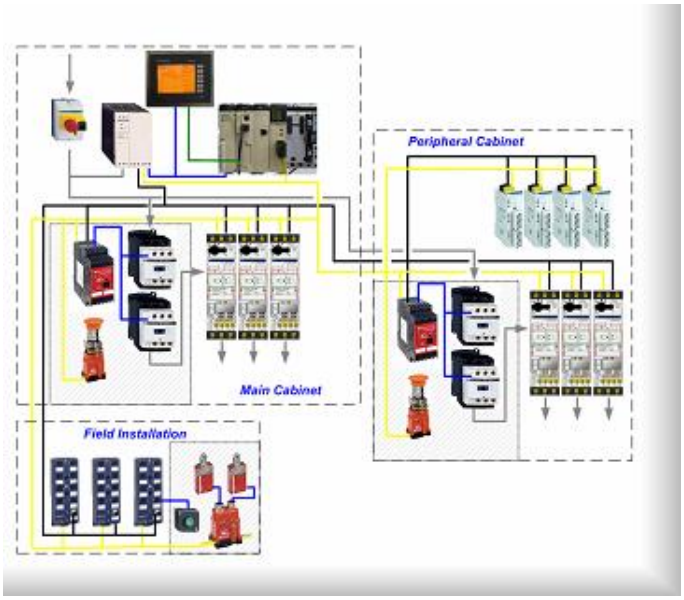
Premium with AS-Interface Master Magelis, TeSysU and Preventa

System User Guide

[source code]



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Building a New Electric World

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Introduction

This document is intended to provide a quick introduction to the described System.
It is not intended to replace any specific product documentation. On the contrary, it offers additional information to the product documentation, for installing, configuring and starting up the system.

A detailed functional description or the specification for a specific user application is not part of this document. Nevertheless, the document outlines some typical applications where the system might be implemented.

Abbreviations

Word / Expression	Signification
AC	Alternating Current
Advantys	SE product name for a family of I/O modules
Altivar (ATV)	SE product name for a family of VSDs
CANopen	Name for a communications maschine bus system
CB	Circuit Breaker
CoDeSys	Hardware-independant IEC 61131-3 programming software
ConneXium	SE product name for a Family of Transparent Factory devices
DC	Direct Current
EDS	Electronic Data Sheet
E-OFF, E-STOP	Emergency Off switch
Harmony	SE product name for a family of switches and indicators
HMI	Human Machine Interface
I/O	Input/Output
IclA (ICLA)	SE product name for a compact drive
Lexium/Lexium05/LXM	SE product name for a family of servo-drives
Magelis	SE product name for a family of HMI-Devices
MB - SL	SE name for a serial Modbus communications protocol
Micro	SE product name for a middle range family of PLCs
NIM	SE product name for a Network Interface Module
Osiswitch	SE product name for a family of position switches
PC	Personal Computer
Phaseo	SE product name for a family of power supplies
PLC	Programmable Logic Computer
Powersuite	An SE software product for configuring drives
Premium	SE product name for a middle range family of PLCs
Preventa	SE product name for a family of safety devices
PS1131 (CoDeSys)	SE Product name for PLC programming software with CoDeSys
PS	Power Supply
SE	Schneider Electric
Sycon	SE product name of a Field bus programming software
Telefast	SE product name for a series of distributed I/O devices
TesysU	SE product name for a decentralised I/O System
Twido	SE product name of a middle range family of PLCs
TwidoSoft	SE product name for a PLC programming software
TwidoSoft	SE product name for a PLC programming software
Unity (Pro)	SE product name for a PLC programming software
Vijeo Designer	An SE software product for programming Magelis HMI devices
VSD	Variable Speed Drive
WxHxD	Dimensions : Width, Height and Depth
XBT-L1000	An SE software product for programming Magelis HMI devices
Zelio	SE product name for a low range PLC family
ZelioSoft	SE product name for a PLC programming software

Application Source Code

Introduction

Examples of the source code used to attain the system function as described in this document can be downloaded under **this** online link.

The example source code is in the form of configuration, application and import files. Use the appropriate software tool to either open or import the files.

Extension	File Type	Software Tool Required
AIW	Configuration file	Advantys
CNF	Configuration file	Sycon
CO	CANopen definitions file	Sycon
CSV	Comma Seperated Values, Spreadsheet	Twidosoft
CTX		Unity
DCF	Device Configuration File	Advantys
DIB	Device Independent Bitmap	Sycon
DOC	Document file	Microsoft Word
DOP	Project file	Magelis XBTL
EDS	Electronic Data Sheet – Device Definition	Industrial standard
FEF	Export file	PL7
GSD	EDS file (Geraete Stamm Datei)	Profibus
ISL	Island file, project file	Advantys
PB	Profibus definitions file	Sycon
PDF	Portable Document Format - document	Adobe Acrobat
PRO	Project file	PS1131 - CoDeSys
PS2	Export file	Powersuite export file
RTF	Rich Text File - document	Microsoft Word
STU	Project file	Unity Pro
STX	Project file	PL7
TLX	Project file	Twinline control tool
TWD	Project file	TwidoSoft
VDZ	Project file	Vijeo Designer
XEF	Export file	Unity Pro
XPR	Project file	TwidoSuite
ZM2	Project file	Zeliosoft

Typical Applications

Introduction

Here you will find a list of the typical applications, and their market segments, where this system or subsystem can be applied:

Industrial

- Small to middle sized automated machines
- De-centralised automated sub systems serving as components in large or middle sized machines

Building/Services

- Material elevators, e.g. in cafeterias or hospitals
- Climate control in greenhouses

Application	Description	Image
• **Industry** —conveying & handling —moving walkway —machinery automation systems, with low complexity	The example shows a small conveying system. The control elements are: • operator interface • peripheral motor control • AS-Interface	
• **Building / services** —lift —escalator —Lighting management —Access, control and surveillance management —Heating and air conditioning management	The example shows a lift control system. The control elements are: • operator interface • central motor control • AS-Interface on each floor • AS-Interface in the shaft • AS-interface in the car	

System

Introduction

The system chapter describes the architecture, the dimensions, the quantities and different types of components used within this system.

Architecture

General

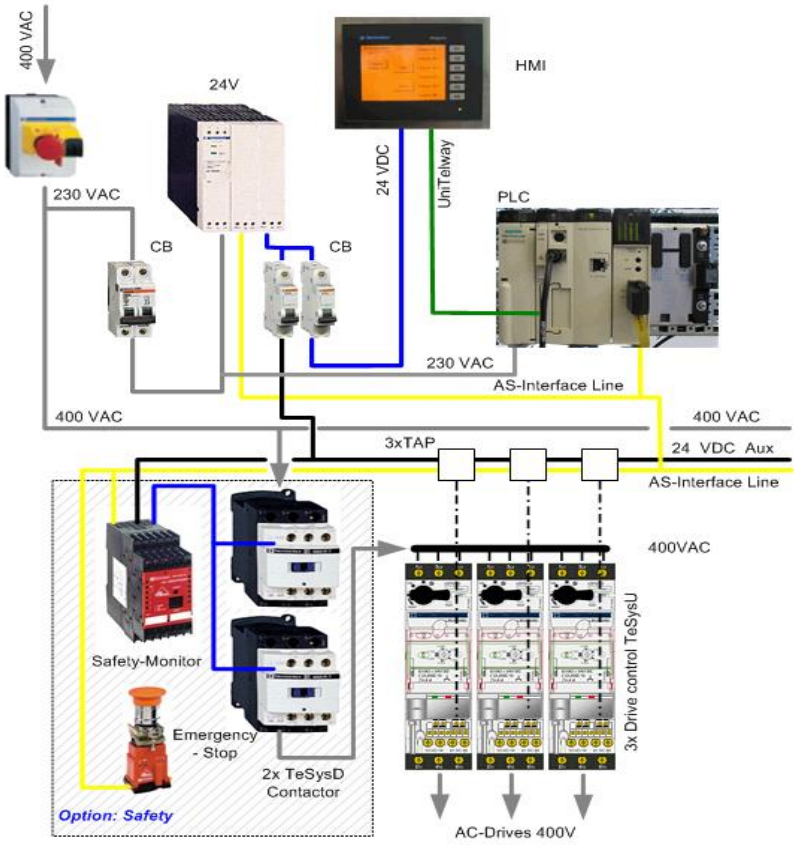
The architecture comprises three main-function groups:

- Control cabinet with operator interface
- Remote cabinet with motor control
- Subsystem for the field installation

Each of the three groups is described separately.

Layout

Central Cabinet



Control Cabinet

The control cabinet comprises the following main components:

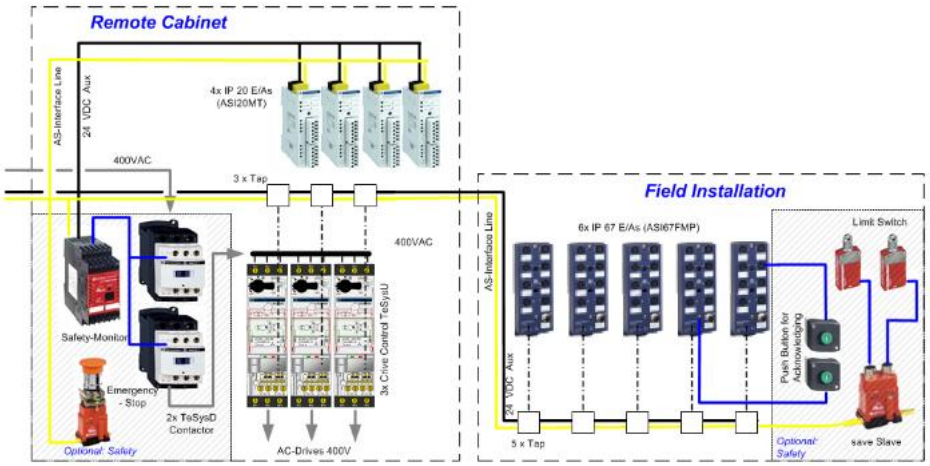
- Premium PLC with AS-Interface master module
- Magelis XBT-GT display terminal (graphical monochrom display)
- 3 TeSysU motor starters with AS-Interface (TeSysU)
- Optional: AS-Interface safety monitor, AS-Interface emergency-off switch with redundant load contactors for disconnecting the 400 V AC power supply

The central devices in this control cabinet include the Twido PLC, the Magelis HMI and the optional safety provided in the event of an emergency-off, by means of which the load is disconnected via an AS-Interface safety monitor with assigned contactors.

As well as the distribution board for the load power supply for the load components (400/230 V AC), this control cabinet also houses the conventional 24 V and AS-Interface power supplies, along with three TeSysU type motor starters.

Layout

Remote Cabinet and Field installation



Remote Cabinet

The remote cabinet comprises the following main components:

- 3 TeSysU motor starters with AS-Interface (TeSysU)
- 4 digital IP20 I/O modules with AS-Interface (ASI20MT)
- Optional: AS-Interface safety monitor, AS-Interface emergency-off switch with redundant load contactors for disconnecting the 400 V AC power supply.

The TeSysU motor starters can be installed side-by-side and supplied with power via busbars in order to minimize requirements in respect of space and wiring. The IP20 I/O modules can also be installed side-by-side to save space. Furthermore, an AS-Interface safety monitor with associated redundant load contactors for implementing an optional safety guard function is also assigned to this cabinet.

Optional Safety Function

The AS-Interface emergency-off switch is connected to the shared yellow AS-Interface cable (this means that it *does not have to be wired separately*). Although the emergency-off switches on the main cabinet and on the remote cabinet will trigger both safety monitors, if the door safety function (which is controlled by the roller limit switches) is cancelled, only the safety monitor in the remote cabinet will be disconnected.

Field Installation

The field installation essentially comprises 3+2 ASI67FMP digital IP67 I/O modules. The last two modules are optional field devices and can be used for remote control (start/error unlatching) of the safety monitors.
As the IP67 modules and their connection adapters do not require enclosures, their installation location and type can be selected in accordance with requirements. Field installations can, therefore, be set up anywhere and in any configuration using cables and sensors with the appropriate degree of protection.

Components

Hardware for the control cabinet:

- Vario VCF master switch (with red and yellow knob) (MS) - optional
- GV2ME motor circuit breaker (MCB)
- Multi 9 circuit breaker, 1- and 2-pole (CB)
- Phaseo power supply, 30V (PS) for AS-Interface
- Modular Premium PLC with Ethernet interface and AS-Interface-Master (PLC)
- Magelis XBT-GT display terminal (graphical monochrom display)
- 3 x TeSysU-Motor starter with AS-Interface (TeSysU)

Optional: Devices required for safety in the control cabinet

- ASISAFEMON1 safety module for AS-Interface Safety@Work
- ASISSLB4 with mushroom pushbutton attachment (tamper-proof)
- 2 x LC1D load contactors

Hardware for the remote cabinet:

- 3 x TeSysU motor starters with AS-Interface (TeSysU)
- 1 x GV2G busbar with GV1G terminal blocks
- 3 x taps for connection to the AS-Interface bus
- 4 x ASI20MT digital IP20 I/O blocks (4 transistor inputs/3 transistor outputs) with AS-Interface (IP20 I/O)
- 4 x ASI20MACC IDCs (IDC = Insulation Displacement Connector) for connection to the AS-Interface bus

Optional: Devices required for safety in the remote cabinet

- ASISAFEMON1 safety module for AS-Interface Safety@Work
- ASISSLB4 with mushroom pushbutton attachment (tamper-proof)
- 2 x LC1D load contactors

Hardware for field installation:

- 3(5) x ASI67FMP digital IP67 I/O blocks (4 transistor inputs/3 transistor outputs) with AS-Interface (IP67 I/O)
- 3(5) x ASIDCMP for connection to the AS-Interface bus
- XZCP1564x jumper cable for connection to machines or similar
- AS-Interface cable, yellow and black (yellow: bus; black: 24 V aux. power)

Optional: Safety components in the field

- ASISAFEMON1 safety module for AS-Interface Safety@Work
- ASISSLC2 safe AS-Interface slave for 2 safe inputs
- XCS39M15xx roller limit switches for safety door supervision
- XB5AW illuminated pushbutton in XALD housing

Software:

- Unity Pro 2.2 XL
- Vijeo-Designer 4.3
- ASISWIN 2 V2.0.3 (optional)

Quantities of Components

For a complete and detailed list of components, the quantities required and the order numbers, please refer to the components list at the rear of this document.

Degree of Protection

Not all the components in this configuration are designed to withstand the same environmental conditions. Some components may need additional protection, in the form of housings, depending on the environment in which you intend to use them. For environmental details of the individual components please refer to the list in the appendix of this document and the appropriate user manual.

Technical Data

Mains Voltage	400 VAC
Power Requirement	~ 5 kW
Drive Power Rating	<= 0,75 kW
Motor brake	none
Connection	5 x 2,5 mm² (L1, L2, L3, N, PE)
Safety Level	category 3 (optional)

Safety Notice

The standard and level of safety you apply to your application is determined by your system design and the overall extent to which your system may be a hazard to people and machinery.

In this application example, category 3 has been selected for the safety level. Category 3 is the second highest safety level according to EN954-1.

Whether or not the above safety category should be applied to your system should be ascertained with a proper risk analysis.

This document is not comprehensive for any systems using the given architecture and does not absolve users of their duty to uphold the safety requirements with respect to the equipment used in their systems or of compliance with either national or international safety laws and regulations

Dimensions

The control cabinet components can be housed in an enclosure with external dimensions of approx. 600 x 1000 x 300 mm (WxHxD). The safety module with circuit breaker can also be included in the cabinet.

The components of the remote cabinet can be installed in very close proximity to one another. The TeSysU motor starters can be installed side-by-side and supplied with power via busbars. The IP20 I/O modules can also be installed side-by-side. The external dimensions of the remote cabinet, as with the main cabinet above, need to be approx. 600 x 1000 x 300 mm (WxHxD). Again, this allows a 20% reserve for optional devices.

An enclosure is not required for the field devices and taps. Thanks to IP 67 degree of protection, the installation location can be adapted to meet requirements and, therefore, be situated near to the sensors and actuators in the field.

Installation

Introduction

This chapter describes the steps necessary to set up the hardware and configure the software required to fulfil the described function of the application.

Assembly

Notes

- The components intended for installation in a control cabinet, i.e. Phaseo power supply unit, safety monitor, automatic circuit breakers, load contactors, and motor starters, can be connected to a 35 mm DIN rail. The Premium-PLC, with its rack, can be mounted directly on the rear wall of the cabinet.
- The emergency-off switches and the installation box for the main switch have been designed for installation in a cabinet door.
- Two mounting options are available for XB5 pushbuttons and indicator lamps:

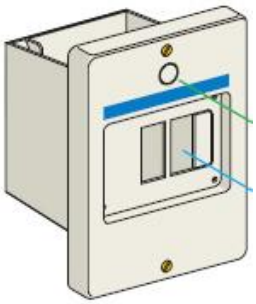
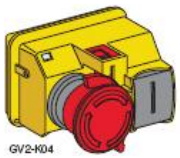
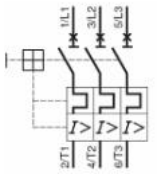
    1. A hole measuring 22 mm drilled into the front door of the control cabinet in the appropriate location.
    2. An XALD housing able to accommodate up to 5 momentary-contact switches or indicator lamps. This XALD housing is designed for backplane mounting or direct wall mounting.

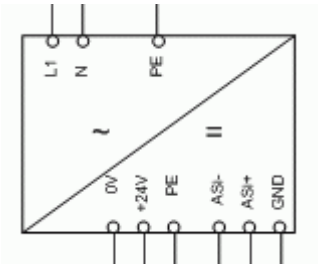
- 400 V AC wiring between the main circuit breaker, primary side of the 24 V power supply plus motor circuit breakers, motor starters and motors.
- 230V AC-wiring between the master switch and Premium (the premium also has a power supply of 24 VDC).
- 24 V DC wiring between power supply unit and safety module.
- AS-Interface power supply and auxiliary power supply (30/24 VDC) via yellow and black AS-Interface cable.

Hardware

Components

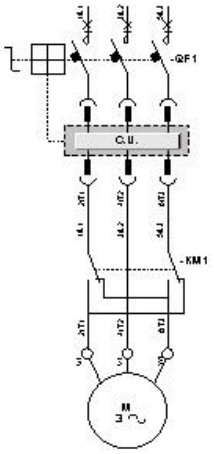
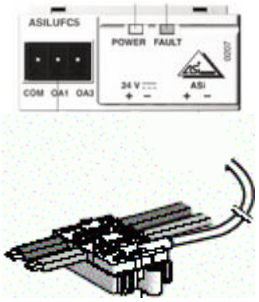
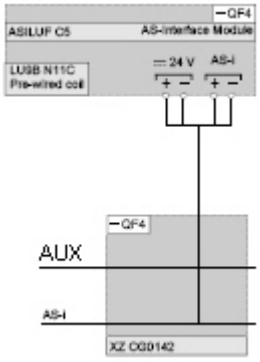
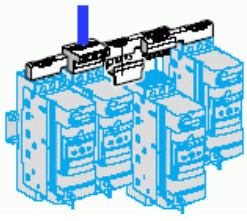
Control Cabinet

Installation box GV2MP **+** **Emergency-off switch GV2K04** **+** **Control lamp GV2SN37**	 GV2-MP  GV2-K04	*Combination for the installation of a GV2ME motor circuit breaker in a cabinet door as a circuit breaker with fault clearing capability (lockable)*
Motor circuit breaker **GV2ME16**		
Circuit breaker 2-pole **multi9**		
Circuit breaker 1-pole **multi9**		

Phaseo power supply unit **ASIABLM3024**		

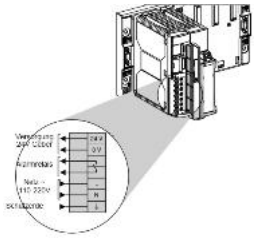
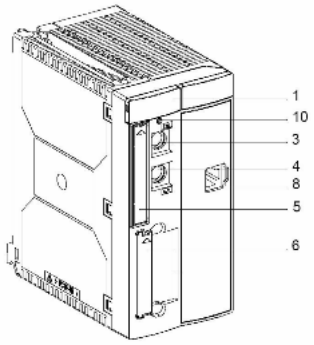
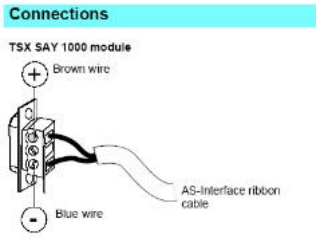
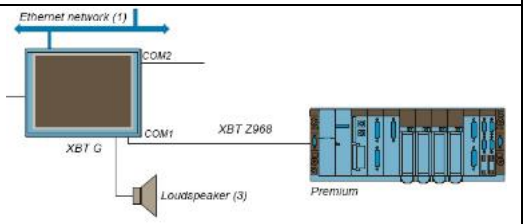
Components

Control Cabinet

Power section, motor starter (reversing contactor) LU2B12B **+** **Control module motor starter LUCA05BL**		
AS-Interface module ASILUF C5 **+** **Coil connection LU9MRC** **+** **AS-Interface tap XZCG0142**		
Busbar system GV2G345 with terminal block GV1G09		Can only be used if the motor starters are installed side-by-side.

Components

Control Cabinet

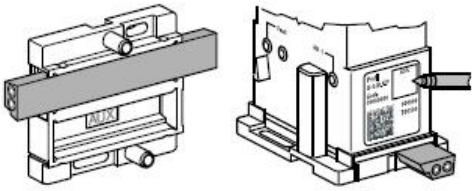
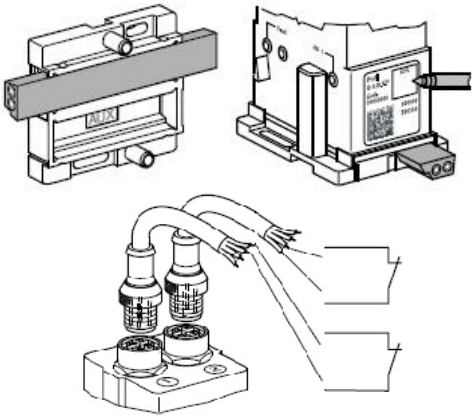
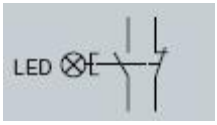
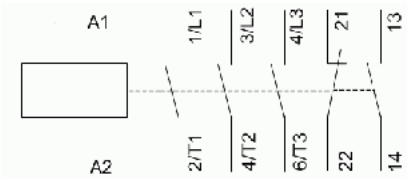
Premium-PLC TSXP572634M **+ Power Supply TSXPSY2600** **+ Rack TSXRKY6EX** **+ Terminal Resistor TSXTLYEX**	 	 (1) display (1) TER-socket (1) AUX-socket 5 PCMCIA-slot for memory card 6 PCMCIA-slot for communcations card 8 Ethernet Port 10 RESET button
Premium AS-Interface Master Module **TSXSAY1000**		
Magelis terminal **XBTGT1100**		 (1) XBTGT1100 without Ethernet

Option in main cabinet:

Emergency-off and safety guard

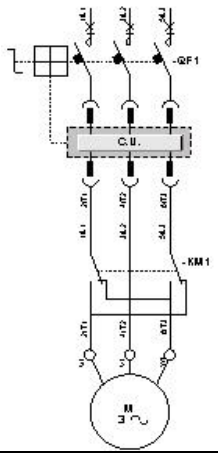
AS-Interface safety monitor **ASISAFEMON1**		

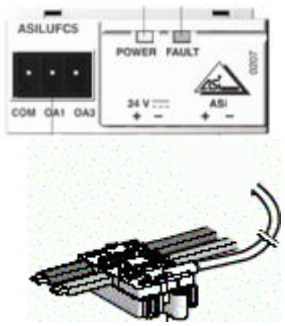
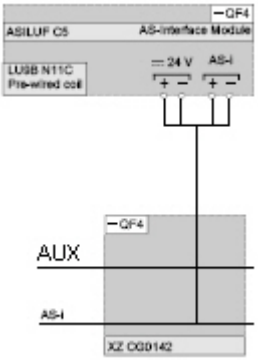
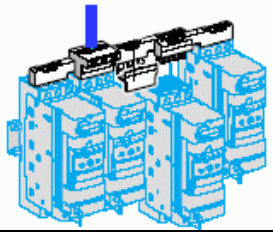
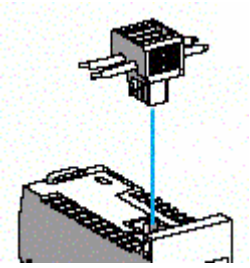
Terminal ASISAFE MON1(B)	Terminal ASISAFE MON2(B)	Signal / description
AS-i+	AS-i+	Connection at the AS-Interface bus
AS-i-	AS-i-	
L+	L+	+24 V — / supply voltage
M	M	GND / reference ground
FE	FE	Functional earth
1.Y1	1.Y1	EDM 1 / input of external device monitoring circuit, output circuit 1
1.Y2	1.Y2	Start 1 / start input, output circuit 1
1.13	1.13	Output switching element 1, output circuit 1
1.14	1.14	
1.23	1.23	Output switching element 2, output circuit 1
1.24	1.24	
1.32	1.32	Message output 1 "Safety on", output circuit 1
–	2.Y1	EDM 2 / input of external device monitoring circuit, output circuit 2
–	2.Y2	Start 2 / start input, output circuit 2
–	2.13	Output switching element 1, output circuit 2
–	2.14	
–	2.23	Output switching element 2, output circuit 2
–	2.24	
–	2.32	Message output 2 "Safety on", output circuit 2

Emergency-off **ASI SSL B4 + ZB4BS844**		
Safe input slave 1 x 2 inputs **ASISSLC2**		
Harmony 5 momentary-contact switch with LED XB5AW-36M5 and switch housing XALD01		
TeSys load contactor **LC1D09BL**		

Components

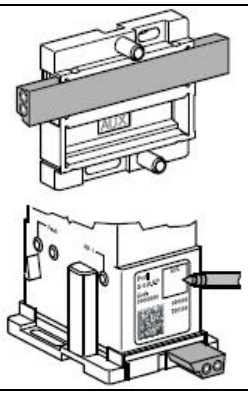
Remote Cabinet

Power section, motor starter (reversing contactor) LU2B12B **+** **Control module, motor starter LUCA05BL**		

AS-Interface module ASILUFC5 + Coil connection LU9MRC + AS-Interface tap XZCG0142		
Busbar system GV2G345 with terminal block GV1G09		Can only be used if the motor starters are installed side-by-side.
AS-Interface Input/output module (IP20) **ASI20MT4I3OSE with ASI20MACC1**		 **ASI 20MACC1**

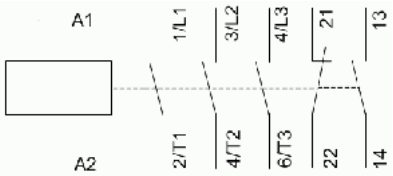
Option in Remote cabinet:

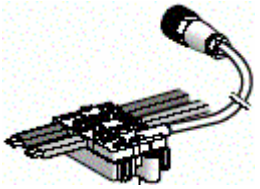
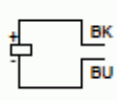
Emergency-off and safety guard

Emergency-off **ASISSLB4 + ZB4BS844**		

Components

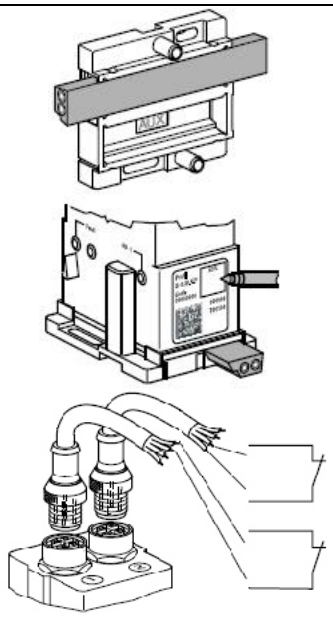
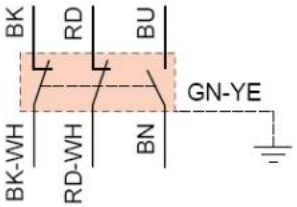
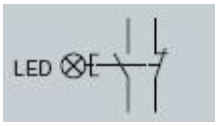
Field Installation

AS-Interface safety monitor **ASISAFEMON1**		Terminal ASISAFE MON1(B) / ASISAFE MON2(B) — Signal / description AS-i+ / AS-i+ — Connection at the AS-Interface bus AS-i− / AS-i− — Connection at the AS-Interface bus L+ / L+ — +24 V ⎓ / supply voltage M / M — GND / reference ground FE / FE — Functional earth 1.Y1 / 1.Y1 — EDM 1 / input of external device monitoring circuit, output circuit 1 1.Y2 / 1.Y2 — Start 1 / start input, output circuit 1 1.13 / 1.13 — Output switching element 1, output circuit 1 1.14 / 1.14 — Output switching element 1, output circuit 1 1.23 / 1.23 — Output switching element 2, output circuit 1 1.24 / 1.24 — Output switching element 2, output circuit 1 1.32 / 1.32 — Message output 1 "Safety on", output circuit 1 – / 2.Y1 — EDM 2 / input of external device monitoring circuit, output circuit 2 – / 2.Y2 — Start 2 / start input, output circuit 2 – / 2.13 — Output switching element 1, output circuit 2 – / 2.14 — Output switching element 1, output circuit 2 – / 2.23 — Output switching element 2, output circuit 2 – / 2.24 — Output switching element 2, output circuit 2 – / 2.32 — Message output 2 "Safety on", output circuit 2
TeSys load contactor **LC1D09BD**		

AS-Interface input/output block IP67 **ASI67FMP43E with ASIDCPM12D03**		 **ASI DCPM 12D03**
AS-Interface **sensor/actuator connection XZCP1564x**		

Option:

Safety in the field

Safe input slave 1x 2 inputs **ASISSLC2**		
Safety limit switch **XCSM3915L1**		
Acknowledgement button housing **Harmony 5** **Push button with LED XB5AW36M5 and switch housing XALD01**		

Software

General

The programming software tool **Unity** is used for programming the Premium PLC. This software is also used for configuring the communication of the AS-Interface and assigning the I/O.

The Magelis display is configured using the software tool **Vijeo-Designer**.

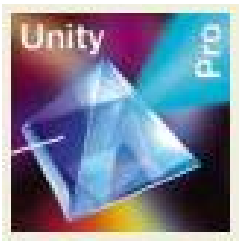
The **ASISWIN** software is used for first use and parameterization of the two optional safety monitors.

To run the software, you must have one of the following Windows operating systems installed on your PC:

Windows 2000 *or*
Windows XP

The default installation path on the hard drive of your PC for each of these software programs is:

Unity:	*C:\Program Files\Schneider Electric\Unity*
Vijeo-Designer:	*C:\Program Files\Schneider Electric\Vijeo-Designer*
ASISWIN:	*C:\Program Files\Schneider Electric\ASISWIN*



Unity Pro XL V2.2

Vijeo-Designer V4.3

ASISWIN V2.0.3

Note: To use the example program for Vijeo Designer you will need to download and install the patch V4.3.0C update

Communication

General

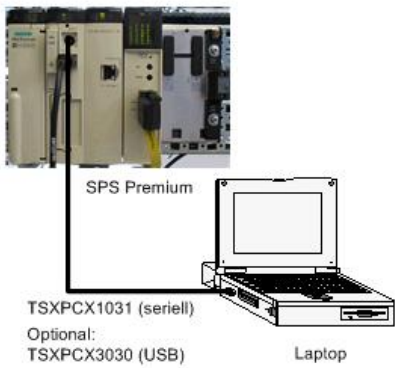
This architecture uses 2 different communication systems:

- UniTelway
- AS-Interface

A Unitelway connection is used to exchange data between the Magelis terminal and the Premium PLC. The XBTZ9680 communication cable shown below is needed to connect these two devices. The software driver required for Unitelway communication is contained in both the software package for the Magelis panel and the Premium PLC.

The AS-Interface communication consists of Premium Mastermodules TSXSAY1000. Each master can be expanded up to 62 Moduls. When using standard modules and safety Slaves together, 31 Modules can be used.

Premium <> PC

Serial Programming Cable **TSX PCX 1031** Optional: **USB Programming Cable** **TSX PCX 3030** Driver must be installed seperately. Standard Cross-Over CAT5 cable can be used for programming via the Ethernet interface.	

Magelis <> Premium

Communication Cable **XBTZ9780**	

Magelis <> PC

USB Programming Cable **XBTZG925**	

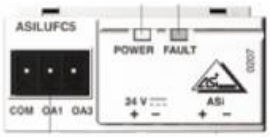
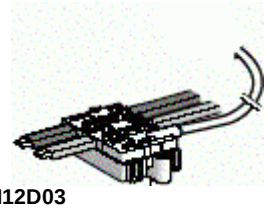
AS-Interface

IP20-Modules In-/Outputs

Module for use in a cabinet **ASI 20MT4I3OSE**	

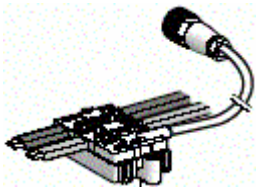
AS-Interface

IP20 Motor-starter module

Connection for using TeSysU-devices, consisting of 3 components : **ASILUFC5** **XZCG0142** **LU9MRC** *) *) resistor module integrated in TeSysU, no image	 **ASILUFC5**  **ASIDCPM12D03**

AS-Interface

IP67-Modules In/Outputs

Modules for use in the Field **ASI67FMP43E** **ASIDCPM12D03**	 **ASI67FMP43E**  **ASIDCPM12D03**

AS-Interface **Safety Monitor (optional)**	Expansion module connects to the Twido **ASISAFEMON1**	

AS-Interface **safety Slaves (optional)**	Safety Input slaves for AS-Interface for implementing safety functions : **ASISSLB2** **ASISSLC2**	 **ASISSLB2**  **ASISSLC2**

Implementation

Introduction

This chapter describes how to install and set up the software for the task associated with the following application.

Function

1. The entire application is controlled via the Magelis terminal in the main cabinet.

   The installed hardware must be operational:

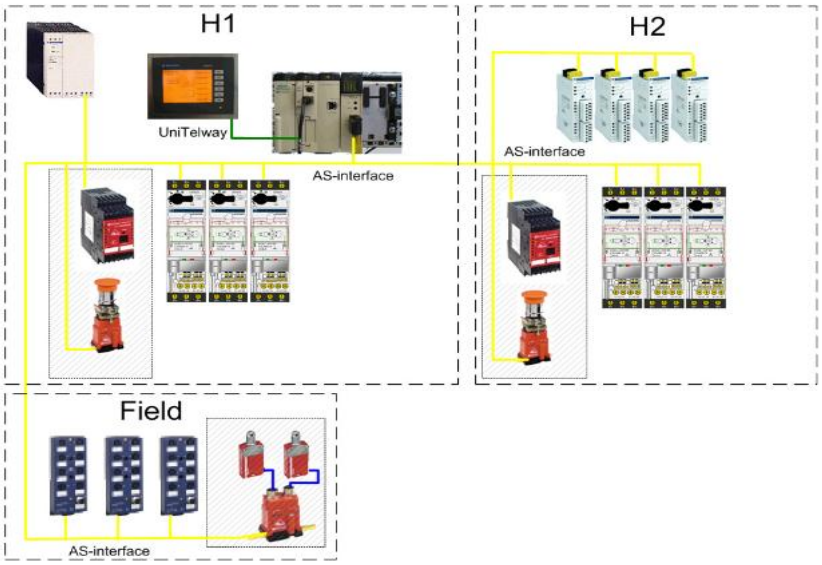
   - The components must have been installed correctly.
   - The main switch, circuit breakers and motor starters must have been switched on.
   - The emergency-off switch must be off (neither pressed nor latched).
   - The roller limit switches for the safety guard function must both be in their proper positions (safety guard established).
   - Both safety monitors must have been acknowledged (the blue indicator lamp has gone out).

2. The HMI has several screens for monitoring and controlling the motor starters. Each screen indicates the states of the motor starters (ready/running) and enables them to be controlled (forward/reverse).

3. Two additional HMI screens are used for supervising the AS-interface and the Safety modules

4. The right-hand navigation buttons (R1-R6) are used to control the corresponding TeSysU

5. The Alarm screen can be called up to display the current system condition.



PLC

Introduction

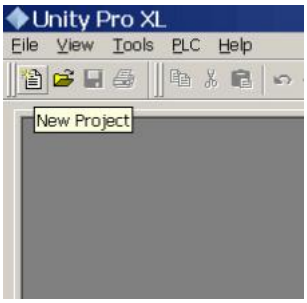
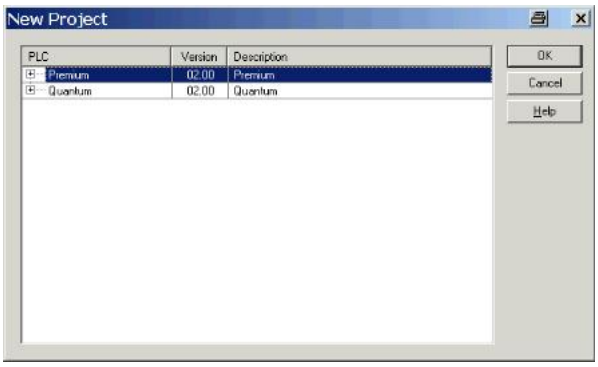
The PLC chapter describes how to initialize, parameterize and download the program to the PLC in order for the functional scope outlined above to be provided. The PLC program is created using the Unity Pro XL software..

Preconditions

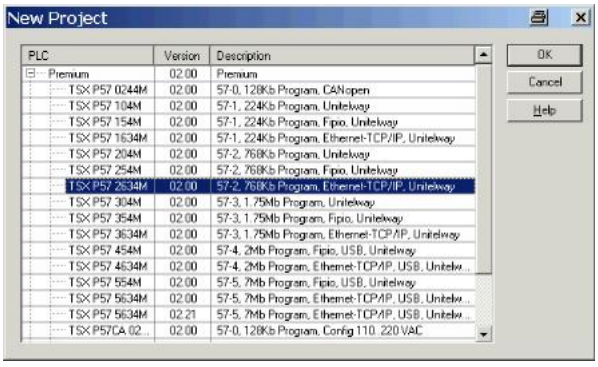
The procedure described below is subject to the following preconditions:

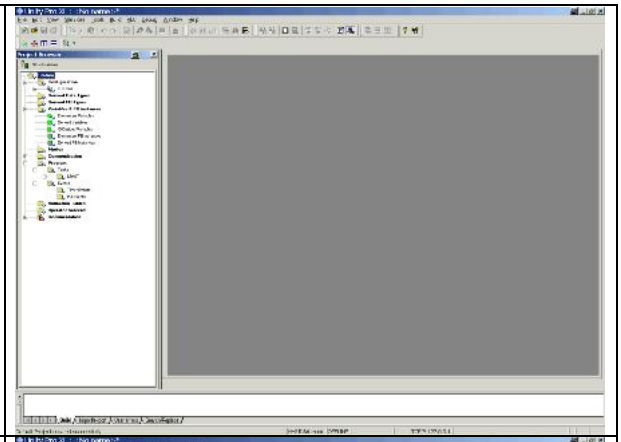
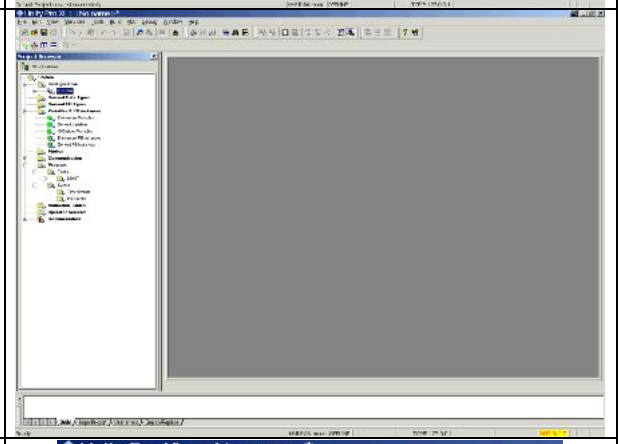
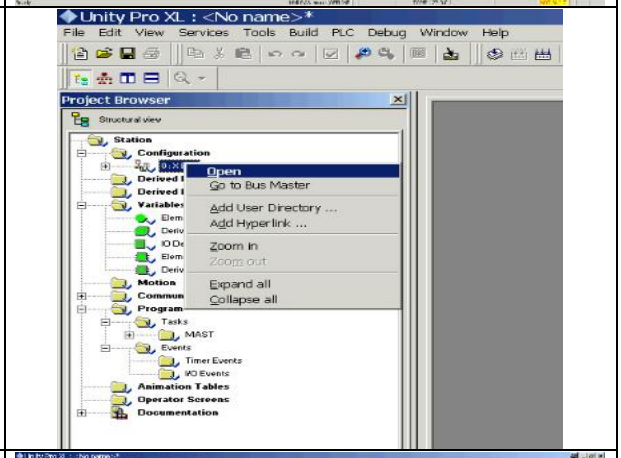
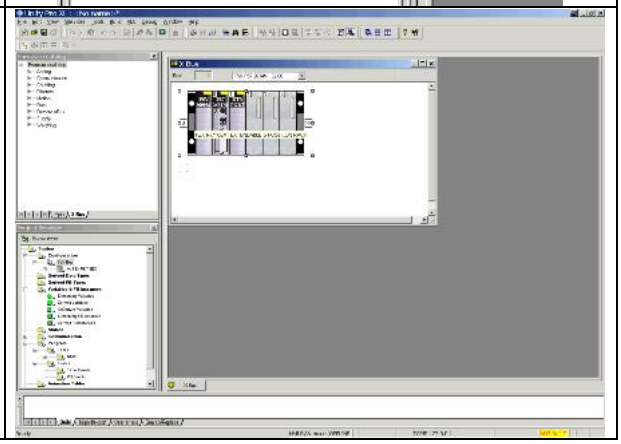
- Version 2.2 of Unity Pro XL is installed on your PC.
- The Unity example project is at hand.
- The Premium-PLC is connected to the power supply and switched on.
- The PLC and PC are connected to each other with the programming cable TSXPCX1031, via the TER port on the PLC.

Create a New Project

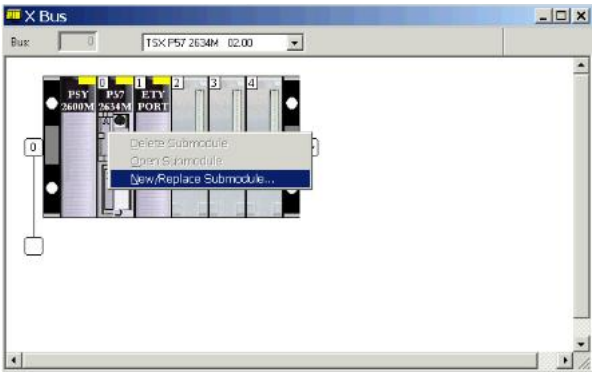
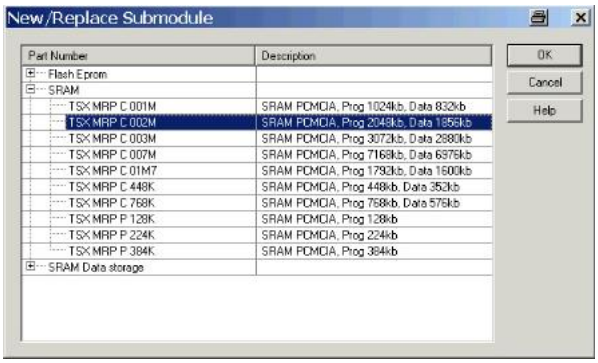
1	To create a new Unity project select: **File->New** or use the **New Project** icon	
2	In the following dialog select the CPU type. Our example uses a Premium. A double click on the CPU type **Premium** opens up a selection list.	

Change PLC Type

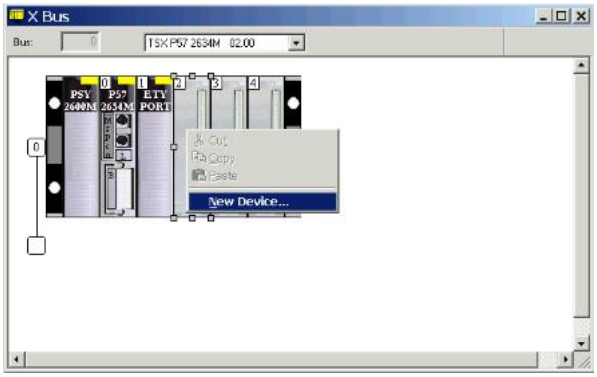
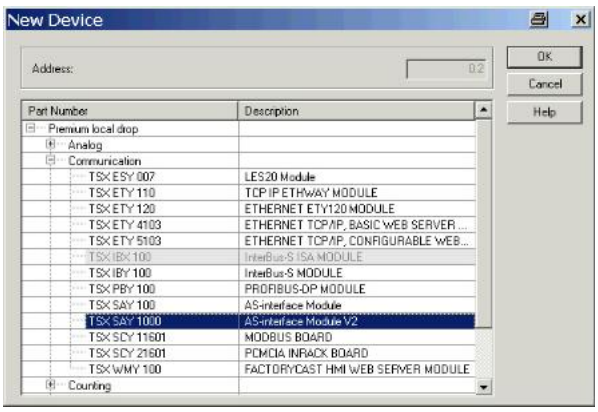
1	In the list of premiums displayed select: **TSXP572634M** If your CPU does not have the suffix **M,** assume it has. (models without **M** are older models but work just the same) Continue with **OK**	

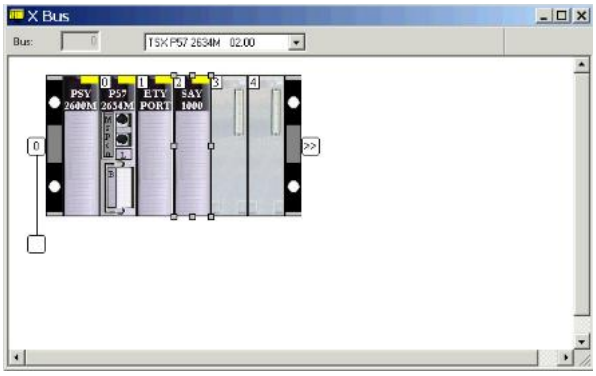
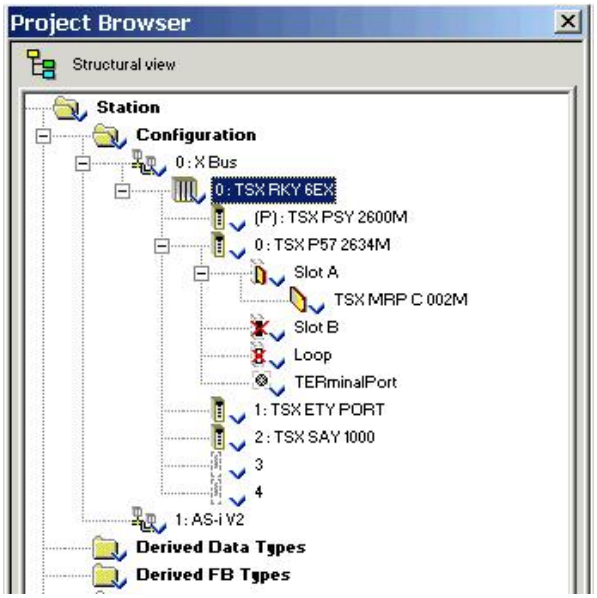
2	Once the CPU type has been defined you are shown the Unity desktop.	
3	In the **Project Browser** select : **Station->** **Configuration->** **0:X-Bus**	
4	Start the hardware configuration by double clicking the marked element (right mouse click works too) to open up a pop-up menu for the bus. Here, select: **Open**.	
5	The graphical configuration display opens. Unity automatically offers a default power supply module If the power supply module is not of type **TSXPSY2600** (as used in the example) then it must be changed Double click on the modul and select the new one.	

Inserting a Memory Module

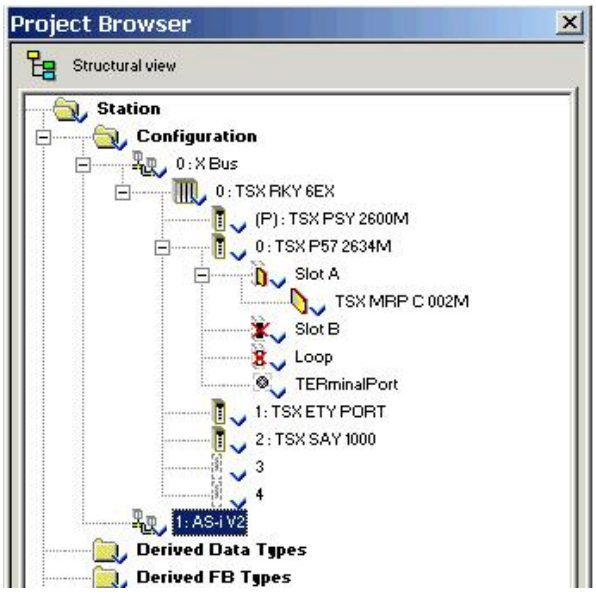
1	add the memory extension card to slot A on the CPU. Right mouse click on the slot opens up a menu. Select: **New/Replace Submodule..** In our case we are using the memory expansion card type: **TSXMAPC002M** with 2 MB memory.	
2	In the **New/Replace Submodule** dialog select the card type : **TSXMAPC002M** under **SRAM**. continue with **OK.**	

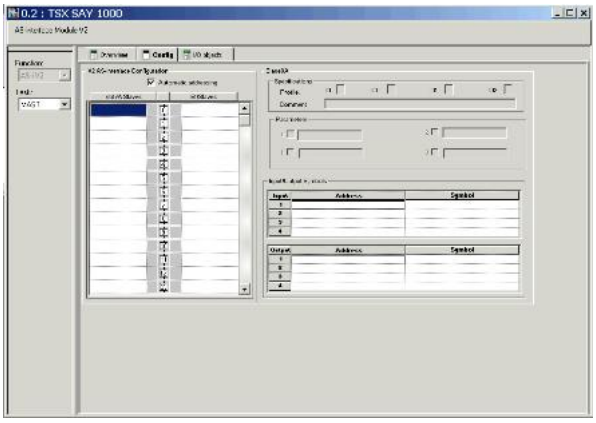
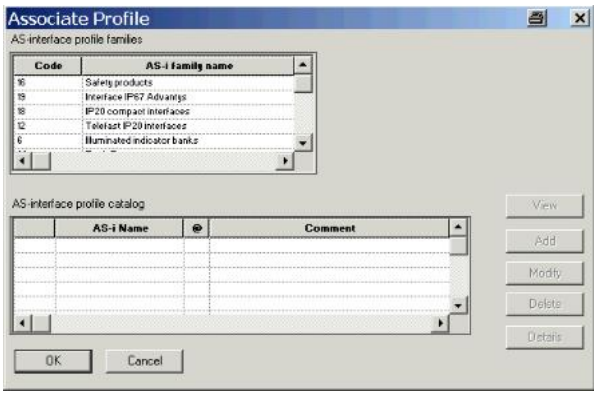
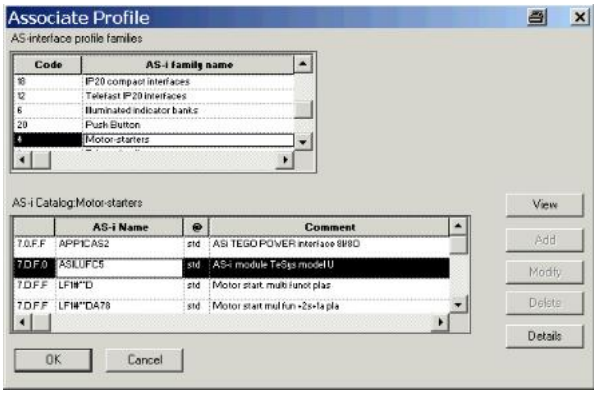
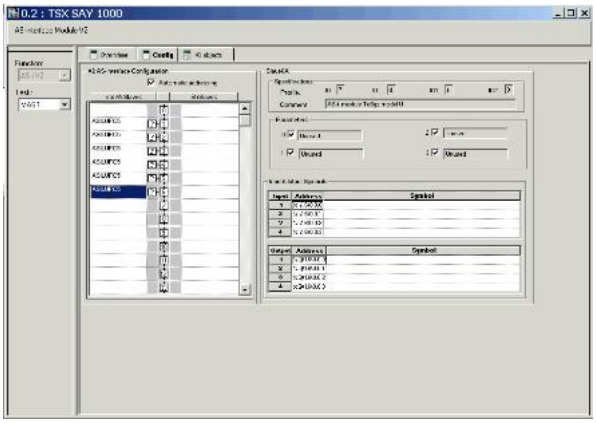
Adding Extension Modules

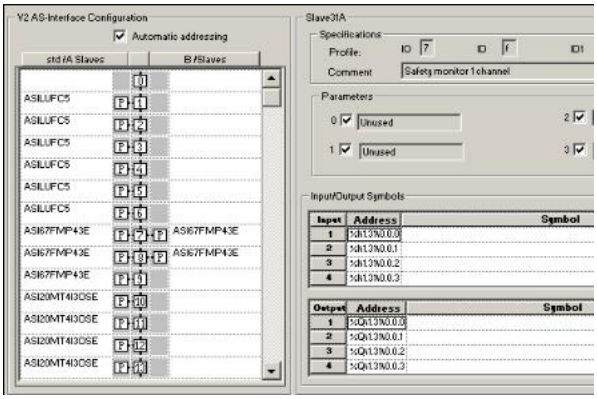
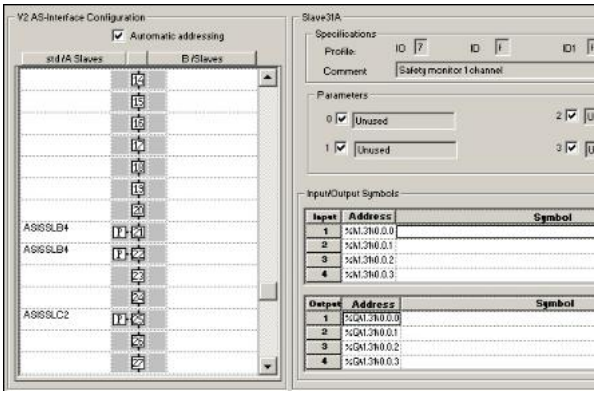
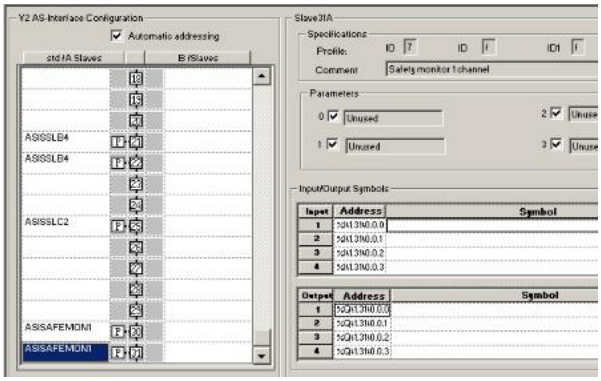
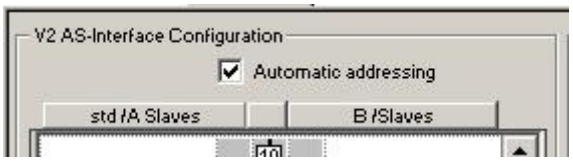
1	To add the AS-Interface-Master module click on an empty slot with the right mouse button. Click on **New Device..** in the pop-up menu.	
2	In the **New Device** dialog expand the **Communication** section and select the AS-Interface Master **TSXSAY1000.** Continue with **OK**.	

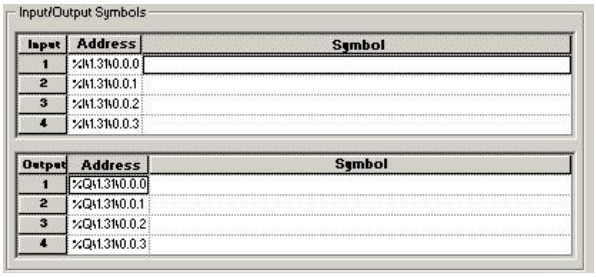
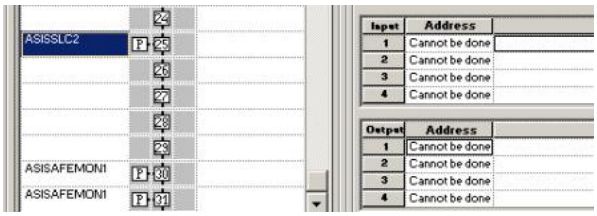
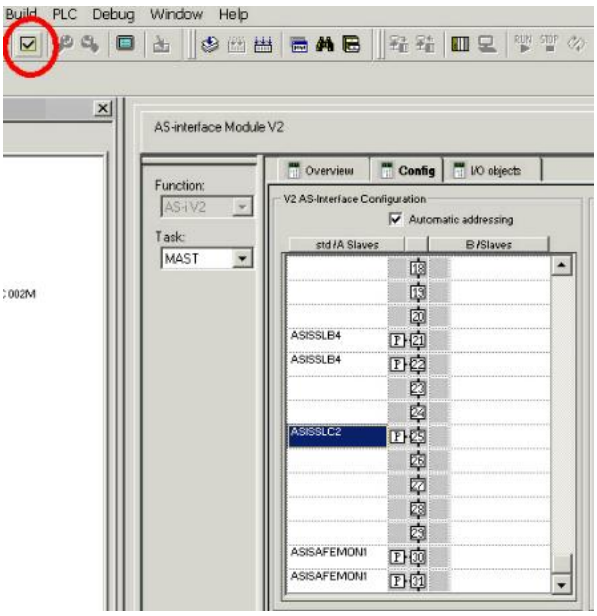
3	the module has now been added to the graphics image in the slot that you selected.	
4	The **Project Browser** also shows the added devices in its projct directory.	

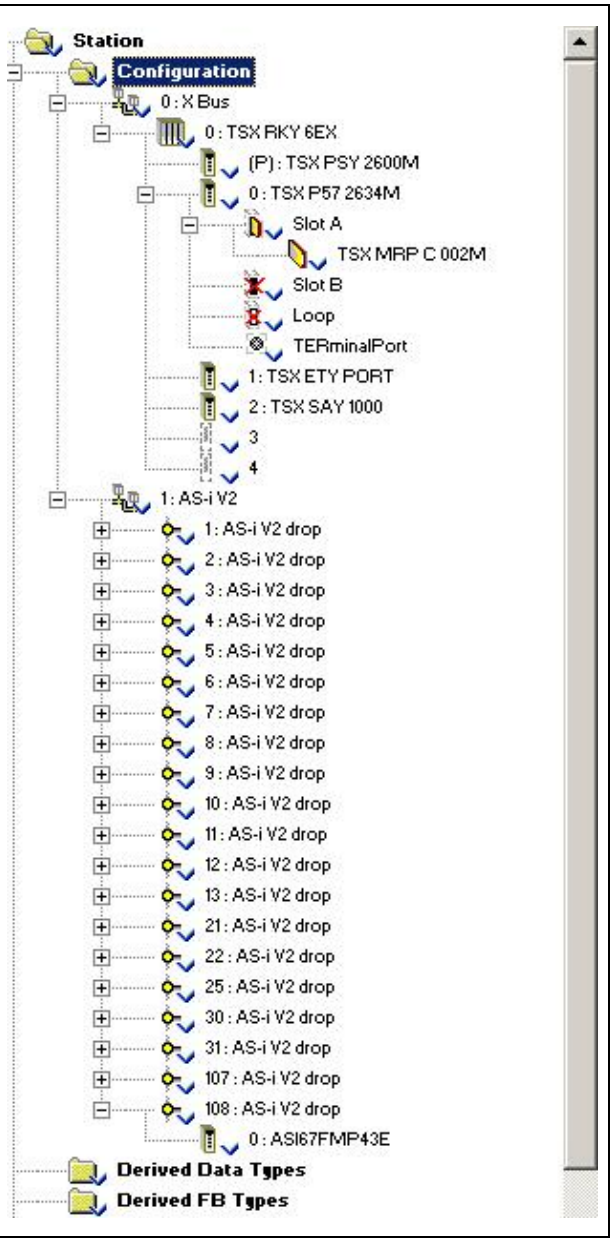
AS-Interface Configuration

1	In the project browser you will now see that an AS-Interface V2 (**AS-i V2**) bus has been added. To configure all the modules, double click on it.	

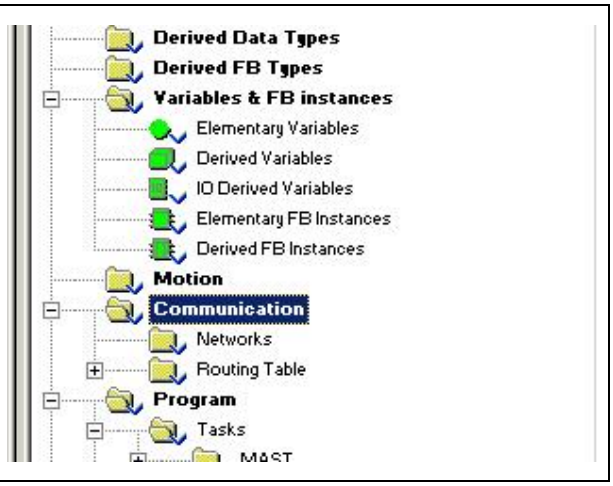
2	An empty configuration dialog appears.	
3	A double click on an AS-Interface-Slave entry (left A- and right B-channel), opens up the Associate Profile dialog. Here you can select the **AS-I family name**. Note: Slave 0 cannot be configured.	
4	To configure the TeSysU Modules select the family group with Code **4 Motor-starters** and then select the TeSysU Modul **ASILUFC5** in the catlog below it. Confirm the selection with **OK**.	
5	Repeat the above selection to integrate the other 5 TeSysU modules.	

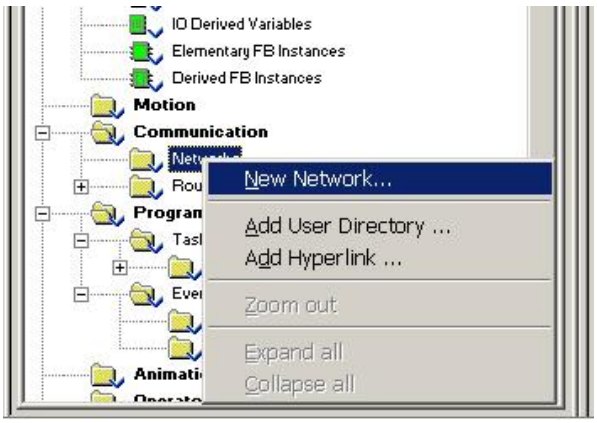
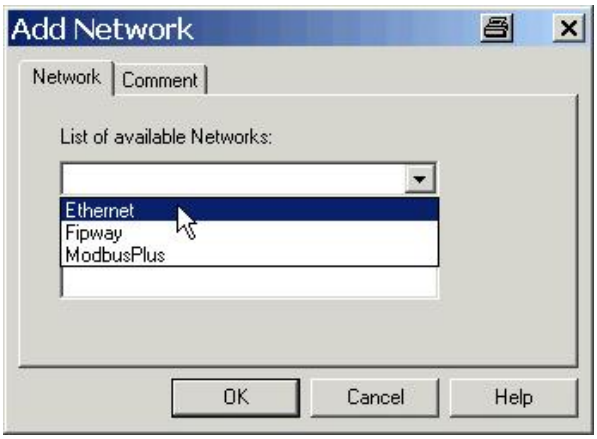
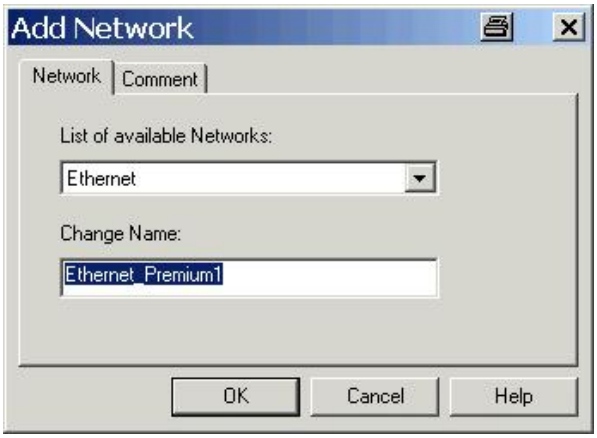
6	In this image all the standard slaves and 2 extended slaves on the B channel have been configured. Slave 1A-6A **ASILUFC5** Slave 7A-9A **ASI67FMP43E** Slave 7B-8B **ASI67FMP43E** Slave 10A-13A **ASI20MT4I3OSE**	
7	Safety Modules always require both **A and B Kanal**. Slave 21 + 22 ASISSLB4 Slave 25 ASISSLC2	
8	The same applies to the safety monitors on the last 2 addresses. Slave 31 + 30 **ASISAFEMON1** Safety Monitors for the AS-Interface bus should always occupy the last addresses.	
9	Setting the check-box **Automatic Addressing** allows the PLC to automatically configure replacement slaves that have been changed for maintenance/repair.	

10	The addresses are listed in the **Input / Output Symbols** table. They have the format: %I\Slot.Slave\0.0.0-3 e.g.: **%I\1.12\0.0.0** => Input (**%I**) on AS-Interface-Master in Slot 1 (**\1.**) at Slave 12A (**.12**) Wort 0 (**\0.0.0**) **%Q\2.112\0.0.3** => Ouput (**%Q**) on AS-Interface-Master in Slot 2 (**\2.**) at Slave 12B (**.112**) Word 3 (**\0.0.3**) 2 AS-Interface Masters on one CPU is not possible – the image is for examples only.	
11	The family and code are shown in the S**pecifications**	
12	Unity only allows you to configure the AS-Interface-Safety-Slaves. They cannot be addressed. The modules must be configured in Unity howecer, so that the safety monitor can recognise them.	
13	To take on the changes, the configuration is **only accepted when the check box** (upper left corner) **is set**. If you exit the dialog before setting the check box all changes are lost.	

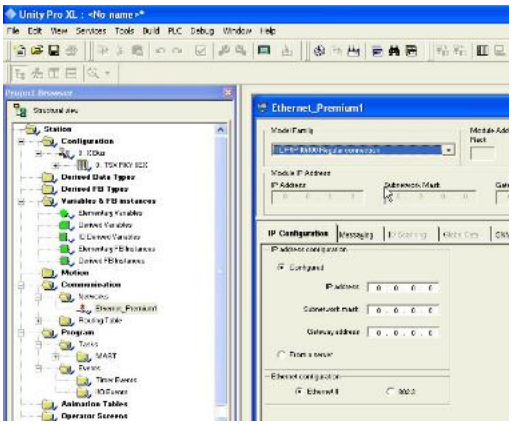
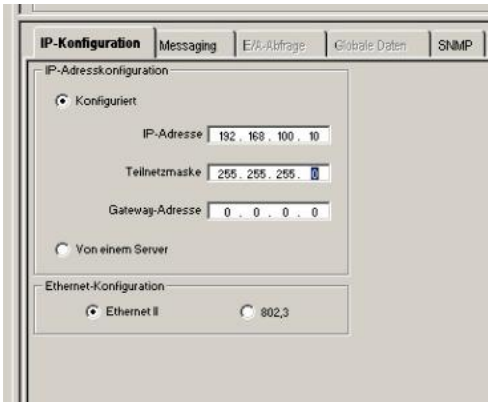
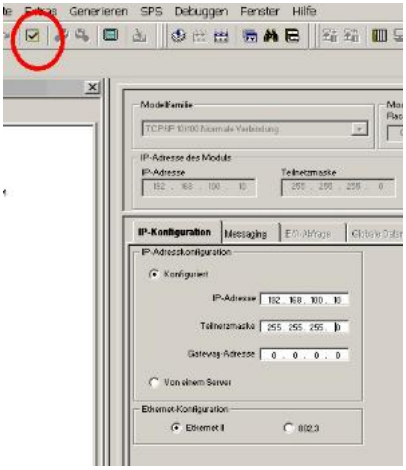
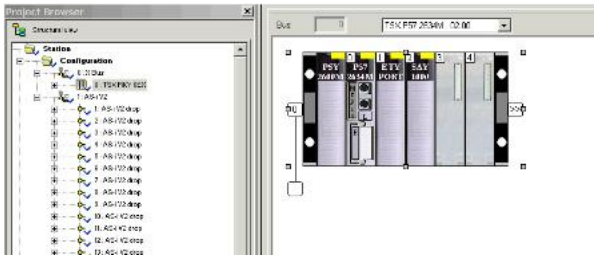
14	After changing the configuration, the changes can be seen in the **project browser**.	

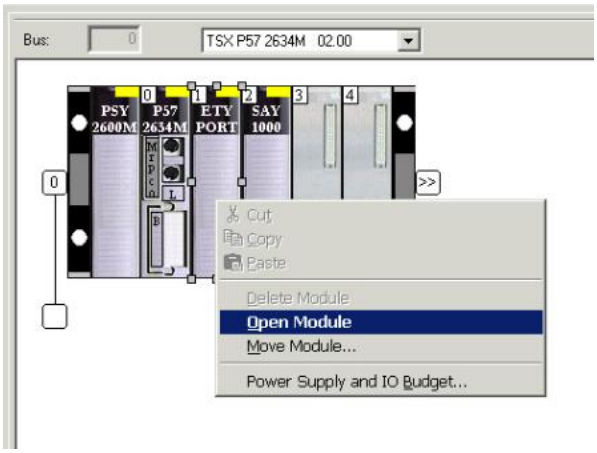
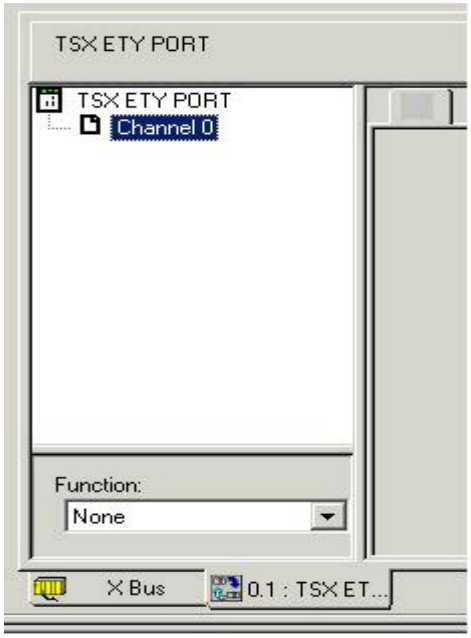
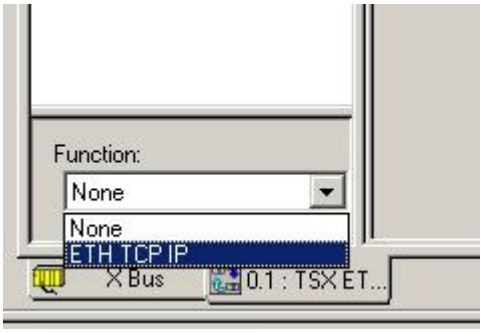
Configuring the Ethernet Interface

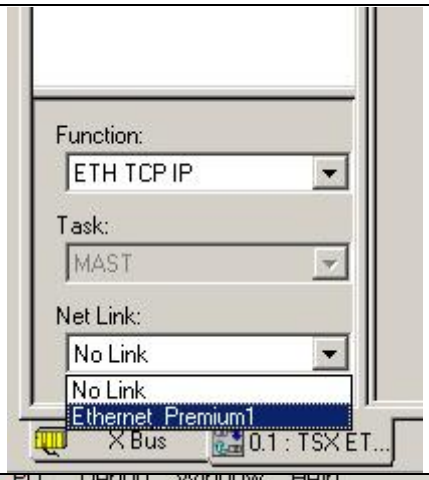
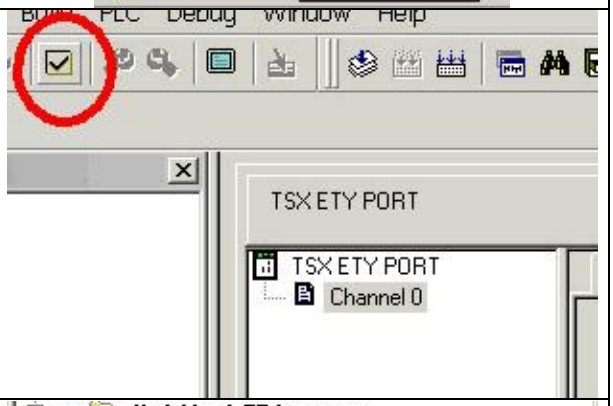
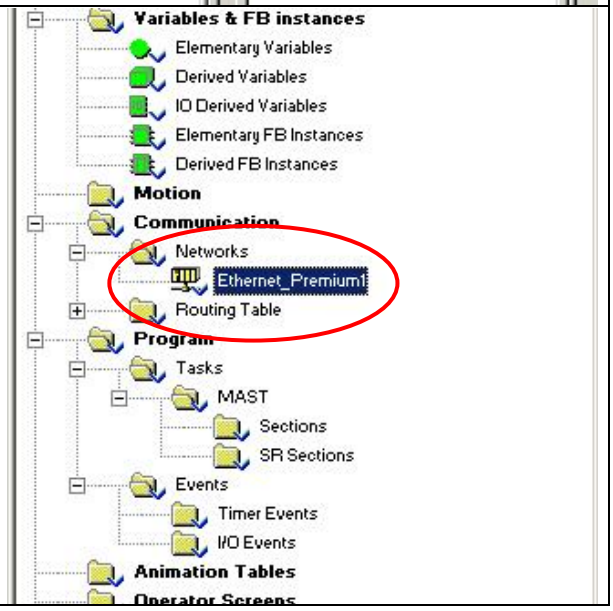
1	Select **Communication** In the **project browser** and open the directory tree.	

2	Under **Communication,** right mouse click on **Network** to open up a pop-up menu. In the menu select: **New Network..**	
3	In the Add Network dialog that now appears, select the type of network. Here, **Ethernet**.	
4	Give the network a name and exit with **OK** . Here, the name **Ethernet_Premium1** is used.	
5	after successfully configuring the Ethernet network, it is displayed in the project browser under **Networks** with the name you have given it. Note the icon has a red cross on it to signify that it has not been consigned to an interface.	

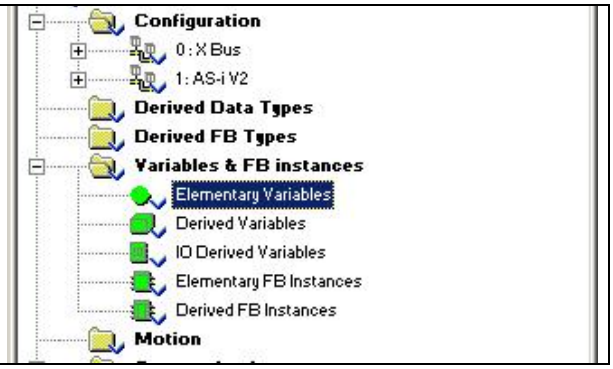
Setting the Ethernet Address

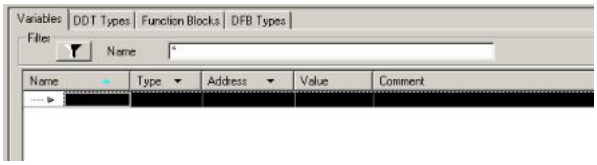
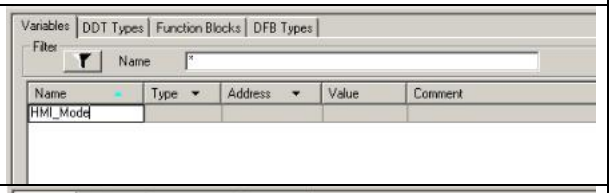
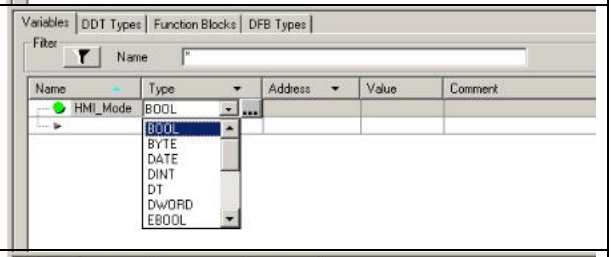
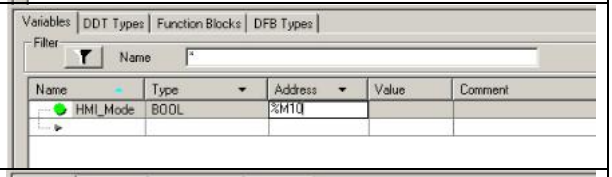
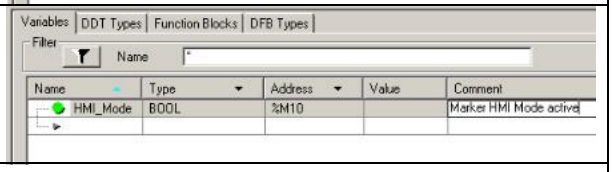
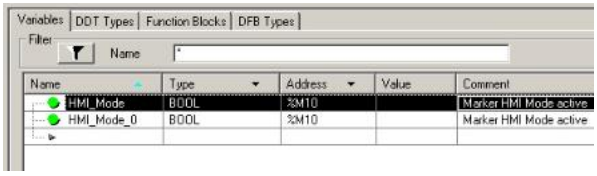
1	The IP addresse can be assigned by double clicking on the element **Ethernet_Premium1** in the **project browser.** In the dialog you can enter the **Model Family**. Here there are several different types of model but only those fitting the configured interface are listed.	
2	Choose an IP address from your private IP range Hier einfach eine IP. Here, we have chosen: IP: **192.168.100.10** Subnet: **255.255.255.0** A Gateway is not necessary.	
3	Again, to take-on the configuration you must set the check box. Optional: Once the program has been downloaded to the PLC, if your PC is in the same network (i.e. IP-range: 192.168.100.0-255), you can use the Ethernet connection to communicate with the PLC	
4	To link the Network to the CPU Ethernet interface, select the graphic display via the **X-bus** entry in the **project browser**.	

5	In the graphic display left clcik on the **ETY PORT** module to enter the pop–up and select: **Open module**	
6	In the dialog that opens up, select **Channel 0**.	
7	In the list box **Function** select **ETH TCP IP**.	

8	Once the function has been selected, the dialog expands to allow the choice of a **Net Link.** cahng ethe default value **No Link** to the name of the ethernet network in the **project browser -** **Ethernet_Premium1**.	
9	To take on the changes set the check box on the left in the tool bar.	
10	Check the entry in the **Project Browser** under **Communication** to see if the red cross has dis-appeared. If the configuration was successful you should now see a PLC icon. If this is so, the network can now be used.	

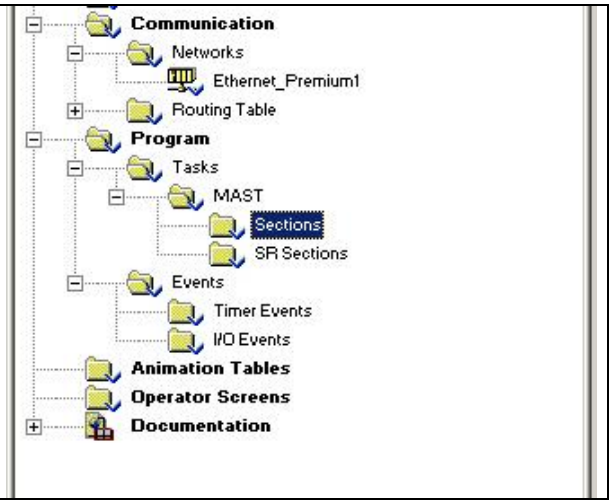
Configuring Variables

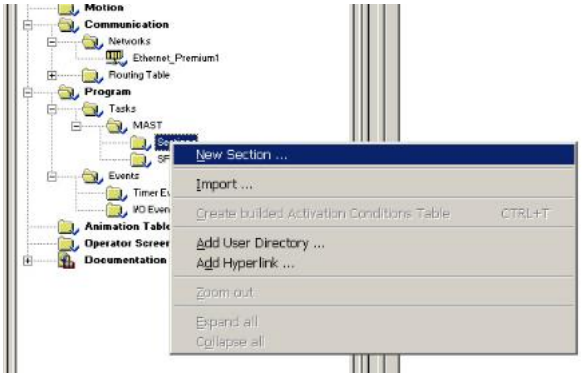
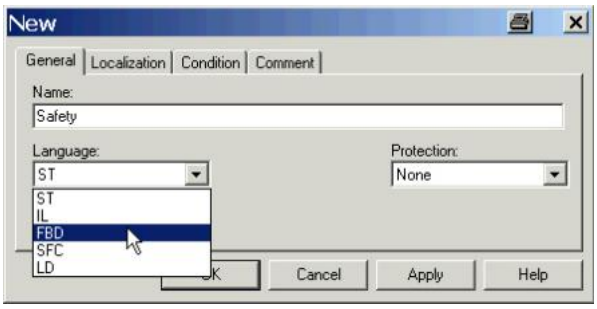
1	Expand the entry **Variablen & FB Instances** in the **Project Browser**. click on the entry **Elementary Variables**	

2	In the desktop you should now see the variables table. Note the tabs at the top for the different types of variables and that the list is empty.	
3	A double click on an empty field in the **Name** column allows you to enter the name of a variable.	
4	To select the variable type double click on the column **Type** and select one of the offered data types.	
5	Similarly add the memory address of the variable in the column **Address**.	
6	A comment can be added in the **Comment** column.	
7	To create more variables you can ‚pull' a vriable name from one line to the next. the editor will automatically shuffle the list, if needed, to make room for the new variable. the new varaibles have the same name as the original with a suffix added. *_0*, _1, _2, _3 etc.	

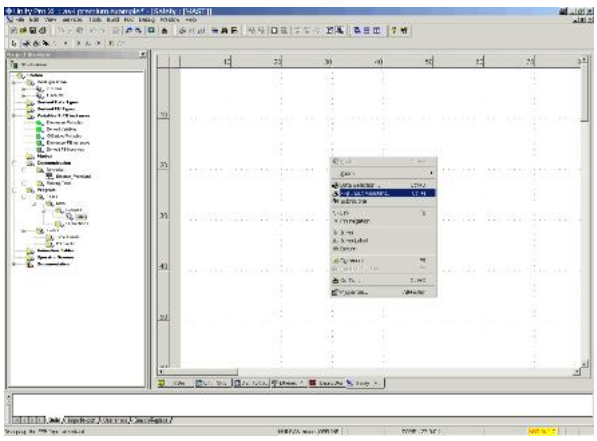
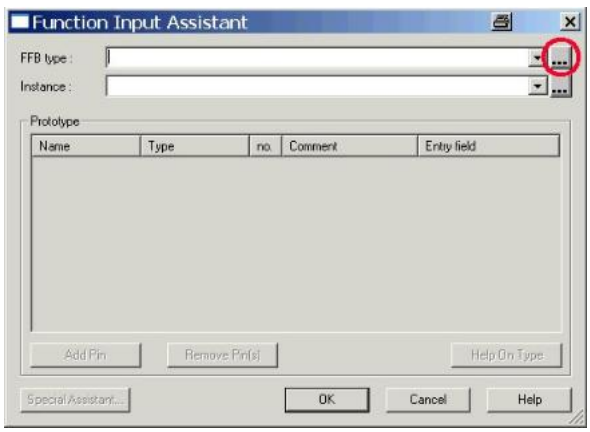
Create a Program

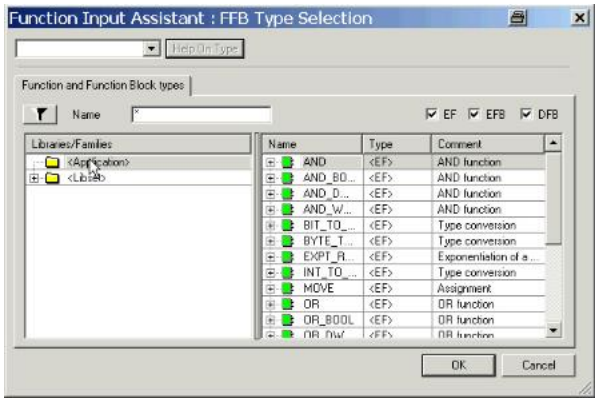
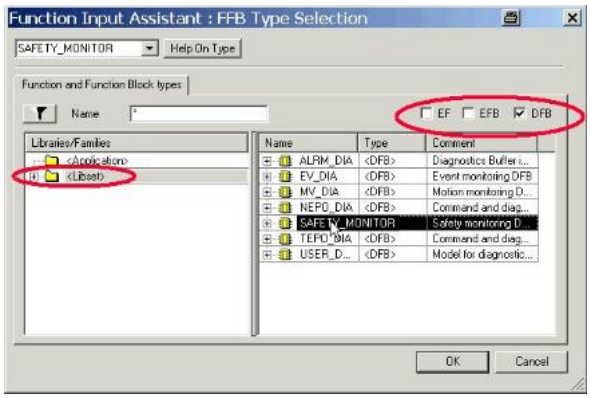
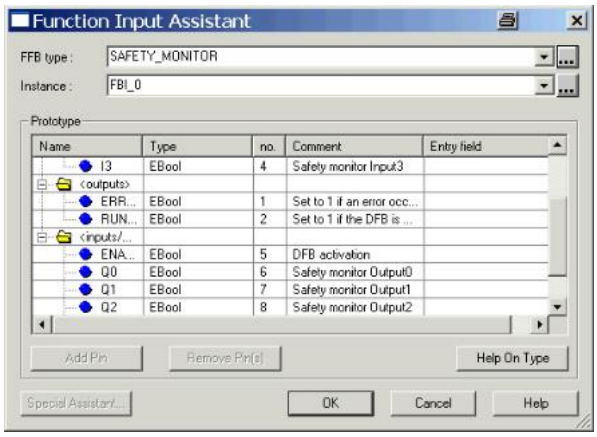
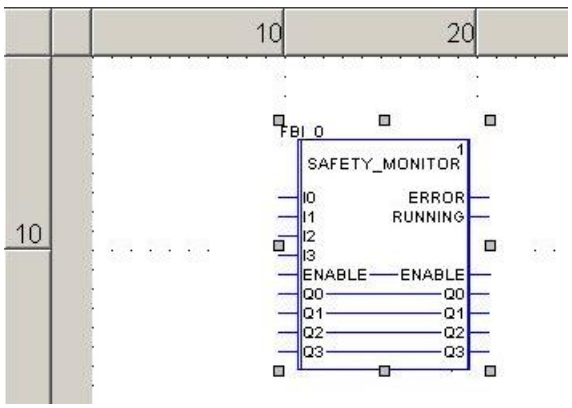
New Section

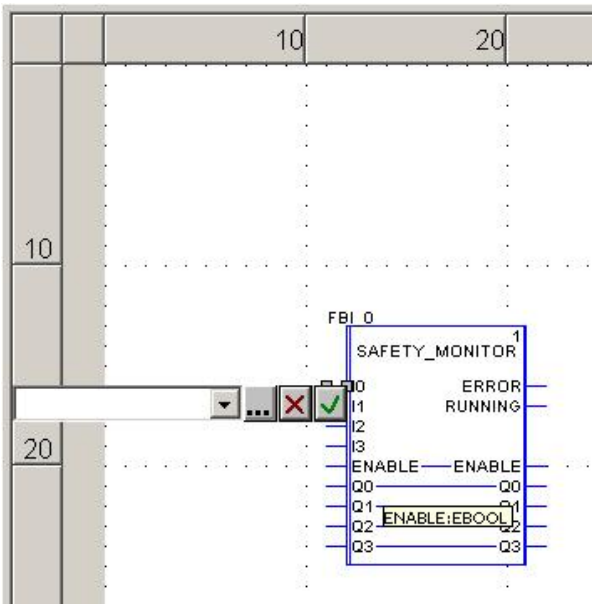
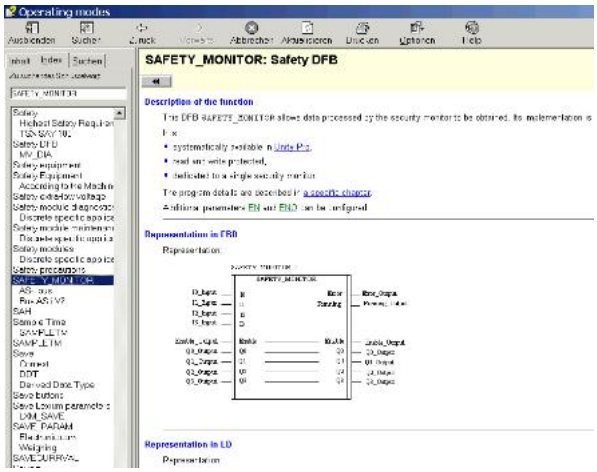
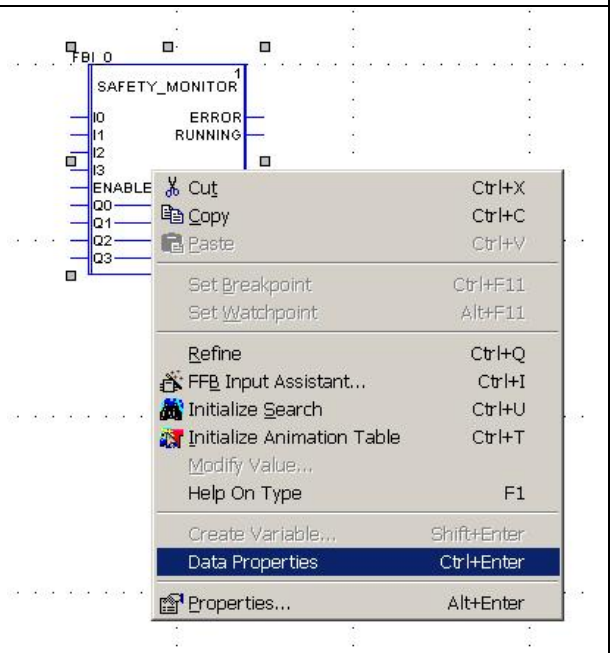
1	In the **Project Browser** under: **Programm->** **Tasks->** **MAST->** **Sections**.	

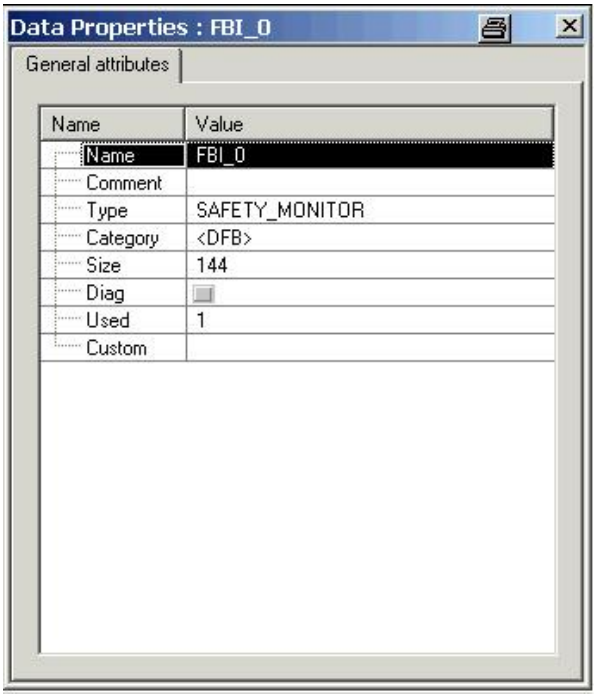
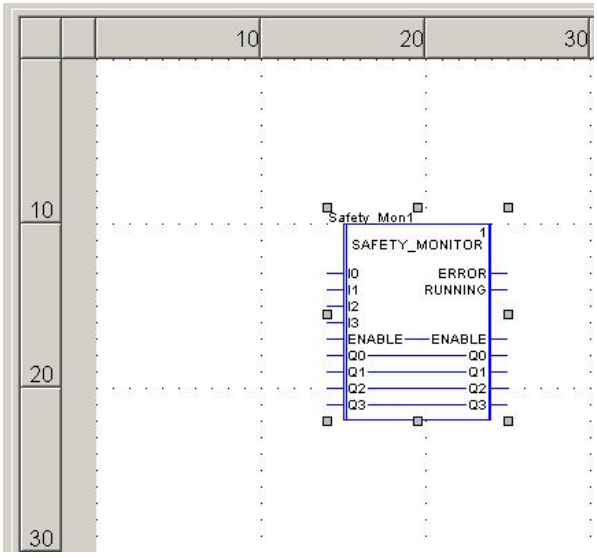
2	Right mouse click on **Sections** opens up a pop-up menu. select: **New Section**	
3	In the **New** dialog that appears select the programming **language** and give the section a **Name.** This example uses **FBD** and **Safety.** Exit the dialog with **OK.** The section name should now appear in the **project browser.**	

Function Block for AS-Interface Safety Monitor

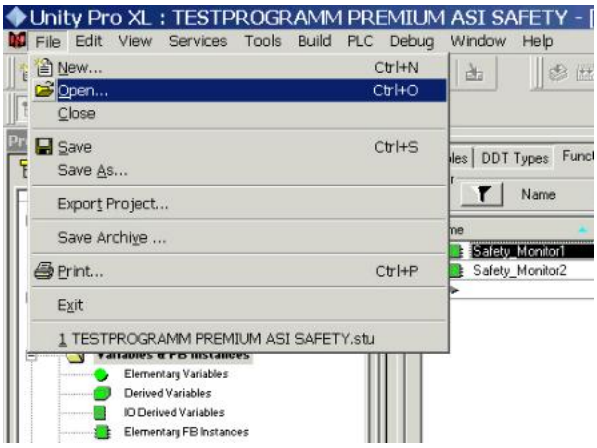
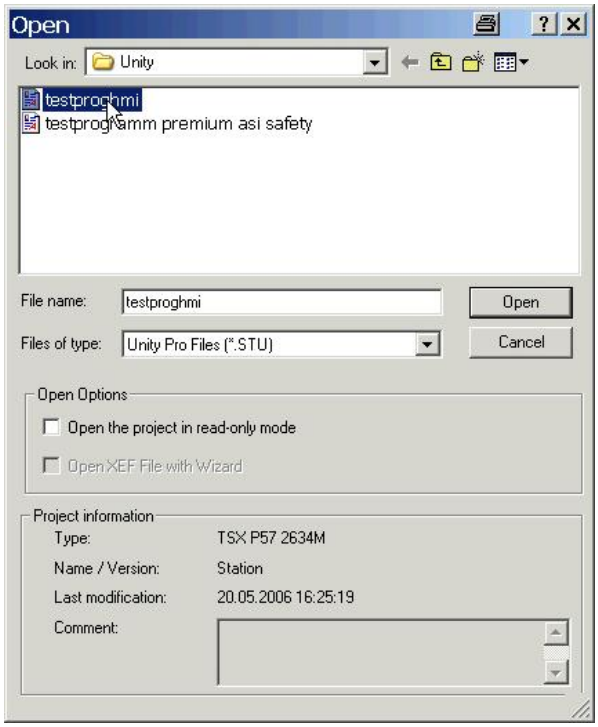
1	To select a function block right mouse click in the FBD editor. in the pop-up menu select **FFB Input Assistant**	
2	The assistent lists all the function blocks that have already been instanced in the program. Here, in a new program, it is empty. Click on the icon at the end of the list box **FFB Typ**	

3	The dialog now displayed lists the names of all the **Libraries** and the function blocks existing in those libraries that were delivered with Unity.	
4	The function block for the safety monitor is a DFB. To find the DFB for the safety monitor set the check box **DFB**. Only libraries with DFBs are now listed. Select a library and browse the list of DFBs it contains. Select the DFB **SAFETY_MONITOR** and click on **OK**	
5	The **Function Input Assistant** now lists the input and output parameter **name**s and their data **type**s for this function block. Exit this dialog with **OK** to position the DFB in the FBD editor.	
6	Here is the DFB displayed in a section. You can use drag & drop to position the function block.	

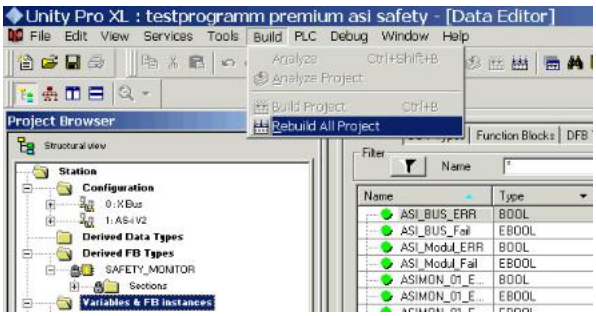
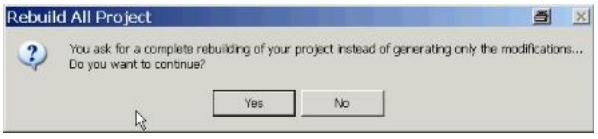
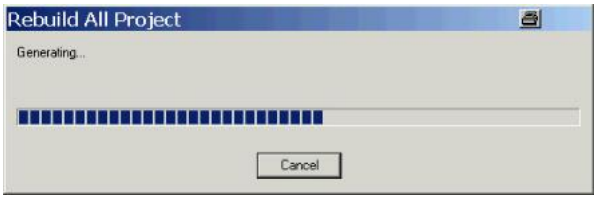
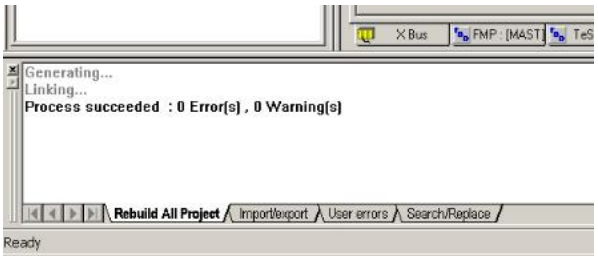
7	Double-click on a pin of the DFB to enter a variable name for that parameter. Note: the datatype of the variable and parameter must match. there are several ways to enter a variable: • Type in a Name in the box. • Select an existing variable from the list (downward arrow) • Select a Variable from the complete variable list (dotted icon) • Abort the input (cross icon) • Confirm the selection (tick icon)	
8	The **F1** function key calls up the helptext. Inputting the function block name (**Safety_Monitor**) in the index gives the help text on the function.	
9	The function block still has the instance name given to it by the system (FBI_0). To rename the instance, a right mouse click on the function block invokes a pop-up menu. Here, select: **Data Properties**	

10	In the **Data Properties** dialog double-click on the name to change it to a better mnemonic, e.g. **Safety_Mon1**.	
11	The new name now appears in the **Data Properties** and will also be displayed above the DFB in the FBD section.	
12	the **Variable List** also displays the new instance name of the DFB.	

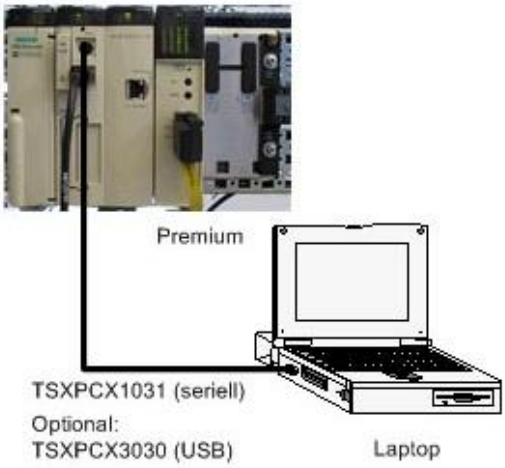
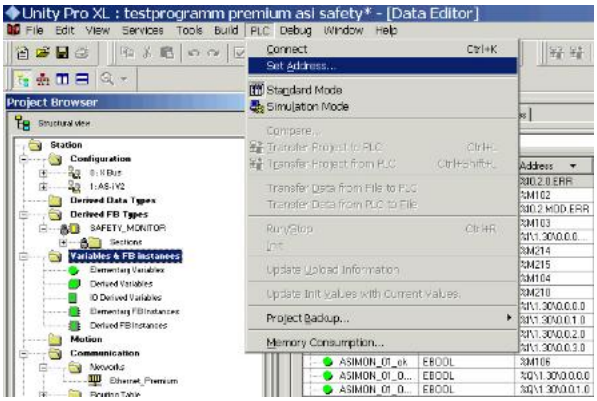
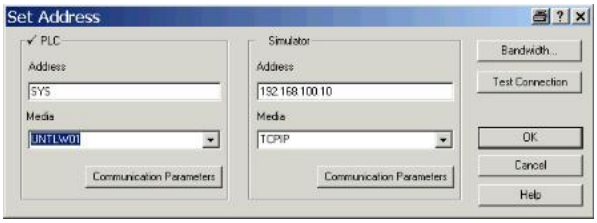
Open an existing Program

1	To work on an existing program use **File->Open**.	
2	In the open dialog select the path to **look in.** Enter the **file type** you wish to open (*.STU). The files of the selected type in the given path are listed. Select a file and click on **Open** to load it.	

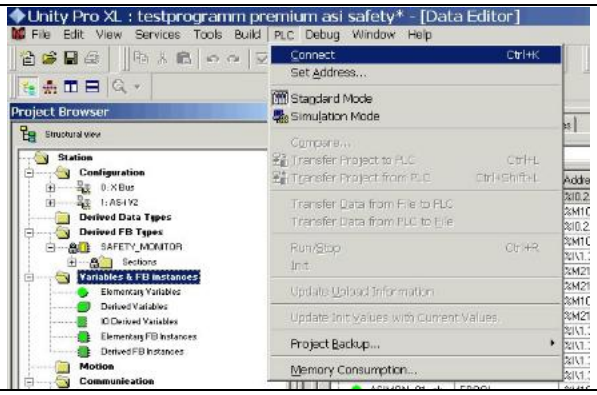
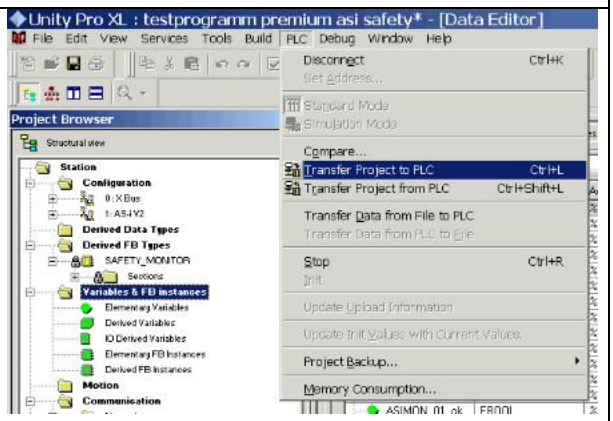
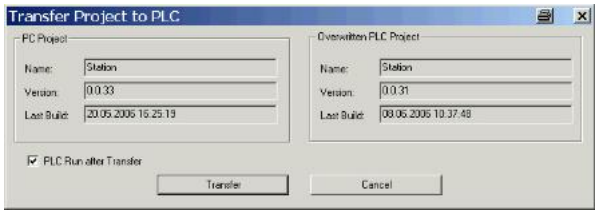
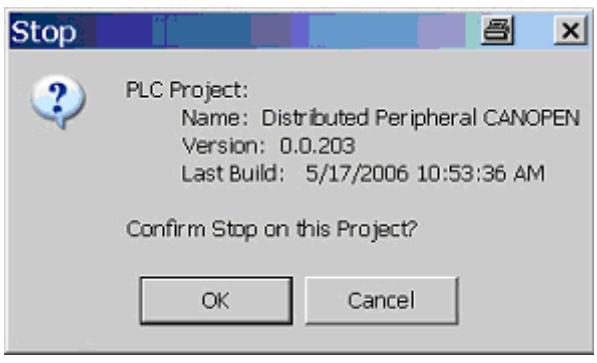
Build the Program

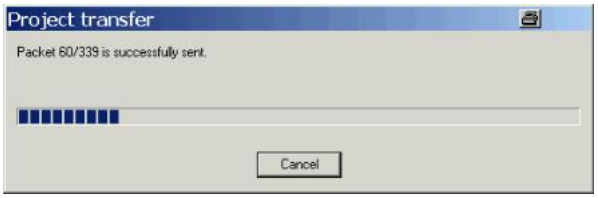
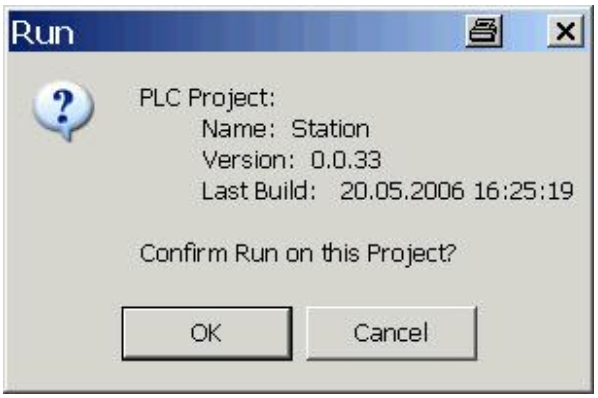
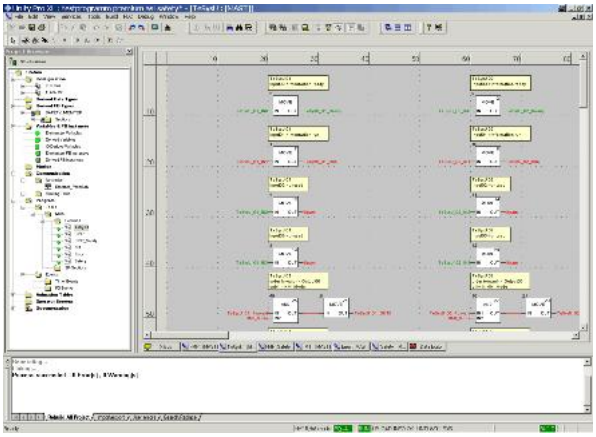
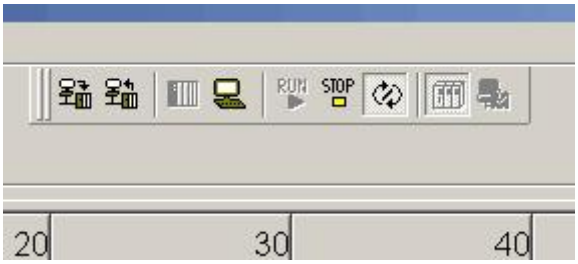
1	Before downloading a program it must be built, i.e. compiled. Select: **Build->Rebuild All Project** to generate the program.	
2	Confirm the safety warning with **Yes**.	
3	The progress bar is now displayed.	
4	The process of the **Build** is displayed in the window beneath the main window. Once the build is finished errors/warnings are listed. If errors are indicated these must be remedied before you can download the program. Warnings do not block the download but may still need to be remedied.	

Connect the PLC

1	Before making a connection between the PC and the PLC they must be connected with the programming cable **TSXPCX1031** (serial). Ensure that the cable is set to **TER Direct** (**2**). Use the **TER** port on the PLC.	 
2	Before connecting to the PLC the connection must be setup. Select: **PLC->Set Address**	
3	in the **Set Address** dialog set Address : **SYS** Media : **UNTLW01** for the serial Unitelway connection.	

Download the program to the PLC

1	To download a program to the PLC the connection must first be established. select: **PLC->Connect**	
2	The connection status is indicated in the status bar at the bottom of the window. The image shows the PLC in **RUN** mode but running with a **DIFFERENT** program to that which is being viewed.	
3	To download the current select: **PLC->Transfer Project to PLC** To upload a program from the PLC use: **PLC->Transfer Project from PLC**	
4	Before downloading the program you will be asked to confirm your action. Here you can set the check box **PLC run after transfer** to automatically start the PLC when the download is finished	
5	If the PLC is in RUN mode you will be asked to confirm the STOP before the download starts.	

6	During the download you will see the progress bar.	
7	When the download is finished you will be asked to confirm setting the PLC to run mode.	
8	Once the download is finished and the PLC is started, the status bar should indicate **EQUAL** and **RUN**	
9	Once the PLC is running you can animate the program sections. Here an example of an FBD section. Green coloured variables indicate a boolean 1 (high/on), red a boolean 0 (low/off).	
10	The toolbar has iconsfor downloading, uploading, starting and stopping the PLC.	

AS-Interface Configuration

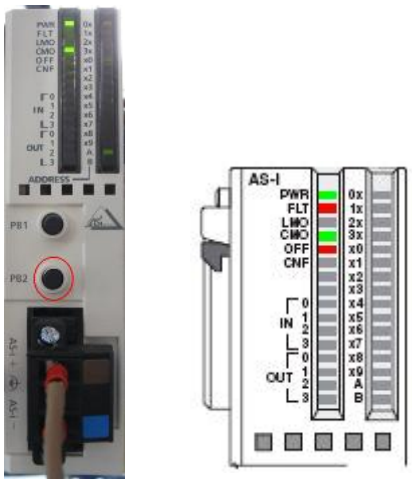
Introduction

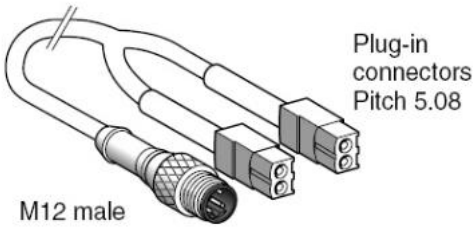
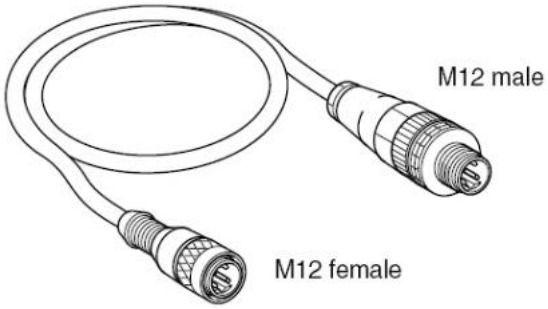
This chapter defines the steps required to initialise and configure the AS-interface. It includes the method of configuring the addresses of the AS-interface components.

Equipment for Node Addressing

ASITERV2 Handheld

ASISSL* *Safety Input Slaves*

1	Use the **ASITERV2** handheld to address the individual slaves.	
2	Use the **ASITERIR1** infrared adapter to address safe input slaves. Please note the coding key on the slave and connect the adapter to the node.	
3	In order for slave addressing to be successful, the nodes must be connected to the power supply via the yellow AS-Interface cable. Before you start addressing, switch the master 'offline' by pressing and holding down the **PB2** button on the AS-interface master module for 3 – 4 seconds. The master will switch to offline mode and will indicate this on the module via an LED lighting up red next to the word **OFF**.	

ASILUFC5 ASI20M*	**4**	Use the **XZMG12** adapter to address ASI20M* and ASILUFC5 IP20 devices (TeSysU motor starters). Connect the adapter to the node via the yellow plug. On slaves requiring a 24 V auxiliary supply (black AS-interface cable) at output level (e.g., as is the case with TeSysU), the power supply must be connected when the nodes are programmed.	 M12 male with yellow and green plug-in connectors
ASI67FMP*	**5**	Use the **ASITERACC1F** adapter to address IP67 field devices. Connect the adapter to the M12 female **ASI AUX** on the right underside of the device.	

Addressing Slaves	**1**	To perform addressing, turn the rotary switch to the **ADDR** position and press the **OK** button on the top right. The device will now look for connected nodes and display the address of any slaves it locates within a few seconds.	
	2	If **no ASi** appears on the display, the device has not been able to locate any AS-I nodes and you should check the connection between the addressing device and the slave.	

3	The address of the connected slave will appear on the display as read by the device. The factory setting for new slaves is **0**.	
4	You can press the two arrows in the centre of the device (up/down) to set the address in the range from 0 to 31 (0 is not a valid slave address). While an address is being set, the current address will continue to appear on the display. On slaves with advanced addressing, an A or B will appear on the display after the address, indicating the channel assignment. In this example, both the IP20 (ASI20M*) and IP67 (ASI67FMP*) modules support advanced addressing. *The photo shows an ASI20MT4I3OSE module with address 12A.*	 
5	Once you have set the required address, press **OK** to apply the setting. During transmission, the display will switch to **ProG**.	
6	Once you have made the address setting, the new address will appear permanently on the device display. To address another device, press the ESC button on the left-hand side and resume the process at Step 4.	

HMI

Introduction

This application features a touchscreen Magelis XBT-GT1100 HMI which can be connected to the PLC via Modbus or UniTelway protocol. Due to the Premium PLC UniTelway is used here.

The terminal is programmed and configured using the Vijeo Designer software.

Programming and configuring the HMI is described on the following pages.

Preconditions

The procedure described below is subject to the following preconditions being met.

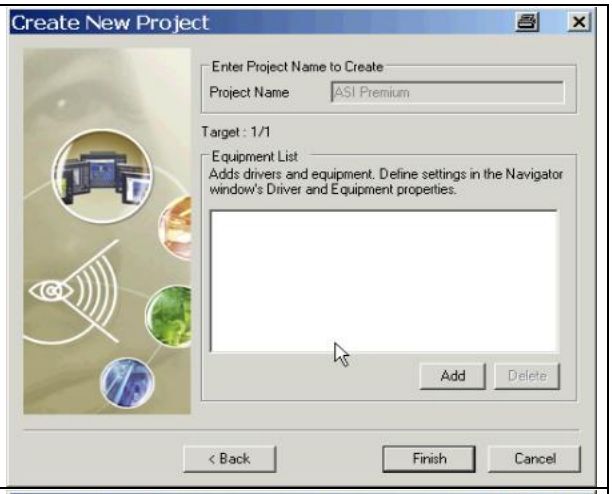
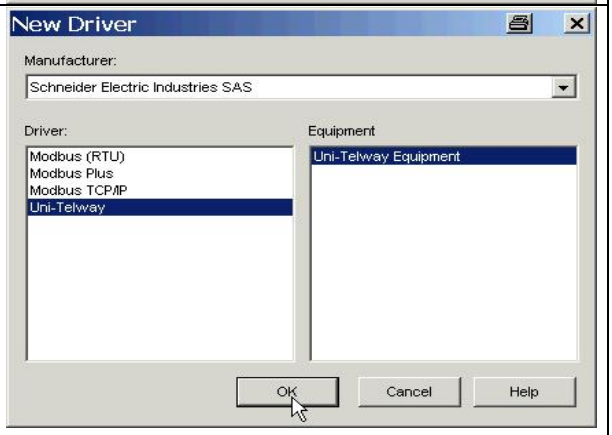
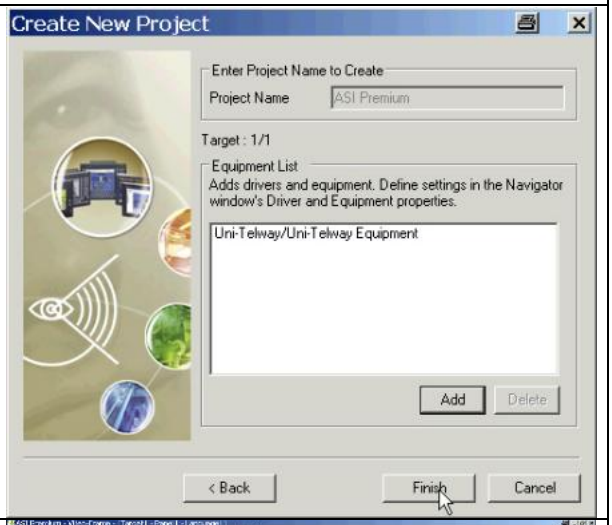
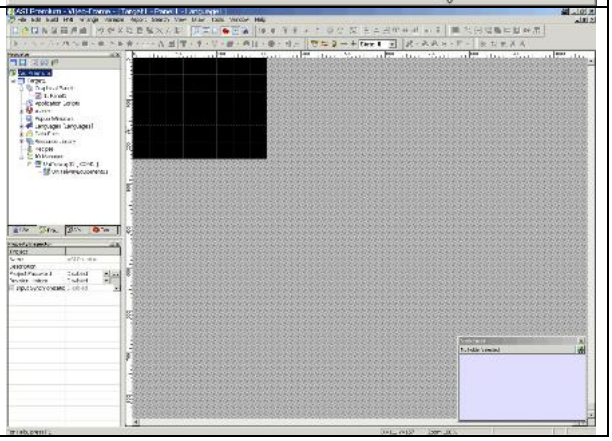
- The configuration software tool, Vijeo Designer V4.30 is installed on your PC.
- The “Example.dop” project is available in the default directory that has been set up (C:\Program Files\Schneider Electric\XBT-L1000\Apps).
- The Magelis terminal is connected to the power supply.
- The Magelis terminal and the PC have been connected via the PC <> Magelis USB data cable (XBTZG925).

note: For the example program you must also have at least the patch B for Vijeo Designer v4.30 installed. The example program was created using Vijeo Designer V4.3.0c and cannot be used with V4.3.0. Version 4.3.0b will accept the program.

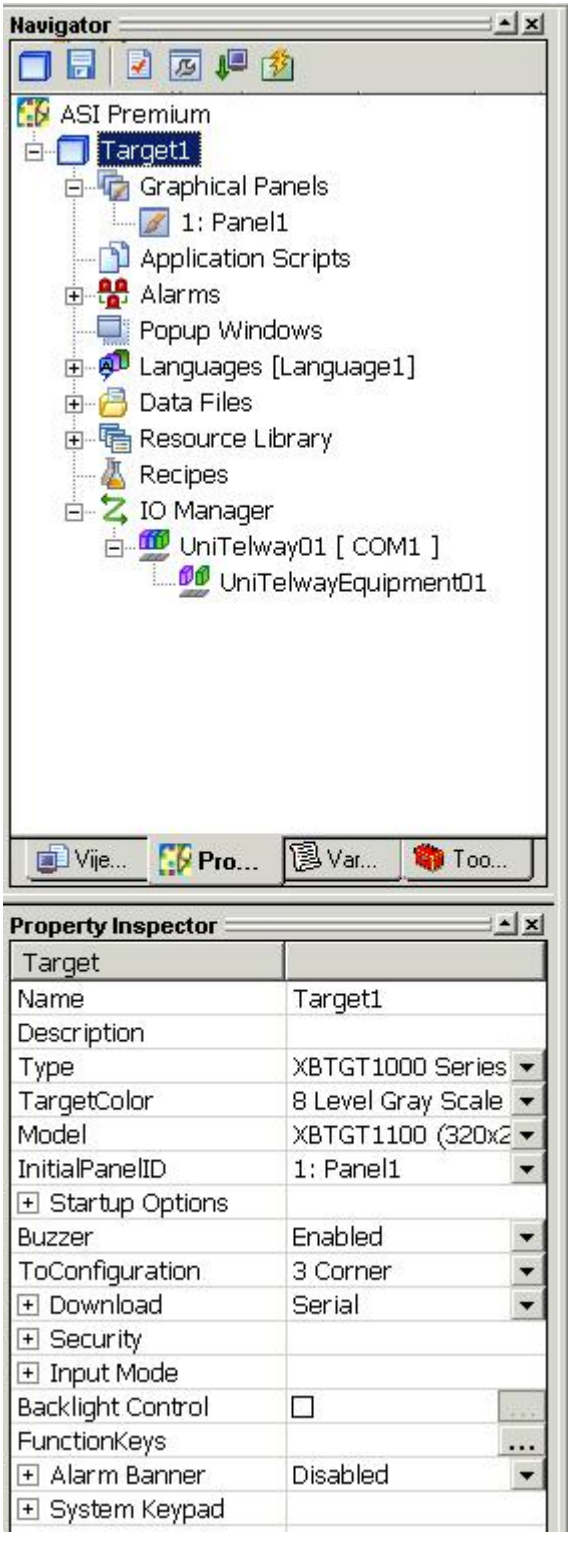
Create a new Configuration

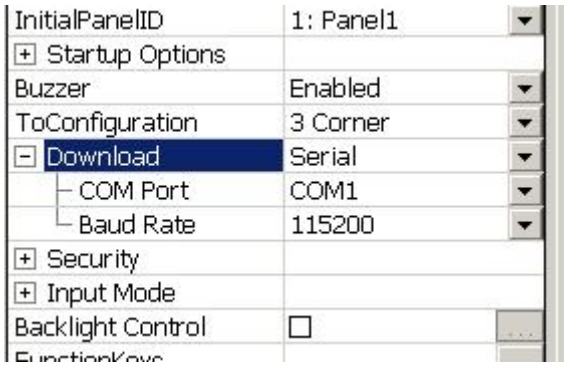
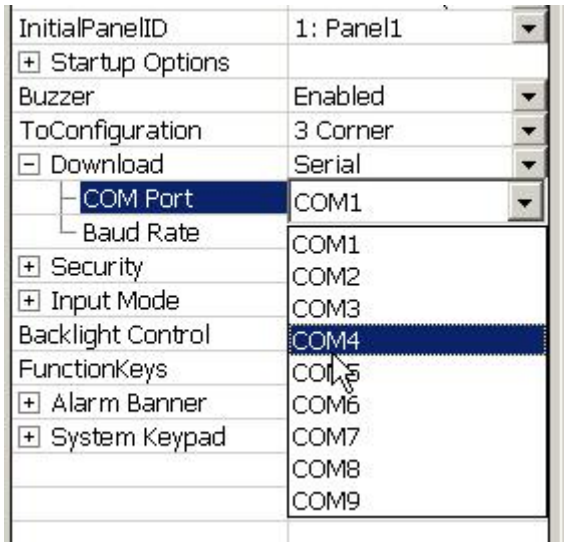
1	After starting Vijeo Designer a dialog asks you if you to create a new, or open an existing, project. Select **Create New Project** and click on **Next.**	

2	Input a **Project Name** e.g. “ASI Premium” and select: **Project with Single Target** To proceed, click on **Next>.**	
3	**Select the target device** Target Name: **Target1** Target Type: **XBTGT 1000 Series** XBTG Model: **XBTGT1100** Proceed with **Next>.**	
4	Other Magelis devices have an ethernet interface. The selected model has no ethernet interface and the input mask is de-activated. Proceed with **Next>.**	

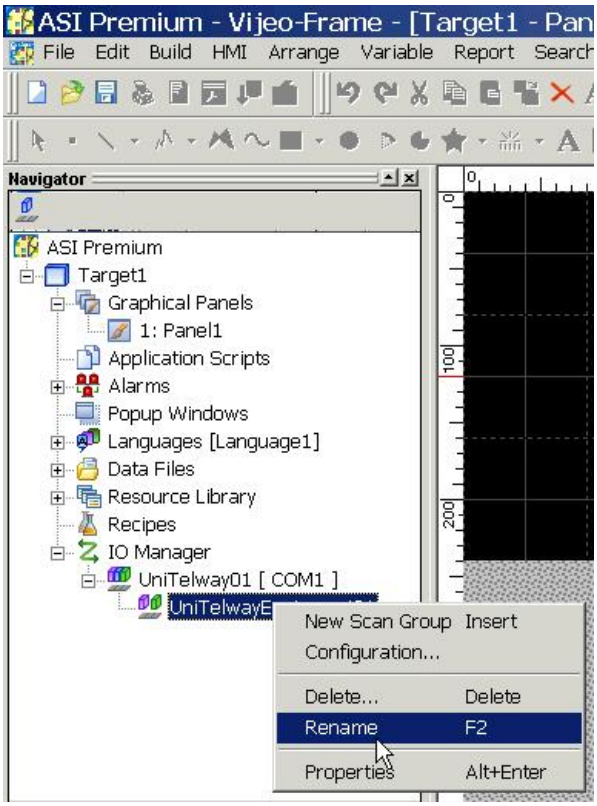
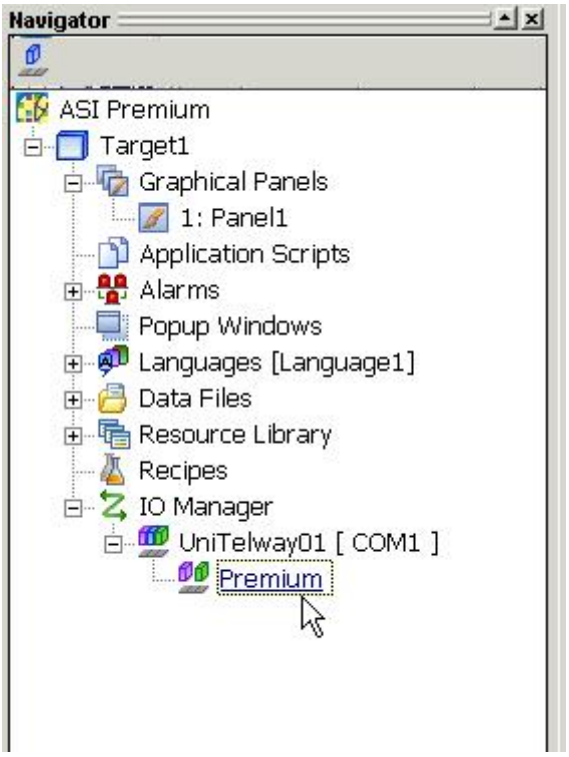
5	The Magelis needs the correct driver to exchange data with the PLC. Use **Add** to go to the driver selection dialog and select a new driver.	
6	In the **New Driver** dialog Select: **Manufacturer**: Schneider Electric Industries SAS **Driver**: Uni-Telway **Equipment**: Unitelway Equipment confirm with **OK**.	
7	After setting up the driver you can exit the dialog with **Finish.**	
8	Vijeo Designer now returns you to its work top, with an empty display and the project **navigator.**	

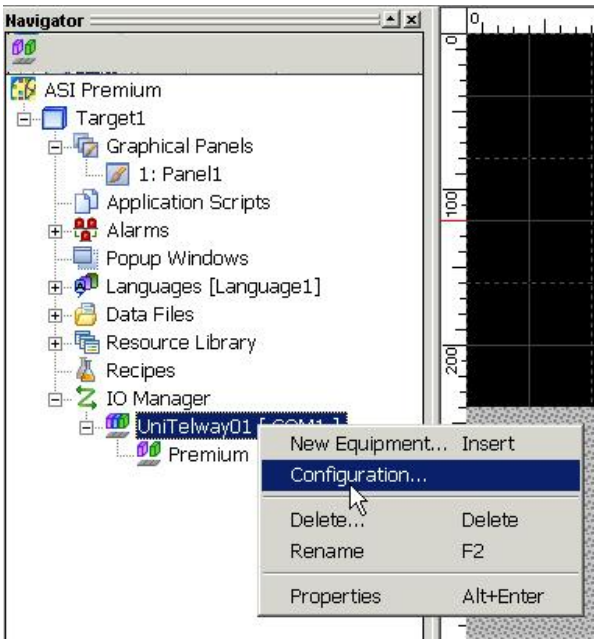
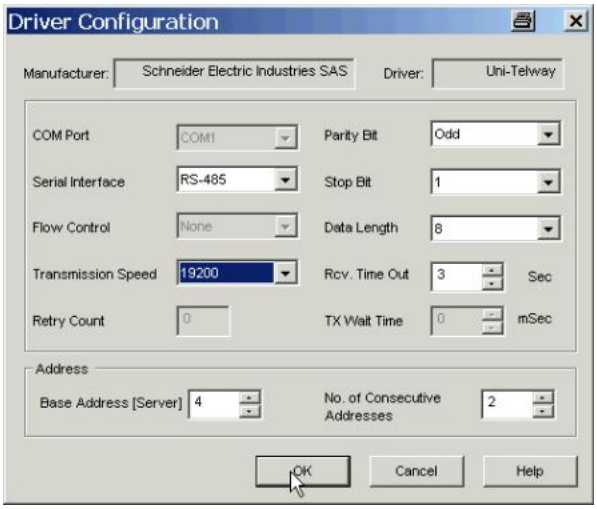
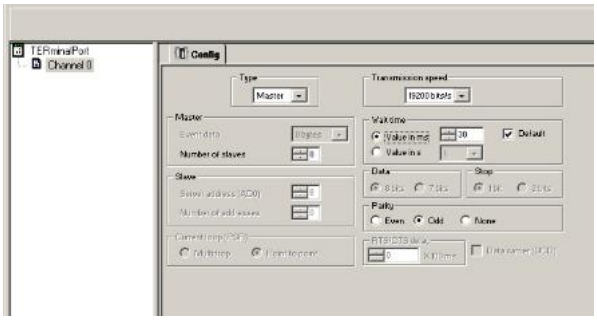
Configuring the Programming Interface

1	Once the UnitelWay connection has been configured, the programming interface must be set up for the USB programming cable **XBTZG925.** In the **Navigator**, click on **Target1** and view the information in the **Property Inspector** (lower window). If the **Property Inspector** is not visible a right mouse click on **Target1** gives you a pop-up menu in which you can select the properties.	

2	The default values offer a **serial COM1** interface. As we are using a USB programmning cable this must be changed.	
3	First check in the **Windows device manager** which COM port has been configured for the USB cable and that the cable is connected. In our example it is COM4	
4	Now you can configure the port in the **Property Inspector**. Set the COM Port to (in our case) **COM4.** The type of connection remains as **serial**.	

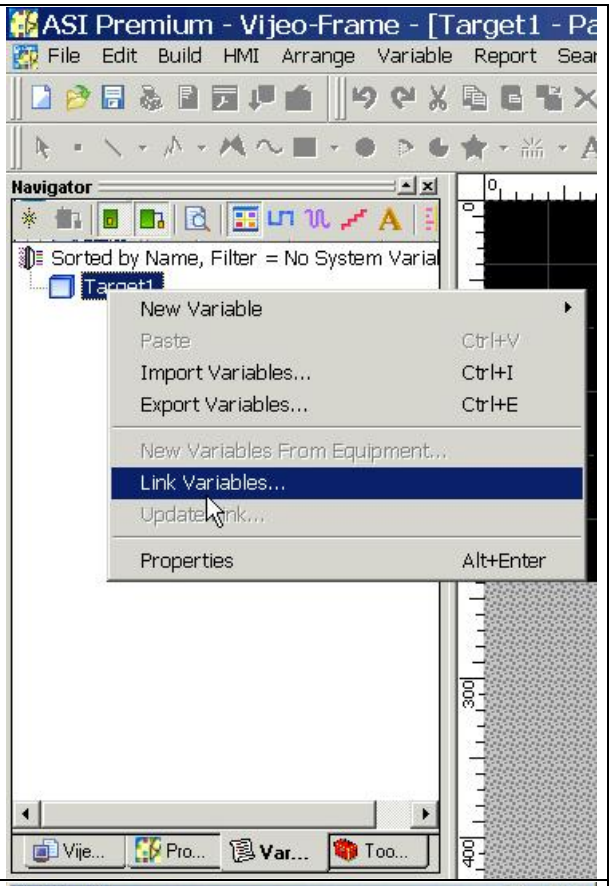
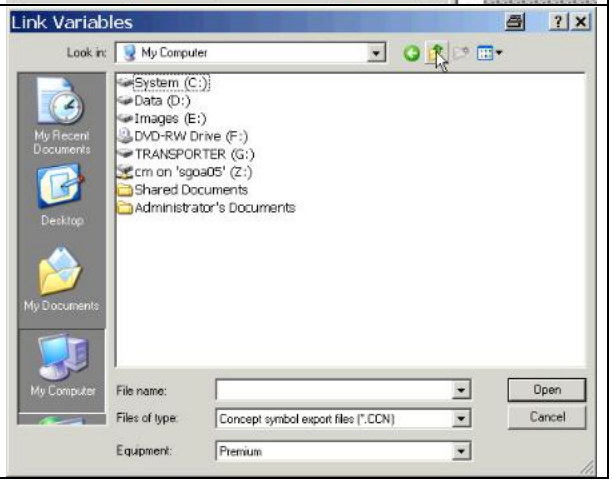
Configuring the UniTelway Driver

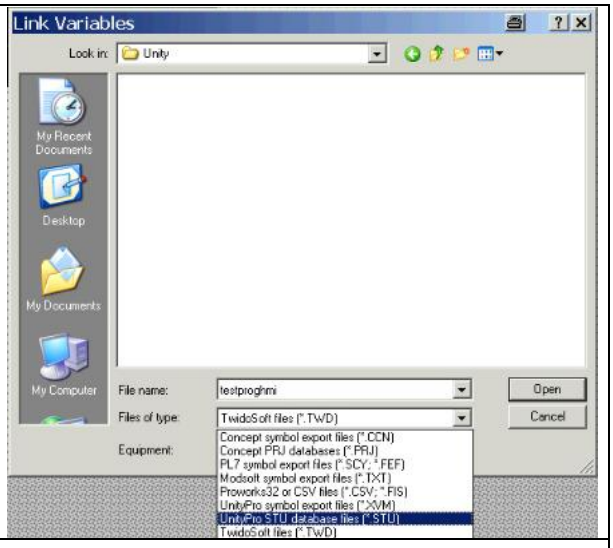
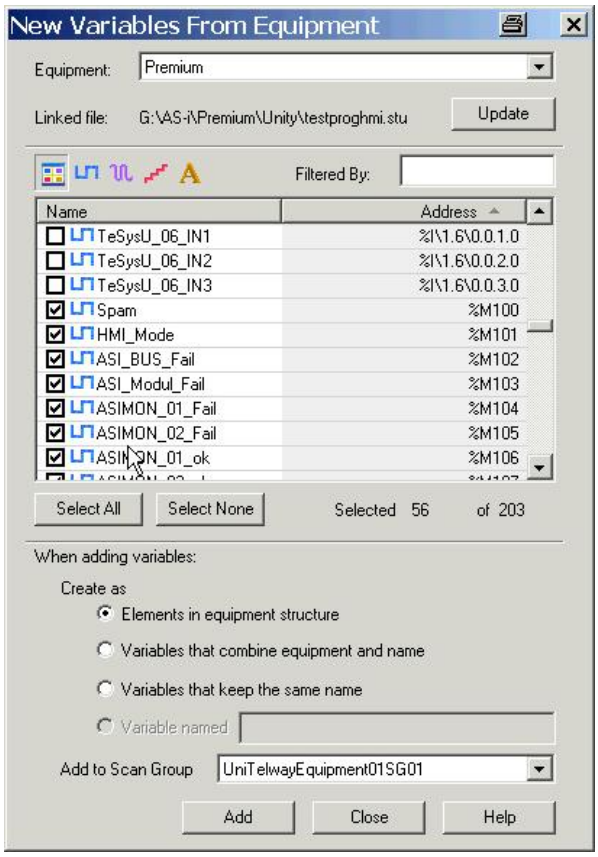
1	For better legability the name of the **UniTelway Equipment01** should be changed. To do this right click on **UniTelwayEquipment01** in the Navigator to go to the pop-up menu to do the **Rename**.	
2	In the example it was renamed to **Premium** as the Premium uses this interface.	

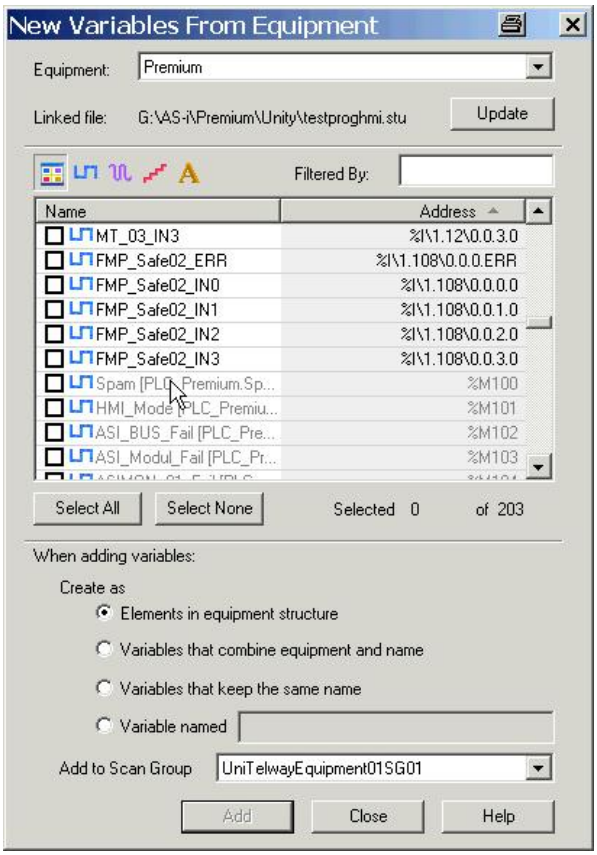
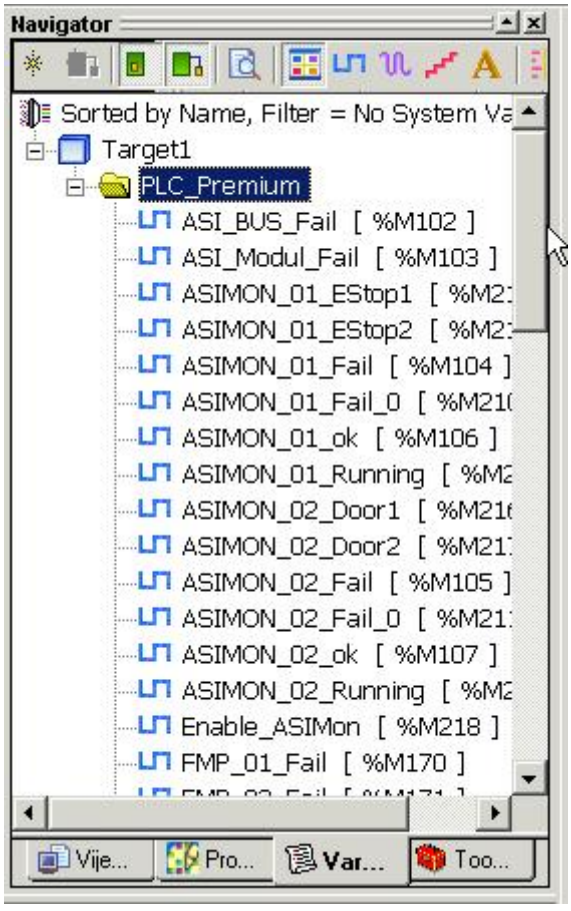
3	Right mouse click on **UniTelway01** to setup the interface. In the pop-up menu select: **Configuration..** .	
4	In the **driver configuration** dialog the setup must match the setup as for the Unity **TER** interface. The **Transmission Speed** must changed from 9600 to **19200**.	
5	As a comparison, the Unity set up for the TER.	

Linking Variables

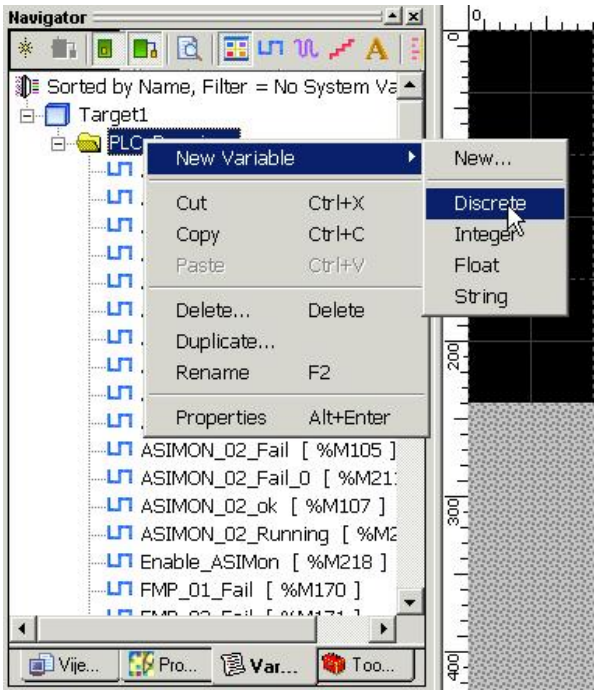
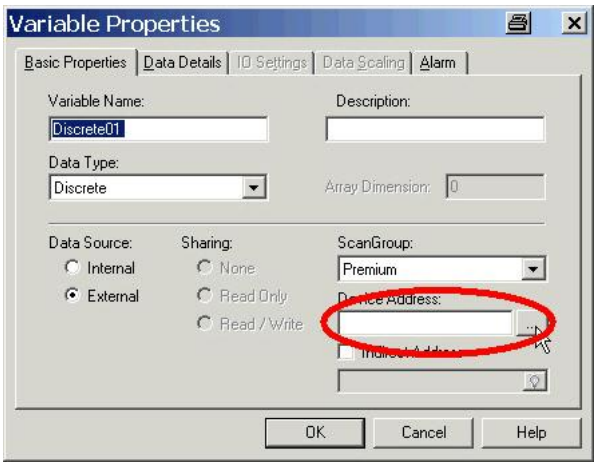
(Variable Import from Program file**)**

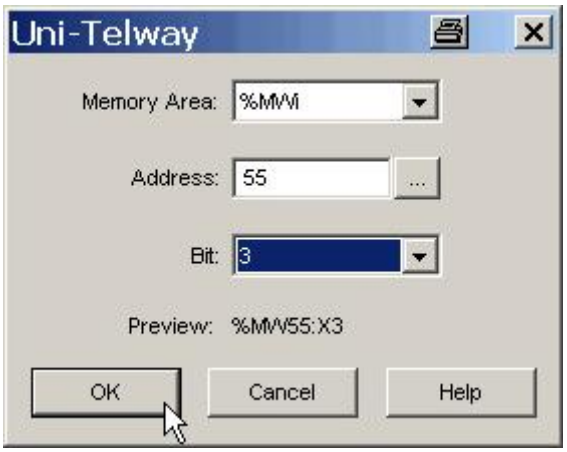
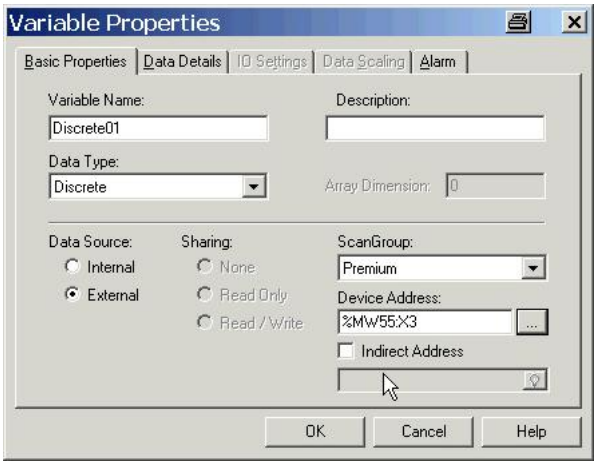
1	All the variables are already programmed in Unity. **Vijeo Designer** offers a function to **Link Variables..** and read them in from the Unity program. To do this select the tab **Variables** in the **Navigator** In the **Navigator**, right mouse click on **Target1** and in the pop-up menu select **Link Variables..**	
2	In the **Link Variables** dialog that opens up, enter the path and file type to display and the **equipment** (premium)	

3	In the example the path is **Unity,** the file type is **UnityPro** (*.stu) and the equipment **Premium**.	
4	After linking to the file, the dialog shows all the variables that can be imported By setting the check box next to the variable a selection of variables can be made (click **select all** for all variables). Clicking **Add** adds the selected variables to the Vijeo Designer variable list.	

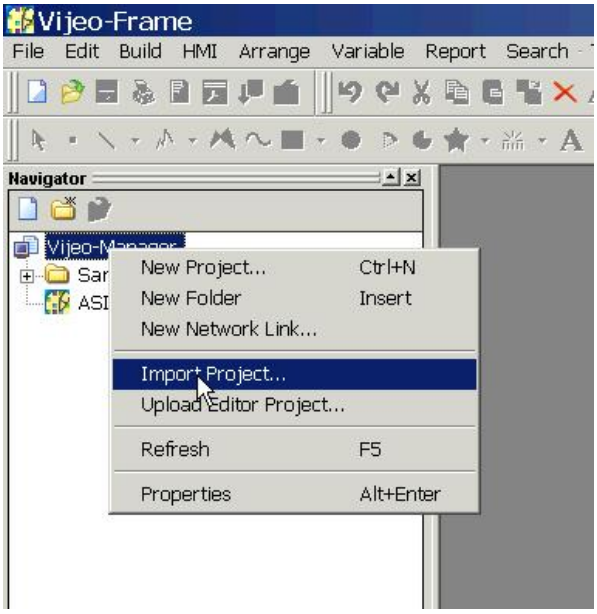
5	Added variables are now disabled in the list. When finished with the import clcik on **Close**.	
6	The variables can be viewed in the **Variables** tab in the **Navigator** under: **Traget->PLC_Premium**	

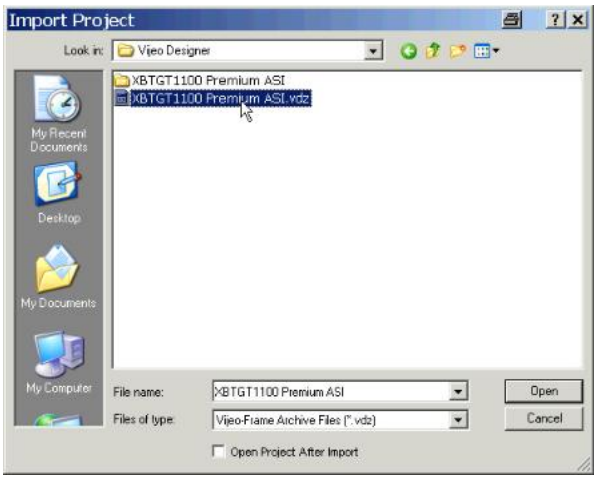
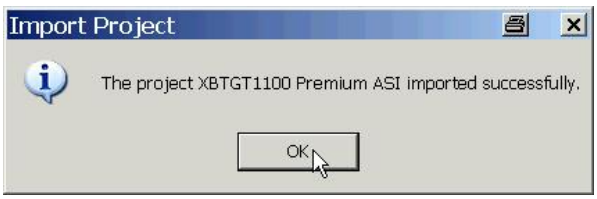
Creating a Variable

1	To create a new variable, right mouse click on **Target1** or **PLC_Premium.** In the pop-up menu select: **New Variable** followed by the type of variable, here **Discrete**.	
2	In the variable properties dialog you can enter the name and a description for the variable Important here is what device delivers the value if it comes from an **external** system. If this is the case you must enter a **ScanGroup** and a **Device Address.** The **device address** is not the hardware address. It is the memory address in the device that delivers the value. To select a device address click on the button at the right end of the list box.	

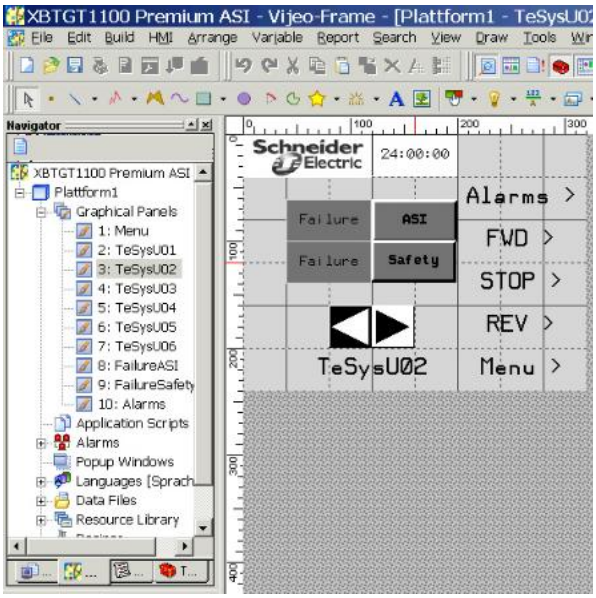
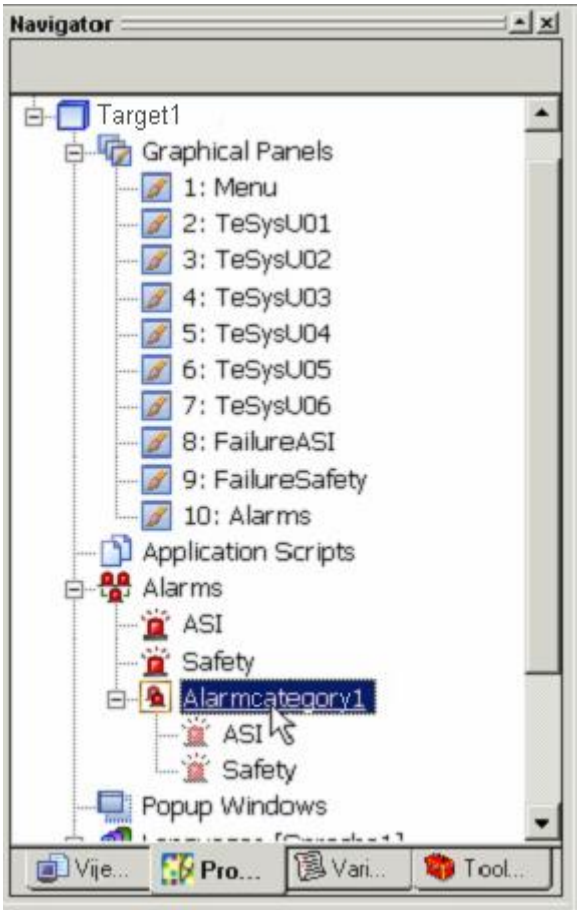
3	In the dialog that opens, input the memory address of the variable as given in the device. The example here shows the discrete as bit 3 of memory word 55 and can be addressed as **%MW55:X3** Exit with **OK.**	
4	The device address is now listed in the list box. Confirm with **OK**.	

Import a Project

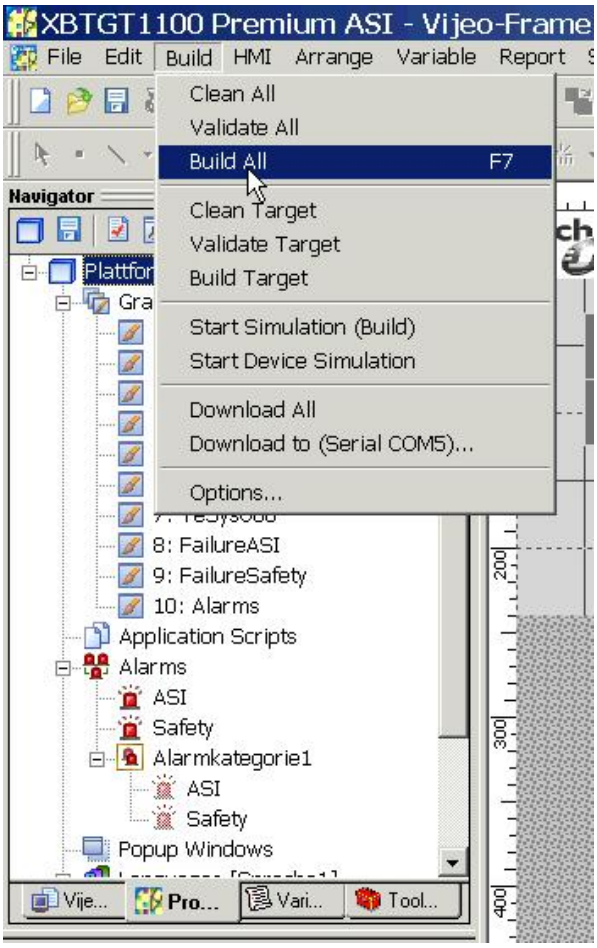
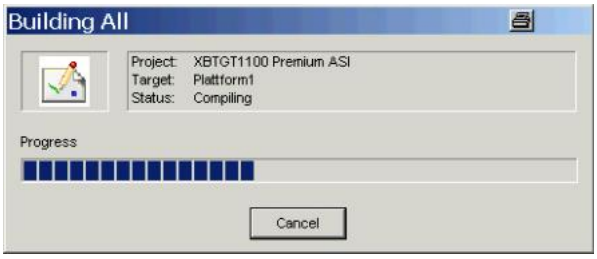
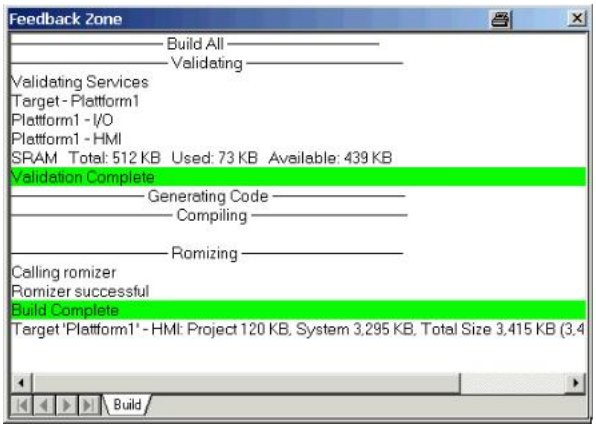
1	Select the Tab **Vijeo-Manager** in the **Navigator** A right mouse click on **Vijeo-Manager** in the **Navigator** opens a pop-up menu. here, select: **Import Project…** If the Import Project function is de-activated, first shut all open projects with: **File->Close Projekt**	

2	The import file is of type **Vijeo-Frame Archive** (***.vdz**). Check that the path is correct and select a file to import. Click on **Open** to import the file	
3	When the import is finished, acknowledge with **OK**.	
4	In the Navigator you can now see the project listed. Double click on it to open it.	

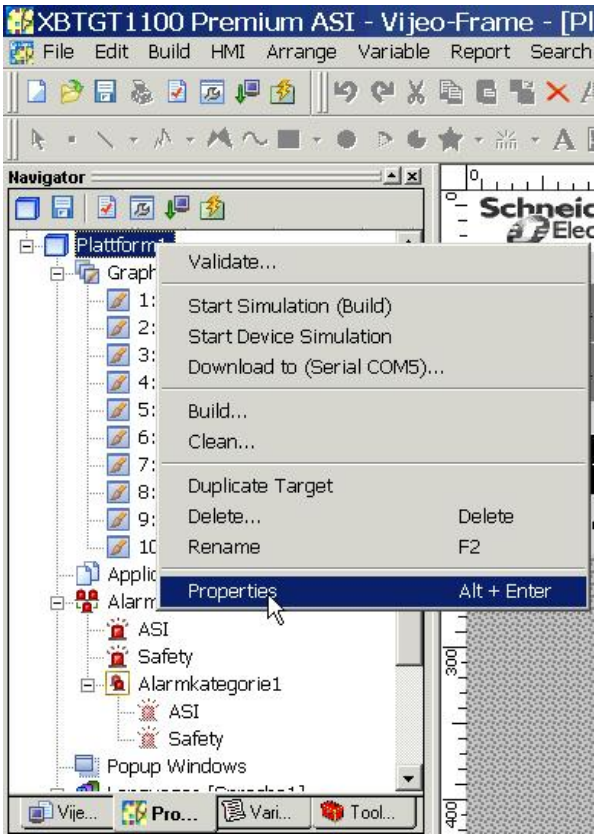
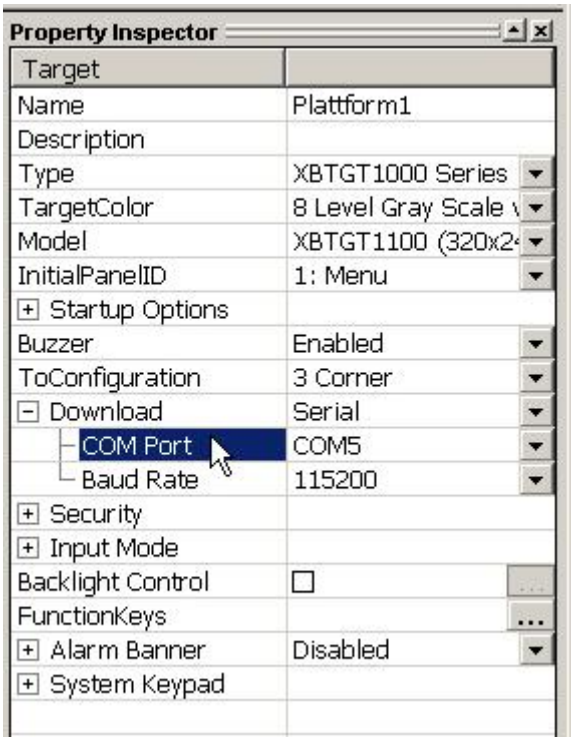
Example Program

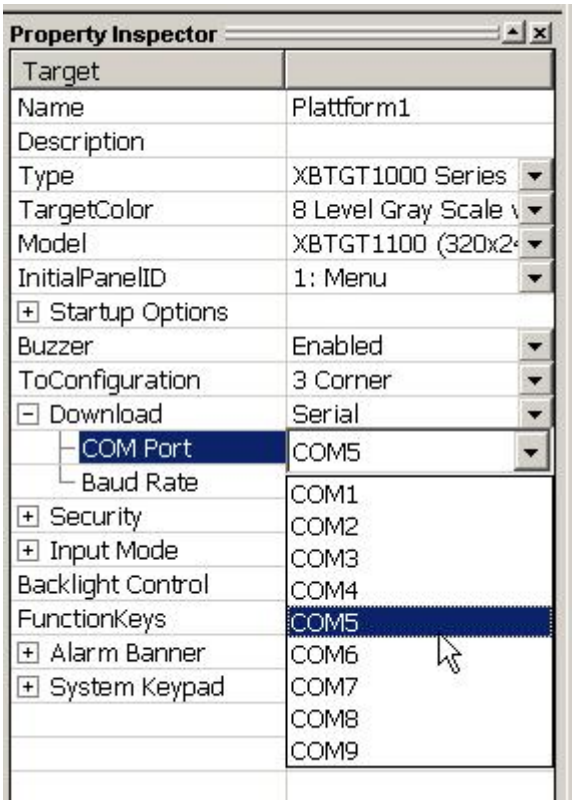
1	The example program here has several screens that are activated through the touch screen or the buttons R1-R6.	
2	There are 2 alarm groups, grouped in a single alarm category.	

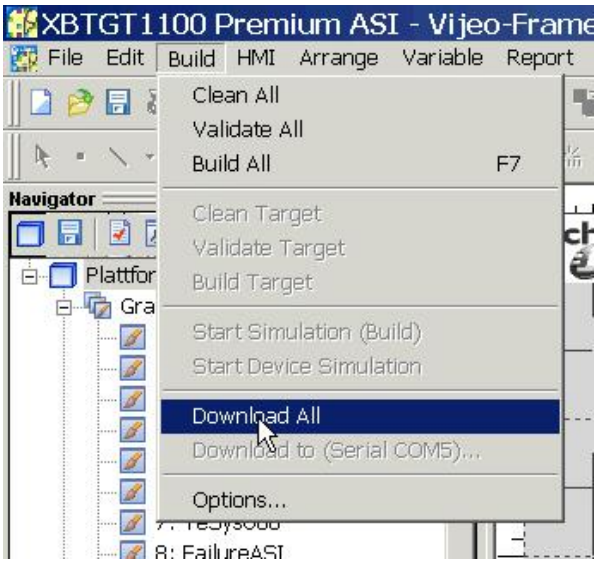
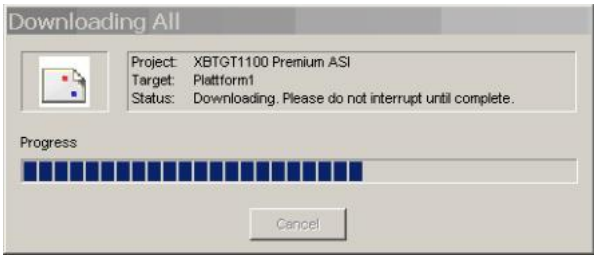
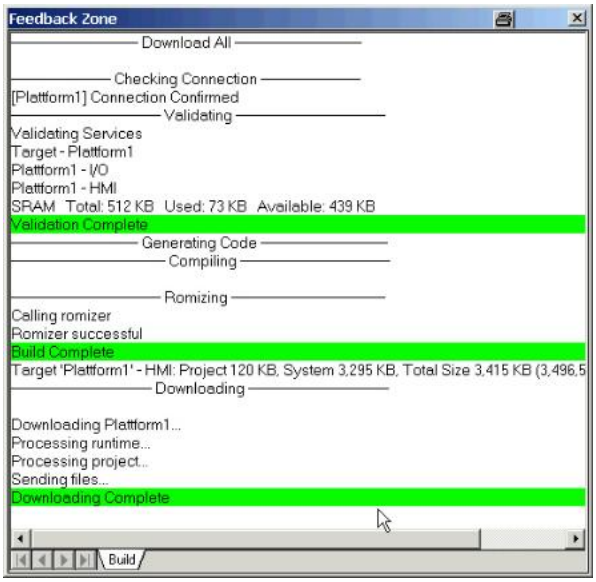
Build the Program

1	Before you can downlaod a program to the HMI it must be compiled. Use the Build All function to do this **Build->Build All**	
2	A progress bar will be displayed.	
3	when the build is finished the feedback zone lists the results Only when the green coloured message Build Complete is shown can the program be downloaded to the HMI	

Download the Program

1	The configurated connection of an imported program may be incorrect. First, check that the imported program has the correct programming cable, **XBTZG925** (**USB**), configured. For this you can use the **Property Inspector**. Right mouse click on the program name (here **plattform1**) and select **Properties** in the pop-up menu	
2	The Image shows a program using a **serial** connection on **COM5**. The example, however, uses a USB programming cable.	

3	First check in the **Windows device manager** which COM port has been configured for the USB cable and that the cable is connected. In our example it is COM4	
4	Now change the **COM port** to **COM4**. The interface type remains at **serial.**	

5	Use: **Build->Download All** to start an automatic build before downloading the program to the HMI.	
6	A progress bar is displayed.	
7	Once the build is finished the **Feedback Zone** displays the results and indicates if the download is complete.	

Safety Monitor

Introduction

This section describes how to parameterize, load, start, and stop the safety monitor. Please note that **only an appropriate overall layout** and **appropriate interconnection** of the individual function blocks in the software, along with their hardware structure, can ensure that the machine will operate correctly and in a manner that **poses no risk to personnel or equipment**.

In order to transfer and also enable, start and stop an application on the safety monitor, a unique password must be entered, thereby ensuring protection against unauthorized access.

As an additional measure, the RJ 45 programming port on the safety monitor can also be capped using the transparent plastic stoppers supplied with the product and sealed to prevent access. The breaking of a seal or removal of a stopper would indicate tampering.

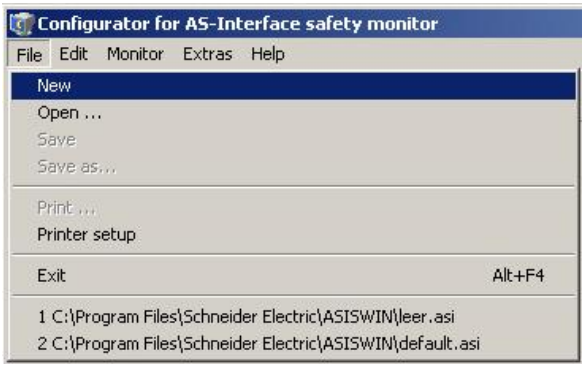
The Asiswin 2 software, which is described below, is used to create the application on the safety monitor.

Preconditions

The procedure described below is subject to the following preconditions being met:

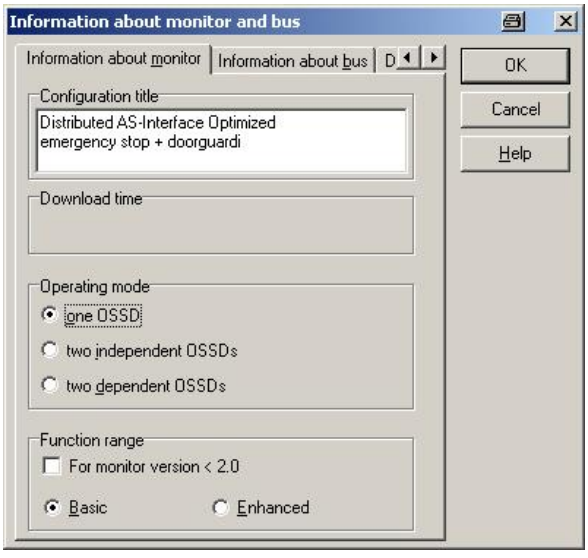
- The ASISWIN V2.0.3 is installed on your PC.
- The safety monitor is connected to the power supply and to the AS-Interface master on the Twido (via the AS-i cable).
- The safety slaves and the standard slaves used for safety (e.g., for acknowledgement, error reset) are correctly addressed and ready for operation on the AS-Interface network.
- The PC is connected to the safety monitor (ASISAFEMON1) via the special interface cable (ASISCPC).
- The password for configuring the safety monitor is known (the default setting on delivery is “SIMON”).
- If you wish to adapt the preconfigured example to your application, example “Example.as2” must be available in the software’s default directory (“C:\Program Files\Schneider Electric\ASISWIN\Example.as2”).

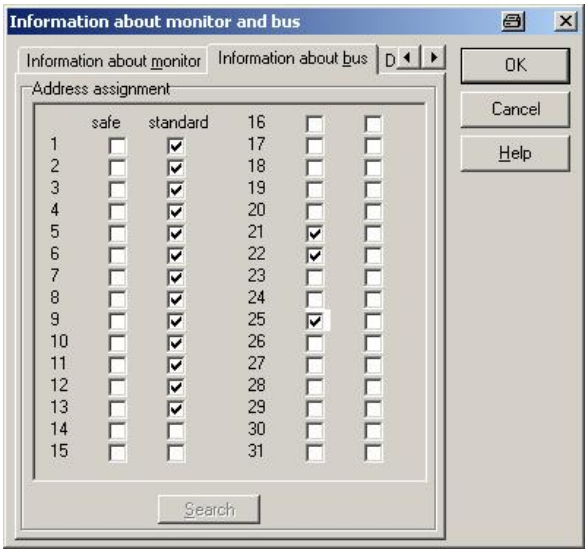
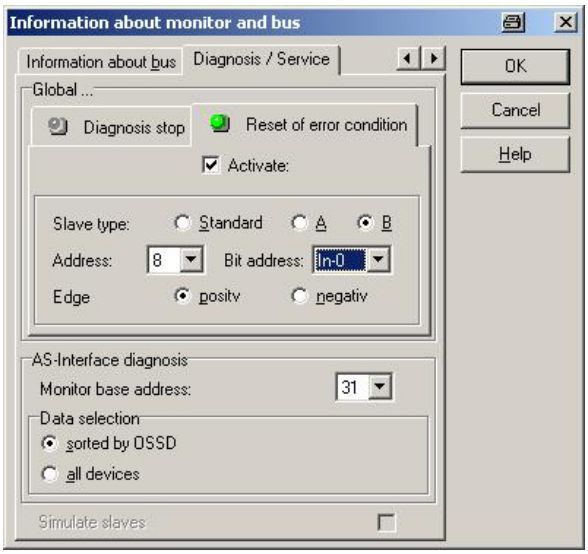
Starting ASISWIN

1	When the ASISWIN software starts up, the screen opposite will appear, offering you the following options (some of which will be grayed out): • Diagnostics • New configuration • Open configuration • Load configuration from AS-Interface safety monitor If this dialog box does not appear, use **New** or **Open** in the **File** menu.	 

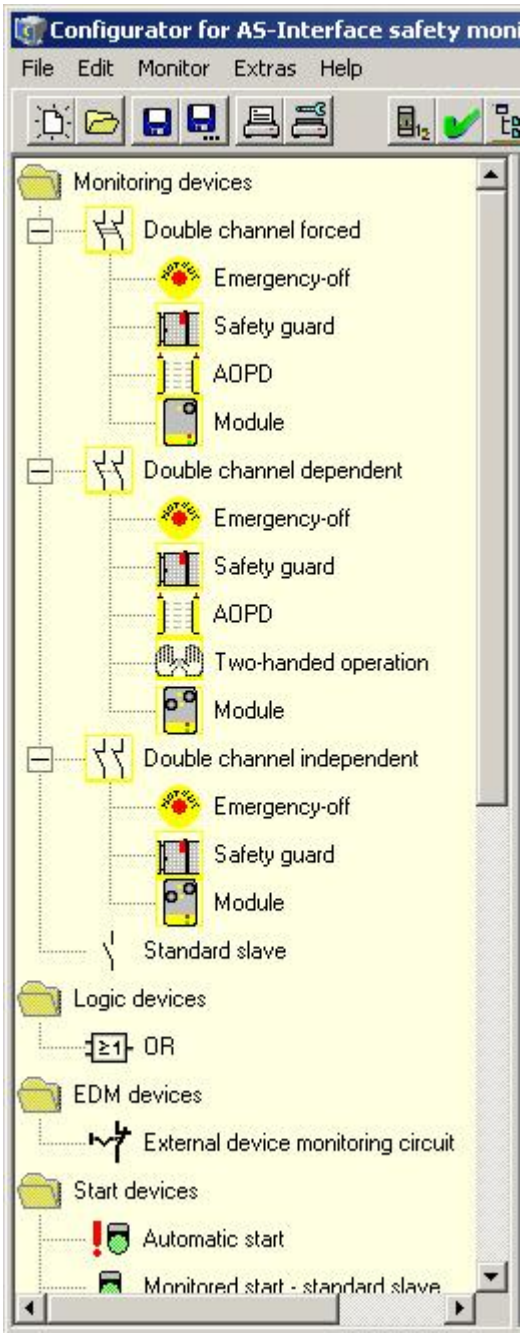
Create a New Configuration

Setting up the Monitor

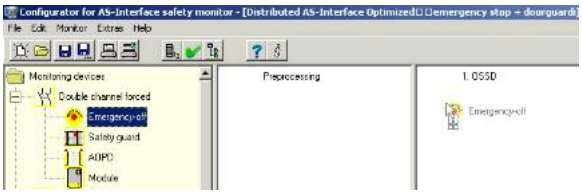
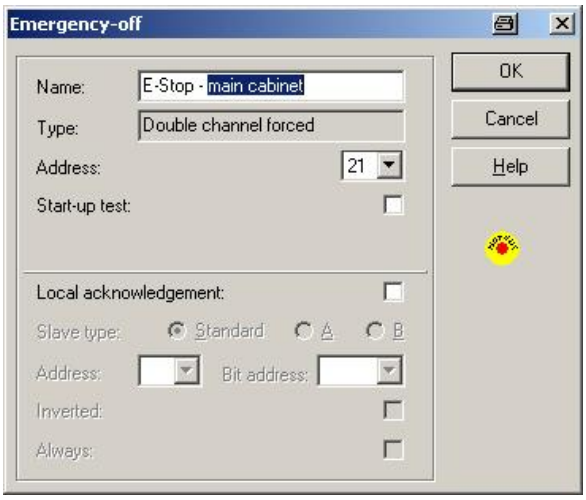
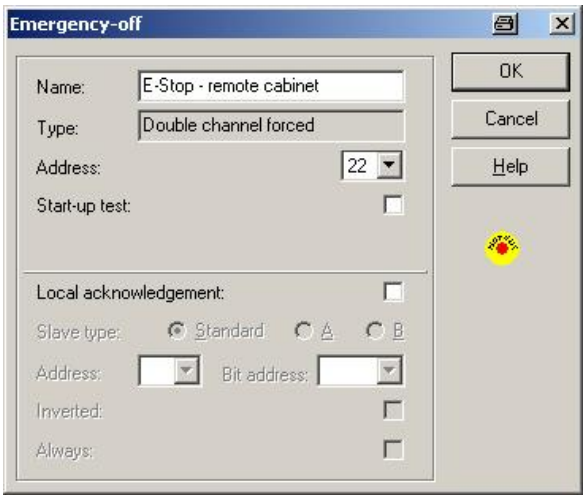
1	To create a new configuration, first assign a unique title to your configuration on the **Information about monitor** tab. In this example, an **ASISAFEMON1**, which has just **one OSSD** and basic functionality, is being used. *Note: An ASISAFEMON2B safety monitor, however, would have two OSSDs, which could be switched independently or dependently and support an extended range of functions.*	

2	On the **Information about bus** tab, enter the safe and standard slaves you are using. If you are using standard slaves for acknowledgement and error reset, you will need to enter them here. The safe slaves' address range starts at address 21, the standard slaves' range is from 20 downwards. The safety monitors for which addresses 30 and 31 have been reserved are not entered here.	
3	Enter the address of the safety monitor on the last tab, **Diagnosis / Service**. The highest addresses available on the bus should be assigned to the safety monitors; it is for this reason that, in this example, addresses 30 and 31 are being used for the safety monitors. In the example, the slave with **address** 8B is used with the first input (IN-0) to reset the safety monitor in the event of an error (e.g., if the delay time is exceeded for an NC/NO combination Confirm with **OK**.	

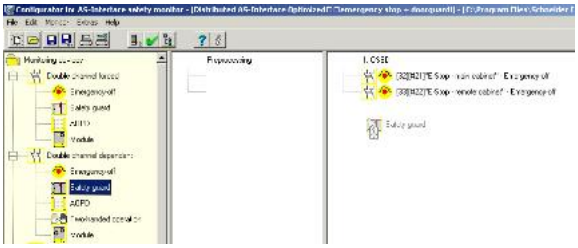
Create a New Configuration

1	The screen on the right will appear for the base controller. A variety of functions can be implemented, these include: • Emergency-off • Safety guard • Module • Feedback loop • Monitored start To use the individual blocks, drag the elements from the yellow area on the left-hand side to the white area on the right-hand side (**1. OSSD**).	

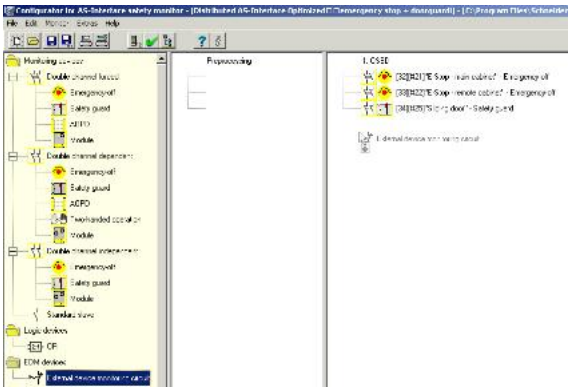
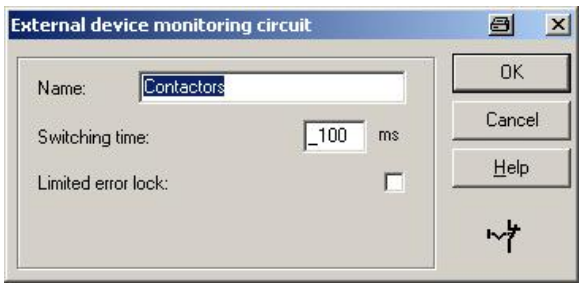
Adding an Emergency-Off

1	The following dialog box will appear if you place a forced emergency-off in the area. In the ***Name*** field, enter a unique name, which will help you to find the device reliably and without confusion (all device names should be selected on this basis). Next, assign an ***Address*** to the device; only the addresses you entered as safe slaves when configuring the motor and have not yet used will appear. ***Local acknowledgement*** and the ***Start-up test*** are not used here. *Note: If you activate the Start-up test, when the power supply is restored, the device specified must be forced (triggered) in order to be able to acknowledge the monitor.* Confirm with **OK**.	  

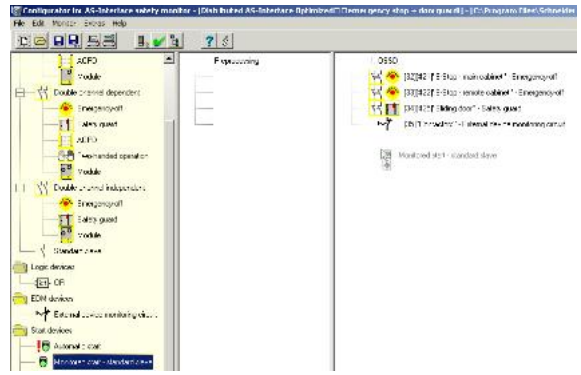
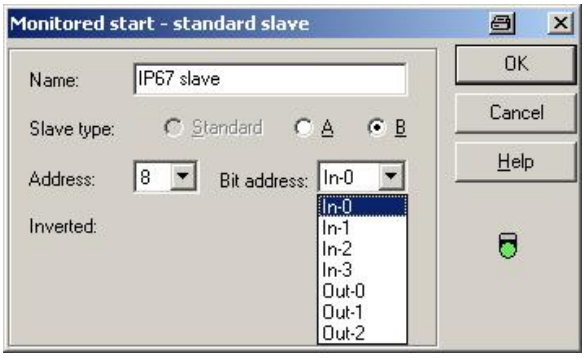
Adding a Safety Guard

1	The example safety guard is implemented using two roller switches assigned to the same guard. As the switches are positioned to the left and right of the guard, the contacts are not forced directly; rather, there is a dependency between the two switches. On the left of the window, select the **Safety guard** module under **Double channel dependent**. A period of **0.5 s** is entered for the **Synchronization time**. This time defines the permissible delay of the lagging roller switch. Confirm with **OK**.	 

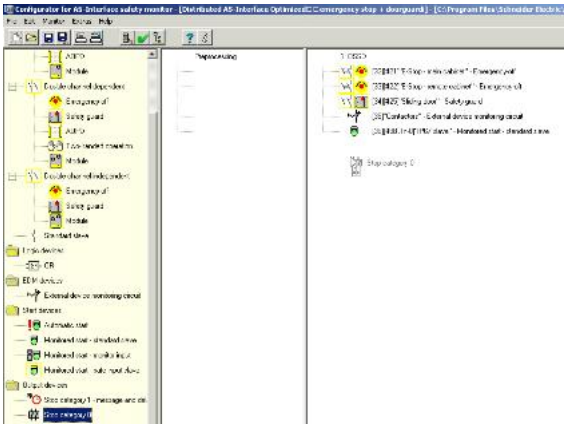
Adding a Monitoring Circuit

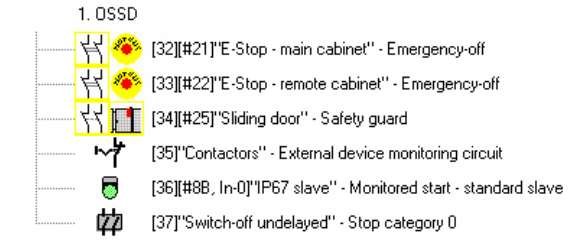
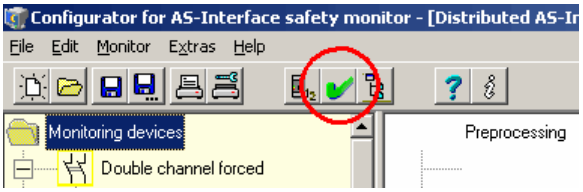
1	Once the switches and safety guard monitoring have been added to the configuration, the **monitoring circuit** for the load contactors is added. The default **Switching time** of **100 ms** can be used for smaller compact load contactors (e.g., LC1D09). This value will need to be increased accordingly for larger load contactors. Confirm with **OK**.	 

Selecting the Start Condition

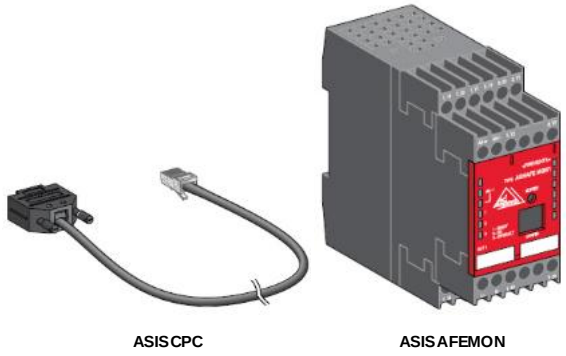
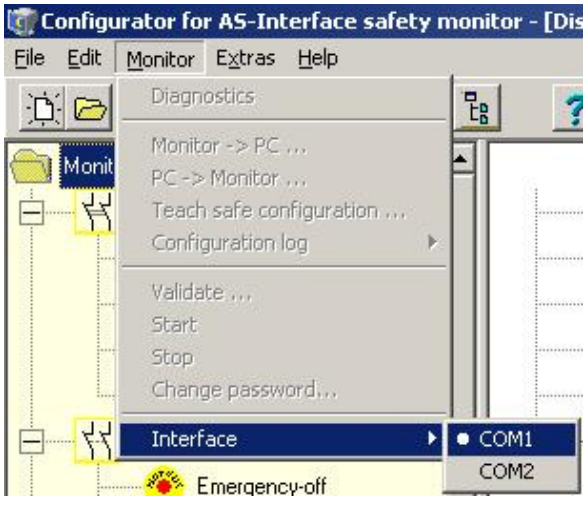
1	A standard non-safe slave now has to be configured for the **monitored start** of the monitor. In this example, slave **8B**, which has already been used for the error reset, is used again with input **IN-0**. *Note: Please note that for the slave type used (ASI67FMP), the designations are I1 to I4, although in the software, the designations start with IN-0 and end with IN-3.* Confirm with **OK**.	 

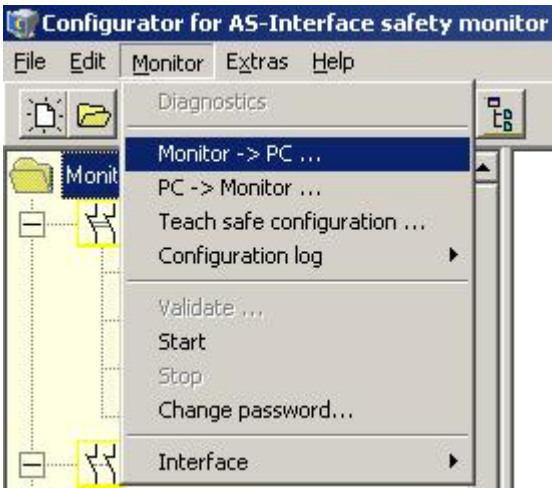
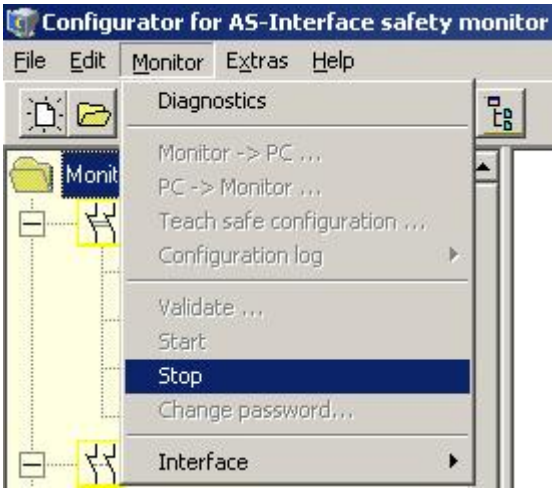
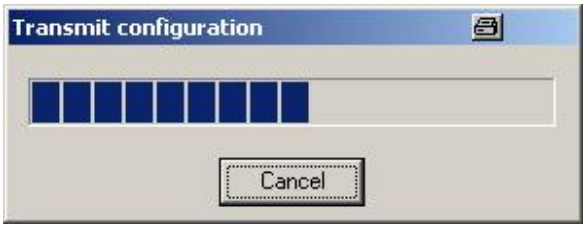
Defining a Stop Category

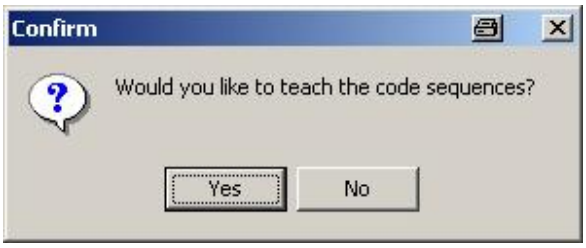
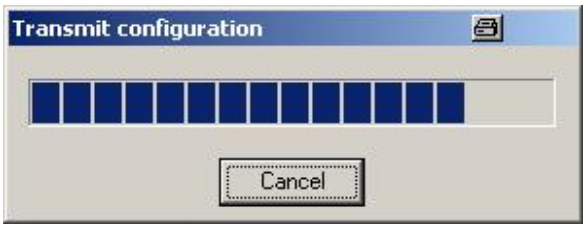
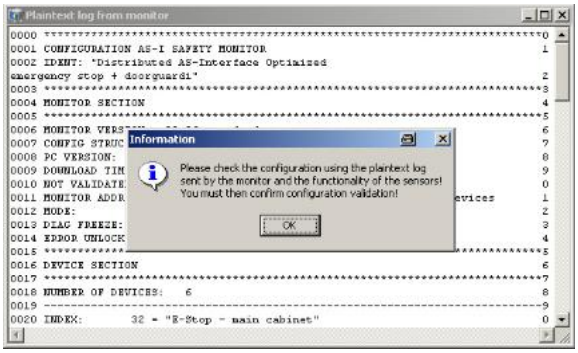
1	Switch-off features are based on stop category 0 (undelayed switch-off). *Note: If frequency inverters have been integrated, a delayed switch-off (stop category 1) can be selected, enabling the controlled ramping-down of load disconnection. However, this option must be checked in respect of its relevance to safety.* Confirm with **OK**.	 

2	The complete configuration of the monitor now looks like this. All conditions [32..34] must be true in order for the monitor to be enabled.	
3	Click on the **check-mark icon** to check the configuration. The result will appear in a separate window which will hide itself automatically.	

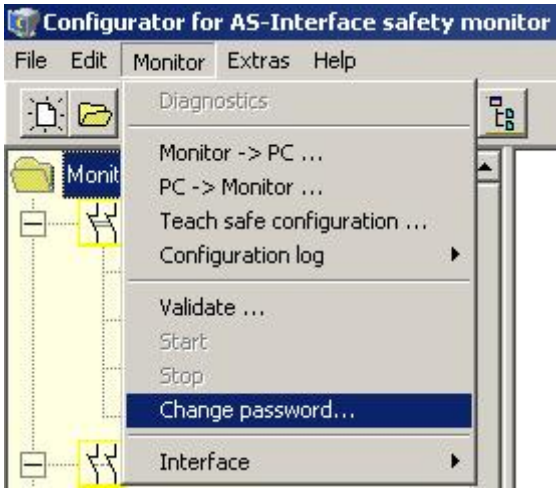
Transferring the Configuration to the Monitor

1	The following preconditions now need to be met: • *Connect the safety monitor to the power supply.* • *Connect the configured AS-interface slaves via the yellow cable.* • *Wire the monitoring circuit for the load contactors on the monitor.* • *Connect the PC and monitor via the **ASISCPC** cable [COM1 (PC) & config port (monitor)].*	
2	Before you connect to the monitor, select **Interface** from the **Monitor** menu to check which communication port has been set. In this case, **COM1** is the only port. There is no need to modify the baud rate or transfer protocol settings.	

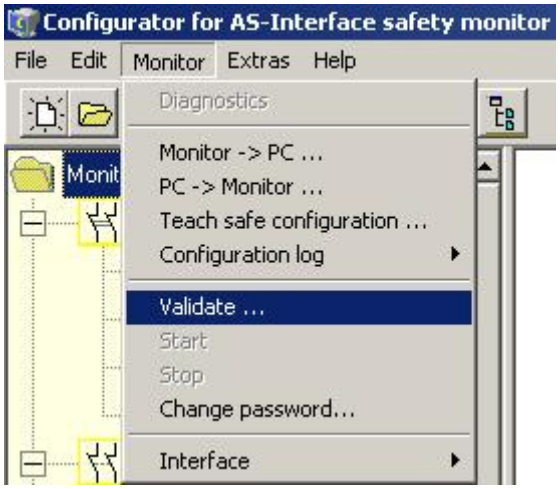
3	To transfer a configuration to the monitor, select **PC->Monitor** from the **Monitor** menu and continue with Step 4. If the four items at the top of the menu list cannot be selected (because they are grayed out), a safety monitor may already have been started (if this is the case, you can stop it by selecting **Stop** from the **Monitor** menu). *Note: As when starting, the monitor will prompt you to enter a **password** if you have not connected to the device in the last five minutes or have been offline.*	 
4	You will need to **enter your password** in order for the actions you have requested to be executed. If you are using the safety monitor for the first time, the password will be **SIMON**. Confirm with **OK**.	
5	The PC will now start to transfer the configuration to the monitor.	

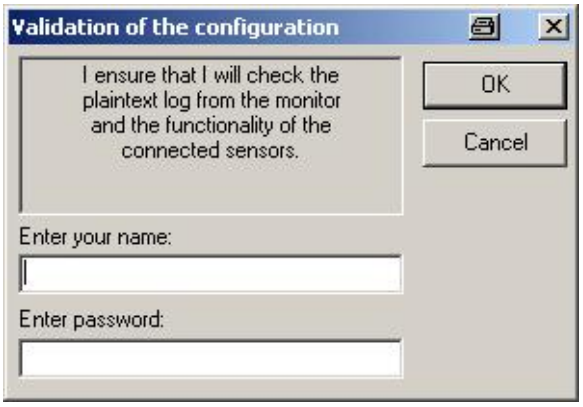
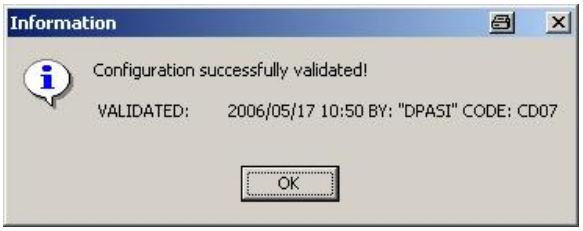
6	Once the transfer is complete, you will be asked if you would like to teach the code sequences. Confirm the prompt with **YES**. The subsequent procedure demonstrates the teaching-in of code tables in order to monitor the state of the safety AS-Interface slaves cyclically.	 
7	Next, the PC will receive a handshake from the monitor in the form of a log representing the “understood” configuration. This will appear on the screen as a section of plain text and you will be prompted to check the configuration, along with the function of the monitor. Confirm the message with **OK**. Once you have carried out this check, you can click on the **close** icon (**cross**) in the top right-hand corner to exit the screen.	 

Changing the Password

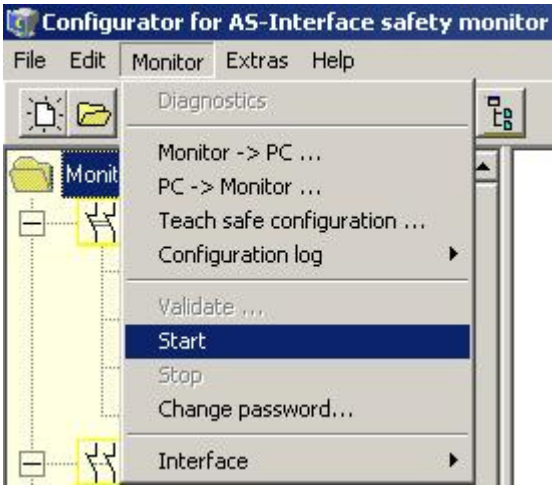
1	The factory-set default password for new monitors is **SIMON**. To change the password, select: **Change password…** in the **Monitor** menu.	
2	In the top line of the next dialog box that appears, enter the old password **SIMON** (remember that passwords are case-sensitive). In the middle line, enter your new password and then repeat your entry in the bottom line. Confirm your entries with **OK**. An error message will appear if the password you have entered is not valid.	

Validating the Monitor

1	To validate the monitor, select: **Validate…** **In** the **Monitor** menu. Validation is the last stage before starting the monitor and, functioning virtually as the signature of the responsible programmer, represents the last check prior to first use.	

2	In the next screen, enter your name, confirm your identity by entering the correct password and confirm your entries with **OK**.	
3	Make a note of the information that appears in the next message and keep this in a safe place. *Note: Monitors can only be used with valid passwords. However, a generic password can be generated using the field entries.*	

Starting the Monitor

1	Select **Start** from the **Monitor** menu to activate the validated safety monitor. It is only when this last setting is made that the signals from the safe slaves are processed and the OSSD can be switched (load connection). *Note: Depending on the last direct access via PC to the monitor, you may need to re-enter your password.*	

Data Exchange

Introduction

The Magelis terminal is connected via UniTelway to the Premium PLC. The AUX interface on the Premium PLC is used for this connection

This chapter explains how the data is exchanged between the Magelis terminal and the Premium PLC via the Unitelway connection as well as the assignment of communication data to the AS-Interface modules.

Data Transfer Primary

Data Direction PLC from/to HMI Premium PLC <-> Magelis XBT-GT1100		
Variable	**Symbol**	**Designation**
%M101	HMI_Mode	HMI-Mode selected

AS-Interface

Data Direction PLC to HMI Premium PLC -> Magelis XBT-GT1100		
Variable	**Symbol**	**Designation**
%M102	ASI_BUS_Fail	BUS Error on ASI Master (%I0.2.0.ERR)
%M103	ASI_Modul_Fail	Module failure on am ASI Master (%I0.2.MOD.ERR)
%M104	ASIMON_01_Fail	ASI Safety monitor 01 activated (%I\1.30\.0.0.0.ERR)
%M105	ASIMON_02_Fail	ASI Safety monitor 02 activated (%I\1.31\.0.0.0.ERR)
%M106	ASIMON_01_ok	ASI Safety monitor 01 okay
%M107	ASIMON_02_ok	ASI Safety monitor 02 okay
%M210	ASIMON_01_Fail_0	ASI Safety monitor 01 triggered by DFB
%M211	ASIMON_02_Fail_0	ASI Safety monitor 02 triggered by DFB
%M212	ASIMON_01_Running	ASI Safety monitor 01 on DFB is running
%M213	ASIMON_02_Running	ASI Safety monitor 02 on DFB is running
%M214	ASIMON_01_Estop1	ASI Safety Mon. 01 triggered by DFB contact 01
%M215	ASIMON_01_Estop2	ASI Safety Mon. 01 triggered by DFB contact 02
%M216	ASIMON_02_Door1	ASI Safety Mon. 02 triggered by DFB contact 01
%M217	ASIMON_02_Door2	ASI Safety Mon. 02 triggered by DFB contact 02

TeSysU *(Status data)*	Data Direction PLC to HMI Premium PLC -> Magelis XBT-GT1100		
	Variable	**Symbol**	**Designation**
TeSysU 1(A)	%M110	TeSysU_01_Fail	Motor starter TeSysU, Slave address 1A, is faulty (from AS-Interface-Address %I\1.1\0.0.0.ERR)
	%M111	TeSysU_01_Ready	Motor starter TeSysU, Slave address 1A, is ready (from AS-Interface-Address %I\1.1\0.0.0.0)
	%M112	TeSysU_01_Run	Motor starter TeSysU, Slave address 1A, running (from AS-Interface-Address %I\1.1\0.0.1.0)
TeSysU 2(A)	%M120	TeSysU_02_Fail	Motor starter TeSysU, Slave address 2A, is faulty (from AS-Interface-Address %I\1.2\0.0.0.ERR)
	%M121	TeSysU_02_Ready	Motor starter TeSysU, Slave address 2A, is ready (from AS-Interface-Address %I\1.2\0.0.0.0)
	%M122	TeSysU_02_Run	Motor starter TeSysU, Slave address 2A, running (from AS-Interface-Address %I\1.2\0.0.1.0)
TeSysU 3(A)	%M130	TeSysU_03_Fail	Motor starter TeSysU, Slave address 3A, is faulty (from AS-Interface-Address %I\1.3\0.0.0.ERR)
	%M131	TeSysU_03_Ready	Motor starter TeSysU, Slave address 3A, is ready (from AS-Interface-Address %I\1.3\0.0.0.0)
	%M132	TeSysU_03_Run	Motor starter TeSysU, Slave address 3A, running (from AS-Interface-Address %I\1.3\0.0.1.0)
TeSysU 4(A)	%M140	TeSysU_04_Fail	Motor starter TeSysU, Slave address 4A, is faulty (from AS-Interface-Address %I\1.4\0.0.0.ERR)
	%M141	TeSysU_04_Ready	Motor starter TeSysU, Slave address 4A, is ready (from AS-Interface-Address %I\1.4\0.0.0.0)
	%M142	TeSysU_04_Run	Motor starter TeSysU, Slave address 4A, running (from AS-Interface-Address %I\1.4\0.0.1.0)
TeSysU 5(A)	%M150	TeSysU_05_Fail	Motor starter TeSysU, Slave address 5A, is faulty (from AS-Interface-Address %I\1.5\0.0.0.ERR)
	%M151	TeSysU_05_Ready	Motor starter TeSysU, Slave address 5A, ist ready (from AS-Interface-Address %I\1.5\0.0.0.0)
	%M152	TeSysU_05_Run	Motor starter TeSysU, Slave address 5A, running (von AS-Interface-Address %I\1.5\0.0.1.0)
TeSysU 6(A)	%M160	TeSysU_06_Fail	Motorstarter TeSysU, Slave address 6A, is faulty (from AS-Interface-Address %I\1.6\0.0.0.ERR)
	%M161	TeSysU_06_Ready	Motor starter TeSysU, Slave address 6A, is ready (from AS-Interface-Address %I\1.6\0.0.0.0)
	%M162	TeSysU_06_Run	Motor starter TeSysU, Slave address 6A, läuft (from AS-Interface-Address %I\1.6\0.0.1.0)

TeSysU *(control data)*	Data Direction HMI to PLC Magelis XBT-GT1100 -> Premium PLC		
	Variable	**Symbol**	**Designation**
TeSysU 1(A)	%M113	TeSysU_01_Forward	Motor starter TeSysU, Slave address 1A, forwards (to AS-Interface-Address %Q\1.1\0.0.0.0)
	%M114	TeSysU_01_Reverse	Motor starter TeSysU, Slave address 1A, reverse (to AS-Interface-Address %Q\1.1\0.0.1.0)
TeSysU 2(A)	%M123	TeSysU_02_Forward	Motor starter TeSysU, Slave address 2A, forwards (to AS-Interface-Address %Q\1.2\0.0.0.0)
	%M124	TeSysU_02_Reverse	Motor starter TeSysU, Slave address 2A, reverse (to AS-Interface-Address %Q\1.2\0.0.1.0)
TeSysU 2(A)	%M133	TeSysU_03_Forward	Motor starter TeSysU, Slave address 3A, forwards (to AS-Interface-Address %Q\1.3\0.0.0.0)
	%M134	TeSysU_03_Reverse	Motor starter TeSysU, Slave address 3A, reverse (to AS-Interface-Address %Q\1.3\0.0.1.0)
TeSysU 2(A)	%M143	TeSysU_04_Forward	Motor starter TeSysU, Slave address 4A, forwards (to AS-Interface-Address %Q\1.4\0.0.0.0)
	%M144	TeSysU_04_Reverse	Motor starter TeSysU, Slave address 4A, reverse (to AS-Interface-Address %Q\1.4\0.0.1.0)
TeSysU 2(A)	%M153	TeSysU_05_Forward	Motor starter TeSysU, Slave address 5A, forwards (to AS-Interface-Address %Q\1.5\0.0.0.0)
	%M154	TeSysU_05_Reverse	Motor starter TeSysU, Slave address 5A, reverse (to AS-Interface-Address %Q\1.5\0.0.1.0)
TeSysU 6(A)	%M163	TeSysU_06_Forward	Motor starter TeSysU, Slave address 6A, forwards (to AS-Interface-Address %Q\1.6\0.0.0.0)
	%M164	TeSysU_06_Reverse	Motor starter TeSysU, Slave address 6A, reverse (to AS-Interface-Address %Q\1.6\0.0.1.0)

I/O-Module *(Control Data)*	Data direction PLC to HMI Premium PLC -> Magelis XBT-GT1100		
	Variable	**Symbol**	**Designation**
Modul FMP 01 (7A)	%M170	FMP_01_Fail	IP67-Modul ASI67FMP, Slave address 7A, (to AS-Interface-Address %I\1.7\0.0.0.ERR)
Modul FMP 02 (8A)	%M171	FMP_02_Fail	IP67-Modul ASI67FMP, Slave address 8A, (to AS-Interface-Address %I\1.8\0.0.0.ERR)
Modul FMP 03 (9A)	%M172	FMP_03_Fail	IP67-Modul ASI67FMP, Slave address 9A, (to AS-Interface-Address %I\1.9\0.0.0.ERR)
Modul MT 01 (10A)	%M180	MT_01_Fail	IP20-Modul ASI20MT, Slave address 10A, (to AS-Interface-Address %I\1.10\0.0.0.ERR)
Modul MT 02 (11A)	%M181	MT_02_Fail	IP20-Modul ASI20MT, Slave address 11A, (to AS-Interface-Address %I\1.11\0.0.0.ERR)
Modul MT 03 (12A)	%M182	MT_03_Fail	IP20-Modul ASI20MT, Slave address 12A, (to AS-Interface-Address %I\1.12\0.0.0.ERR)
Modul MT 04 (13A)	%M183	MT_04_Fail	IP20-Modul ASI20MT, Slave address 13A, (an AS-Interface-Address %I\1.13\0.0.0.ERR)
Modul Safety FMP 01 (7B)	%M200	FMP_Safe01_Fail	IP67-Modul ASI67FMP, Slave address 7B, (to AS-Interface-Address %I\1.107\0.0.0.ERR)
Modul Safety FMP 02 (8B)	%M201	FMP_Safe02_Fail	IP67-Modul ASI67FMP, Slave address 8B, (to AS-Interface-Address %I\1.108\0.0.0.ERR)

Appendix

Detailed Component List

Hardware

Main cabinet

Hardware components (main cabinet) – Group 1: Main switch, power supply and distribution, load current components

Item	Amt.	Description	Part Number	Rev./ Vers.
1.1	1	Motor circuit breaker as main switch, configurable from 9 to 14 A	GV2ME16	
1.2	1	Installation box for motor circuit breaker, IP55	GV2MP02	
1.3	1	“Power ON” indicator glow lamp, clear, 380/440 V AC	GV2SN37	
1.4	1	Emergency-off button for installation box, latching, with turn-to-reset	GV2K04	
1.5	1	multi9 circuit breaker D 1.5 A, 2-pole (Phaseo primary side)	17453	
1.6	1	multi9 circuit breaker B 3 A, 1-pole (Phaseo secondary side)	24502	
1.7	1	Phaseo, combined power supply for AS-Interface and 24 V, 3 A sec. rated current	ASIABLM3024	
1.8	2	multi9 circuit breaker, C 6A, 3-pole (back-up fuse for TeSysU motor starter groups)	24112	
1.9	3	TeSysU – power section for motor starters, 2 directions of rotation, 12 A	LU2B12B	
1.10	3	TeSysU – control module for motor starters, standard; 1.25 .. 5 A	LUCA05BL	
1.11	3	TeSysU - motor starter for AS-Interface module	ASILUFC5	
1.12	3	TeSysU - coil connection for motor starters	LU9M RC	
1.13	3	AS-Interface tap for TeSysU motor starters	XZ CG0142	
1.14	1	Busbar system, 3-pole, 3 outgoing feeders	GV2G345	
1.15	1	Busbar terminal block, 3-pole	GV1G09	

Hardware components (main cabinet) – Group 2: Emergency-off (optional)

Item	Amt.	Description	Part Number	Rev./ Vers.
2.1	1	AS-interface safety monitor, 1 switch-off circuit, basic functionality	ASISAFEMON1	
2.2	1	Emergency-off switch, set up as safe AS-i slave, metal	ASISSLB4	
2.3	1	Mushroom pushbutton, red/yellow, d=40 mm, turn-to-reset	ZB4BS844	
2.4	1	Yellow “emergency-off” plate, d=90 mm	ZBY8330	
2.5	2	TeSys D, redundant load contactors, 9A/AC3, 1xNO, 1xNC, 24 V, incl. protective circuit	LC1D09BD	
2.6	1	multi9 circuit breaker B 1 A, 1-pole (protection for safety monitor and contactors)	24045	

HardwareComponents (control cabinet) – Group 3: Control components and HMI				
Pos.	**Amt.**	**Description**	**Part Number**	**Rev./ Vers.**
3.1	1	Premium CPU for CANopen and AS-interface with Ethernet interface	TSXP572634M	
3.2	1	Memory expansion module SRAM 2MB	TSXMRPC002M	
3.3	1	Premium AS-interface Module	TSXSAY1000	
3.4	1	Rack for 6 modules	TSXRKY6EX	
3.5	1	Terminal resistor for Rack	TSXTLYEX	
3.6	1	Power module 26 W Standard 230V/24V	TSXPSY2600M	
3.7	1	Power switch, C60 N B 6A, 1-polig (Premium safety)	23612A	
3.8	1	Magelis-Display, graphic monochrom	XBTGT1100	
3.9	2	Communication cable Magelis <> Premium	XBTZ9780	
3.10	1	Circuit breaker B 1 A, 1-pole (protection for Magelis)	24045	

Hardware

Remote cabinet

Hardware components (remote cabinet) – Group 4: Load components				
Item	**Amt.**	**Description**	**Part Number**	**Rev./ Vers.**
4.1	1	TeSysU – power section for motor starters, 2 directions of rotation, 12 A	LU2B12B	
4.2	1	TeSysU – control module for motor starters, standard; 1.25 .. 5 A	LUCA05BL	
4.3	2	TeSysU – motor starter for AS-Interface module	ASILUFC5	
4.4	1	TeSysU – coil connection for motor starters	LU9MRC	
4.5	1	AS-Interface tap for TeSysU motor starters	XZCG0142	
4.6	1	Busbar system, 3-pole, 3 outgoing feeders	GV2G345	
4.7	1	Busbar terminal block, 3-pole	GV1G09	

Hardware components (remote cabinet) – Group 5: Safety guard combined with emergency-off				
Item	**Amt.**	**Description**	**Part Number**	**Rev./ Vers.**
5.1	1	AS-interface safety monitor, 1 switch-off circuit, basic functionality	ASISAFEMON1	
5.2	1	Emergency-off switch, set up as safe AS-interface slave, metallic	ASISSLB4	
5.3	1	Mushroom pushbutton, red/yellow, d=40 mm, turn-to-reset	ZB4BS844	
5.4	1	Yellow “emergency-off” plate, d=90 mm	ZBY8330	
5.5	2	TeSys D, redundant load contactors, 9A/AC3, 1xNO, 1xNC, 24 V, incl. protective circuit	LC1D09BD	
5.6	1	Circuit breaker B 1 A, 1-pole	24045	

Hardware components (remote cabinet) – Group 6: ASi control components				
Item	**Amt.**	**Description**	**Part Number**	**Rev./ Vers.**
6.1	4	AS-Interface - IP20 digital input/output block, 4 inputs, 3 transistor outputs	ASI20MT4I3OSE	
6.2	1	AS-Interface - insulation displacement connectors (IDC), 4 x yellow, 4 x black, 5/5 items	ASI20MACC1	
6.3	3	AS-Interface tap for TeSysU motor starters	XZCG0142	

Hardware
Field devices

Hardware components – Group 7: Field installation				
Item	**Amt.**	**Description**	**Part Number**	**Rev./ Vers.**
7.1	1	AS-Interface profile cable, yellow (ASi), 100 m	XZCB11001	
7.2	1	AS-Interface profile cable, black (AUX), 100 m	XZCB11002	
7.3	3	AS-Interface tap for AS-Interface module	ASIDCPM12D03	
7.4	3	IP67 I/O block with 4 inputs/3 outputs	ASI67FMP43E	
7.5	1	Cover caps for unused M12 connectors, set of 10	FTXCM12B	*optional*
7.6	2	Retroflective sensor, M12 connector	XUK0AKSAM12	
7.7	2	Terminal block for 18 mm sensors	XSZB118	
7.8	2	M12 connecting cable, 1 m length	XCR1511041C1	
7.9	4	Inductive sensor, d=18 mm, M12 connector	XS618B1PAM12	
7.10	4	Terminal block for 18 mm sensors	XSZB118	
7.11	4	M12 connecting cable, 1 m length	XCR1511041C1	
7.12	2	Ultrasonic sensor, d=18 mm, M12 connector	XX518A1KAM12	
7.13	2	Terminal block for 18 mm sensors	XSZB118	
7.14	2	M12 connecting cable, 1 m length	XCR1511041C1	

Hardware
Field devices

Hardware components – Group 8: Safety components for installation in the field				
Item	**Amt.**	**Description**	**Part Number**	**Rev./ Vers.**
8.1	1	AS-Interface, safe slave, 2X IN M12	ASISSLC2	
8.2	2	Safety roller limit switches	XCSM3915L1	
8.3	2	M12 connecting cable (male + female), length 1 m	XZCR1511041C1	
8.4	2	M12 male for customer assembly	XZCC12MDP40B	
8.4	2	Pushbutton housing, standard, for acknowledgements (1x emergency-off, 1x safety guard)	XALD01	
8.5	2	Illuminated pushbutton, blue, 24 V LED, 1 NO contact	ZB5AW0B61	
8.6	4	M12 connecting cable, with M12 male connectors fitted at one end, length 2 m	XZCP1541L2	

Software Components

Software Components – Group 9				
Item	**Amt.**	**Description**	**Part Number**	**Rev./ Vers.**
9.1	1	UnityPro XL Programming software	UNYSPUEFUCD22	2.2
9.2	1	Premium Programming cable	TSXPCX1031	
9.3	1	Magelis-Configurationssoftware Vijeo-Designer incl. USB Programming cable XBTZG925	VJDSUDTGAV43M	4.30 patch C needed
9.3b	*1*	*Magelis-Programming cable for XBT-GT1100*	*XBTZG925*	
9.4	1	Configurations software for AS-Interface safety monitors	ASISWIN2	2.0.3
9.5	1	Download cable for AS-Interface safety monitors	ASISCPC	
9.6	1	Hand terminal for Programming ASI Slaves	ASITERV2	
9.7	1	Infrared adapter for Hand terminal (ASITERV2)	ASITERIR1	

Cabinet
Components

Cabinet Componensn – Group 10 (SAREL)				
Item	**Amt.**	**Description**	**Part Number**	**Rev./ Vers.**
10.1	1	Cabinet, 800x600x300mm (HxBxT, with Monting plate, Sarel)	ENN83357	
10.2	2	Filter Fan, 230V, 56 m³/h (Sarel)	ENN17901	
10.3	2	Filter mounting for fan (Sarel)	ENN17911	
10.4	1	Thermostat for Filter fan, 0..60°C (Sarel)	ENN17562	

Component Protection Classes

Positioning

Protection Class

Component	In Field, On Site			Cabinet		
				Front		Inside
	IP54	**IP65**	**IP67**	**IP55**	**IP65**	**IP20**
Emergency-off installation box for GV2ME				**X**		**X**
Load contactors LC1D						**X**
Circuit breakers, all power ranges and types						**X**
Phaseo power supply unit						**X**
TeSysU motor starters, all ratings						**X**
Premium PLC incl. expansion modules						**X**
Magelis display terminal					**X**	**X**
“Harmony” range of pushbuttons in housing		**X**				
AS-Interface – input/output modules ASI20MT***/ASI20MA***						**X**
AS-Interface – input/output modules ASI67FF***/ASI67FM***			**X**			
AS-Interface safety monitor						**X**
AS-Interface emergency-off slave ASISSLB4						**X**
Mushroom attachment/switch for ASISSLB4					**IP66**	
AS-Interface emergency-off slave ASISSC1/C2			**X**			
Preventa safety limit switch XCSM***			**X**			

Component Features

Premium-PLC with AS-Interface Master Module

TSXP572634M

TSXSAY1000

The remote I/O is implemented with AS-Interface function blocks .

- 240 VAC power supply with integrated 24V/5A power supply
- Ethernet interface, 2x UniTelway (TER & AUX)
- Up to 9 expansion modules in local rack (digital/analog/remote E/A and communications modules such as ASI and CANopen)
- AS-Interface-Master-Module for 31 Slaves with standard addressing / 62 Slaves with extended addressing

5 Programming languages:

- ST
- IL
- FBD
- SFC
- LD

Pre-definierte functions:

- Diverse communications modules for Fipway, Modbus Plus, Fipio Agent, UniTelway, Modbus/Jbus, CANopen, Modem, serial interface, Ethernet TCP/IP
- Memory Expansion using PCMCIA card (RAM or Flash-EPROM)
- Real-time clock
- Online program changes during RUN Mode
- Digital and analog In-/Output modules
- closed loop control, counter, positioning und communications modules
- Temperature range: 0..+ 60°C (+5..+55 acc. IEC 1131-2)
- Licences : UL, CSA, BV, DNV, GL, LR, RINA

Magelis Operator Terminal

XBT-GT1100

The functions implemented with the Magelis display unit are:

- **Displaying** data of the control system and reporting **alarms**
- **Modifying** control system parameters and **controlling** a process using discrete commands

The HMI terminal is powered from the 24 VDC sensor supply output from the PLC. This has the advantage that PLC and HMI work independently of other system components.

Display:

- Graphic, monochrom
- LCD with background lighting, 3,8“, green/orange
- 6 Function keys

Communication:

- Modbus
- UniTelway

Phaseo power supply unit

ASI ABLM3024

- 100 bis 240 VAC
- 30 VDC/2,4 A
- Short-circuit-proof, earth fault detection

AS-Interface Safety Monitor for E-off and safety doors

ASISAFEMON1

Safety module for monitoring safety cicuits (E-Off and safety doors)

- 1 or 2 release circuits (1 release circuit with ASISAFEMON1)
- basic or extended functions
- Up to Category 4 safety according to EN 954-1
- 2 poles per release circuit
- Usable in an AS-Interface bus segment with standard slave (e.g. TeSysU ASILUFC5 and safety slaves (e.g. ASISSLB2)
- Diagnosis LEDs on the front

TeSysU Motor Starter

LU2B12B

Motor starter base for two directions with indication

- screw clamp connectors 12 A (12 ..32A available)
- control unit LUCA 05BL, 1.25.. 5A /1.5 kW max. (0.09 .. 15 kW available)
- communication module ASI LUFC5, AS-Interface Version 2.0, standard addressing
- connection to AS-Interface and auxiliary cable via Tap XZCG0142

AS-Interface Digital I/O Module IP20

ASI20MT4I3OSE

Discrete modular interface IP20

- 4 inputs, 3 transistor outputs, 0.5 A
- output supply via external power 24 VDC (black cable)
- AS-Interface Version 2.1, extended addressing
- connection to AS-Interface and auxiliary cables via screw clamp connectors or insulation displacement connectors

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AS-Interface Digital I/O Module IP67

ASI 67FMP43E

Discrete interface, remote connection

- 4 inputs, 3 transistor outputs, 2A
- output supply via external power 24 VDC (block cable)
- AS-Interface Version 2.1, extended addressing
- connection to AS-Interface and auxiliary cables via Tap ASI DCPM 12D03 (module types with insulation displacement connectors available)

Contact

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