3
Number of lines per Java script	50 (2)

Library of graphic objects

Number of objects available	> 4,000
Type	2D and 3D "industrial" type vector images
Can be expanded?	Yes

Recipes

Number of groups	32
Composition of a group	Up to 1,024 ingredients for 256 recipes
Multilingual support	Complete for labels and ingredients

Action tables

Number of actions	100
Composition	Maximum of 16 commands per action
Action type	- Periodic - Planned - Conditioned - Event-triggered

(1) Requires the use of two Compact Flash cards - one for the Run-Time and operating systems, the other with PCMCIA adaptor for the application data.
(2) Indicative data for a script executed cyclically

Characteristics of Vijeo Designer applications (continued)

Alarms

No. of alarms activated, record or logs	9,999
Type	Any variable (internal or external, Boolean or analog-threshold) can act as an alarm.
Customization	Any alarm-type variable can be customized in respect of visualization and acknowledgment.
Associated reflex functions	Any alarm-type variable can be associated with reflex functions linked to the appearance of the alarm concerned: <ul style="list-style-type: none"> - Action on appearance - Action on selection - Message for the alarm bar, etc.

Integrated diagnostics

The PLC "Diag buffer" function can be accessed via the following protocols:

	Modicon M340 Unity Pro	Premium PL7	Premium Unity Pro	Quantum Unity Pro
UNITE series				
UNITE-TCP/IP XWAY				
UMAS Modbus TCP				
UMAS Modbus RTU				
UMAS Modbus Plus				
UMAS UNITE series				
UMAS UNITE-TCP/IP XWAY				
UMAS Modbus TCP USB PPP				

Accessible
 Not accessible

Video functions

Platform	XBT GT terminals	Magelis Smart iPC HMI edition Magelis Compact iPC HMI edition
Video source	NTSC, PAL video channel	Webcam
Input format	Composite video (chrominance+luminance) via RCA plug	Webcam via USB port
Display resolution	NTSC: 640 x 480 pixels PAL: 768 x 576 pixels	Depending on webcam characteristics (usually 640 x 480 pixels)
Duration of dynamic memorization	10 mins. max., can be configured, in circular memory (MPEG-4 format)	–
Recording of sequences		
Media	Compact Flash card	Compact Flash card Hard disk
Number of sequences	Up to 200	
Recording format	Simple MPEG profile	
Recording resolution	320 x 240 pixels	
Typical recording rate	3.2 MB/minute	Determined by the CODEC used on the PC
Typical capacity	Up to 28 sequences lasting up to 10 minutes can be stored on a 1 GB Compact Flash card	Determined by the space available on the hard disk

Characteristics of Vijeo Designer applications (continued)

Screen capture	
Format	JPEG
Resolution	Display resolution
Ranges supported	XBT GT terminals (XBT GT2 and higher), Magelis Smart iPC HMI edition and Magelis Compact iPC HMI edition industrial PCs
Video window included	Yes
Storage	
Format	JPEG
XBT GT terminals (XBT GT2 and higher)	On Compact Flash card
Magelis Compact iPC industrial PCs	On Compact Flash card On hard disk
Transfer	
	Via Data Manager, on terminal or iPC equipped with an Ethernet link
Printing	
From XBT GT terminal (XBT GT2 and higher)	Via USB port (1) or Ethernet port, with a compatible printer (2): <input type="checkbox"/> PCL5 - HP Officejet Pro - HP LaserJet <input type="checkbox"/> PCL3 - HP Deskjet series - HP Business InkJet - HP Officejet Pro - HP LaserJet - HP Photosmart series <input type="checkbox"/> ASCII
From Magelis Smart iPC and Compact iPC HMI edition industrial PCs	With any printer equipped with a suitable driver for Windows
Internet Explorer browser object	
Management	Pages created in Vijeo Designer 4.5 for Magelis Smart and Compact iPCs (HMI edition) can feature a Microsoft Internet Explorer browser object.
Possible functions	Display, in all or part of the Vijeo Designer 4.5 screen page, of: - HTML format pages: e.g., websites, pages from Microsoft Office Word, Excel and Powerpoint documents saved in HTML format - Documents in Adobe pdf format - Macromedia Flash presentations - Video sequence (<i>streaming</i>) originating from a video server on IP - Any other Active X featuring a USB port
Schneider Electric applications	
Management	Pages created with Vijeo Designer 4.5 for Magelis Compact iPC can run Schneider Electric software in a window that is independent of the Windows system.
Possible functions	It is also possible to run frequently-used application software as and when required, e.g.,: - Unity Pro - Twido Suite - Advantys STB configuration software - PL7 - PowerSuite, etc.

(1) A printer can be connected to the USB port of XBT GT terminals (XBT GT2 and higher) as long as the printer connection is serial or parallel. A serial-to-USB or parallel-to-USB conversion cable is also required.
 (2) For a complete list of Hewlett Packard and other manufacturer printers supported, please consult your Regional Sales Office.

Characteristics of Vijeo Designer applications (continued)

Traceability, logs

	Vijeo Designer V4.5 offers increased flexibility for implementing data traceability by means of sampling and management of log files. Every variable can be written in a recording group. A recording group defines the following elements:			
Recording type	<ul style="list-style-type: none"> - Periodic - Event-based 			
Storage media	<ul style="list-style-type: none"> - Compact Flash memory card - SRAM terminal memory (for alarms) - Hard disk (Magelis Compact iPCs only) 			
Maximum size	<ul style="list-style-type: none"> - Maximum number of recordings - Maximum file size 			
Capacity	The designer of the application concerned is entirely free to select the number of variables sampled and the sampling frequency (these will be determined by the media present on the target). The following are typical example values:			
Target terminal	XBT G	XBT GT	Magelis Smart iPC HMI edition	Magelis Compact iPC HMI edition
Number of variables sampled	80	100	250	
Target storage medium	Compact Flash card		Compact Flash card	Hard disk
Maximum number or size of samples per variable	Up to 5 years of recordings Up to 8 MB of samples per variable			

Data Manager

	The user-friendly Data Manager tool is used to transfer data from and to a terminal. This copyright-free program does not require Vijeo Designer to be installed and can be installed independently for the following types of transfer:			
Logs	<ul style="list-style-type: none"> - Recovery of log data for variables - Conversion into a single CSV format file 			
Recipes	<ul style="list-style-type: none"> - Transfer from and to terminal - Modification using an integrated editor 			
Project	<ul style="list-style-type: none"> - Download to PC of the project stored on the Compact Flash memory card 			
Video sequences, screen captures	<ul style="list-style-type: none"> - Download to PC 			

Data sharing

	Vijeo Designer V4.5 offers the possibility of sharing data between terminals (this option simply needs to be configured). The system works without a router PLC. Up to 300 variables can be shared between a maximum of 8 terminals. The exchange protocol is a TCP/IP proprietary upper layer. The high-security mode excludes any risk of applications jamming, which can occur when attempts are made to modify a variable via more than one terminal at the same time.			
Restrictions	Vijeo Designer V4.5 imposes the following restrictions on data sharing:			
Sharing of external variables	These variables cannot be used in the following objects: <ul style="list-style-type: none"> - Alarm summary displays - Trend graphs - Historical trend graphs - Data graphs These variables cannot be saved via the terminal.			
System and recipe variables	The direct sharing of these variables by means of configuration settings is not supported. However, sharing can be programmed using the <i>ReadFromVar</i> and <i>WriteToVar</i> functions.			

Characteristics of Vijeo Designer applications (continued)

Terminal access security

	Access to all or some of the objects in Vijeo Designer V4.5 can be made subject to users entering a user name and password to prove that they are in possession of sufficient rights.
Type of right	<ul style="list-style-type: none"> - Application: pages, buttons with confirmation, etc. - Data Manager: access via FTP service - Web Gate: intranet/extranet access (IP address filtering)
Number of users per group of rights	Up to 100
Number of groups of rights	Up to 20
Automatic locking	If active: automatic blocking of access via keyboard if no entries are made for a set period of time

Target security

	Vijeo Designer V4.5 can increase the confidentiality of applications on Magelis Smart iPC HMI edition and Compact iPC HMI edition industrial PCs by putting protection mechanisms in place at two levels:
BIOS	<ul style="list-style-type: none"> - Disabling of startup via peripheral connected to USB port - Disabling of USB ports - Password protection for BIOS access
Run-Time Vijeo Designer	<ul style="list-style-type: none"> - Hiding of Windows taskbar - Disabling of toggling between tasks (ALT+TAB) - Disabling of Windows Security Manager (CTRL+ALT+DEL), including the Task Manager - Disabling of Windows shortcuts - Disabling of the "Windows logo" key on the keyboard - Disabling of shortcut to exit run time (CTRL+Z)

Telemecanique protocols

	Vijeo Designer V4.5 supports the following Telemecanique protocols: <ul style="list-style-type: none"> - Modbus RTU Master - Modbus TCP/IP Master - Modbus Plus (1) - Unitelway - UniTE TCP/IP - USB terminal port for Modicon M340 CPUs
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Third-party protocols

	Vijeo Designer V4.5 also supports the following protocols and PLCs:
Mitsubishi	Melsec protocols: A/Q CPU (SIO), A/Q Ethernet (TCP), A Link (SIO), QnA CPU (SIO), Q Ethernet (UDP), and FX (CPU). Except for Melsec-A Link (SIO), Mitsubishi serial link protocols do not work on the RJ45 port (1).
Omron	Sysmac protocols: FINS (SIO), LINK (SIO) and FINS (Ethernet). OMRON serial link protocols do not work on the RJ45 port. (2)
Rockwell Automation	Allen-Bradley protocols: DF1-Full Duplex, RS DataHighway 485, Ethernet IP (3) (PLC5, SLC500, MicroLogix, ControlLogix), Ethernet IP native (2) (ControlLogix)
Siemens	Simatic protocols: MPI (S7-300/400), MPI Direct, RK512/3964R (S7-300/400), PPI, Siemens Ethernet. The S7-300/400 MPI Adapter and RK512/3964R - RS485 connection serial link protocols do not work on the RJ45 port. (2) Profibus DP protocol: via XBT ZG PDP (4)

(1) Via USB cable: XBT ZG UMP for XBT GT 2●●● terminals and higher, TSX C USB MBP for Smart iPC and Compact iPC.

(2) They are supported on XBT G and XBT GT (SUB-D connector, XBT GT2 and higher).

(3) Certified ODVA compatibility

(4) Certified by Profibus Foundation

Characteristics of the Vijeo Designer software (continued)

Operating system compatibility	Windows 2000 Windows XP Professional
Graphic library	Library of vector graphic objects shared with Vijeo Citect
Number of objects available	> 4,000
Type	2D and 3D "industrial" type vector images
Can be expanded?	Yes
Application validation	Calculation of the maximum memory space occupied by the application Verification of the capacity of the target (XBT GT terminal or Magelis Smart/Compact iPC HMI edition) configured to run the application in total security: - limits of the physical memory - available functions If applicable: - disabling of application upload/download - direction towards sections of the online help, which will provide tips for optimizing the application
Interface languages	Vijeo Designer software screens and online help available in English, French, German, Italian, Simplified Chinese, and Spanish
Documentation	Available in electronic format in English, French, German, Italian, Simplified Chinese, and Spanish. Not available in hard copy
Self-learning	Multimedia tool (1 hour 30 minutes) in English/French included
User licenses	Four types of license are available: - <i>Single</i> : One station - <i>Group</i> : 3 stations - <i>Team</i> : 10 stations - <i>Facility</i> : Unlimited number of stations on one site Supplied with or without transfer cable(s) for USB port, see Table of references for each Magelis terminal on page 36349/9.
Registration	Recommended (via fax, e-mail or website www.schneider-electric.com/swregistration), provides access to additional resources such as application examples, etc.

Services

Switch2VijeoDesigner: Migration of XBTL 1000 applications	<p>The Switch2VijeoDesigner service offer makes it even easier to migrate XBTL 1000 applications created on XBT F terminals to VijeoDesigner applications for use on XBT GT terminals.</p> <p>The service provides:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Analysis of the complexity of migration in terms of hardware, software, communication with PLCs, etc. <input type="checkbox"/> Analysis of the new functional requirements <input type="checkbox"/> Proposal for migration methodology <p>The possible deliverables include:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Simple conversion <input type="checkbox"/> Full migration of complex machines <input type="checkbox"/> Migration to SCADA system <input type="checkbox"/> Standardization process for multiple machines <p>For more information on this service offer, please consult your Regional Sales Office.</p>
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References

All licenses for the Vijeo Designer configuration software listed below consist of a CD-ROM containing:

- Vijeo Designer software V4.5, including:
 - Copyright-free *stand-alone* installation of Data Manager
- User documentation in electronic format, including:
 - Online help
 - User's Manual for the supported targets
 - Setup Manual for the different protocols supported
- A multimedia self-learning tool lasting 1 hour 30 minutes in English/French
- The communication protocols described on page 36349/8



VJD SUD TGS V45M

Single-station licenses

Designation	Type of license	Application transfer cable included		Reference	Weight kg
		PC-side port	Terminal side Magelis XBT/ Magelis iPC		
Vijeo Designer configuration software	Single (1 station)	–	– (1)	VJD SND TGS V45M	0.280
		USB	XBT G/GT11	VJD SUD TGS V45M	0.420
			XBT GT2●...GT73 Magelis Smart iPC HMI edition Magelis Compact iPC HMI edition	VJD SUD TGA V45M	0.410

Multistation licenses

Designation	Type of license	Number of stations (1)	Reference	Weight
Vijeo Designer configuration software	Group	3	VJD GND TGS V45M	0.280
	Team	10	VJD TND TGS V45M	0.280
	Facility	Unlimited number of stations on one site	VJD FND TGS V45M	0.280

(1) Separate parts: For application transfer cables (PC to Magelis XBT terminal), see page 36356/3.