Human/Machine Interfaces

Magelis™ SCU Small HMI controllers

Catalog

July 2013

Schneider Electric

How to find the “Automation and Control” products

Catalogs

Complete product ranges

Essential guides

Selection of the top selling products

General contents

Magelis™ SCU Small HMI controllers

HMI controllers

Magelis™ SCU Small HMI controllers, Magelis™ XBTGC HMI controllers, Magelis™ XBTGT, XBTGK Standard Advanced panels + control function

Applications		**Display of text messages, graphic objects and mimics, control and configuration of data**			
Terminal type		**IEC 1131-2 control function**			
		Small HMI controllers			
		For control of simple machine		**For control of simple process**	
					
Display	Type	color TFT LCD			
	Capacity	3.5" (65 k colors)	5.7" (65 k colors)	3.5" (65 k colors)	5.7" (65 k colors)
Data entry		Via touch screen			
	Static function keys	–			
	Dynamic function keys	–			
	Service keys	–			
	Alphanumeric keys	–			
Memory capacity	Application	128 MB Flash EPROM			
	Expansion	–			
Functions	Maximum number of pages and maximum number of instructions	Limited by internal Flash EPROM memory capacity			
	Variables per page	Unlimited (8000 variables max.)			
	Programmed logic	5 languages according to IEC 1131-2 (LD, ST, FBD, SFC, IL)			
	Counting/positioning	2 x 100 kHz high speed counter inputs/2 x 50 kHz pulse train outputs			
	Control (PID)	Yes			
	Representation of variables	Alphanumeric, bitmap, bargraph, gauge, tank, tank level indicator, curves, polygon, button, light			
	Recipes	32 groups of 64 recipes comprising 1024 ingredients max.			
	Curves	Yes, with log			
	Alarm logs	Yes			
	Real-time clock	Built-in			
I/O	Integrated	□ 14 x 24 V ⎓ digital inputs □ 2 high speed counter (HSC) inputs □ 8 digital relay outputs □ 2 pulse train source transistor outputs		□ 6 x 24 V ⎓ digital inputs □ 2 high speed counter (HSC) inputs □ 6 digital relay outputs □ 2 pulse train source transistor outputs □ 2 x 13-bit analog inputs (Voltage/current) □ 2 x 16-bit analogue temperature inputs (TC/PT100-1000) □ 2 x 12-bit analog outputs (Voltage/current)	
	I/O modular expansion	–			
Communication	Downloadable protocols	Uni-TE, Modbus, Modbus TCP/IP *(1)* and for PLC brands: Mitsubishi, Omron, Allen-Bradley and Siemens			
	Asynchronous serial link	RS 232C/RS 485 (COM1)			
	USB ports	1 Host type A + 1 Device type mini-B			
	Buses and networks	1 CANopen master Ethernet TCP/IP (10BASE-T/100 BASE-TX)			
	Printer link	USB port for parallel printer			
Design software		SoMachine on Windows XP Professional and Windows 7 Professional 32/64-bit (please refer to our website www.schneider-electric.com)			
Operating system		Magelis (333 MHz RISC CPU)			
Terminal type		**HMISCU6A5**	**HMISCU8A5**	**HMISCU6B5**	**HMISCU8B5**
Pages		11			

(1) Depending on model.

HMI controllers
Magelis™ SCU Small HMI controllers

Magelis SCU Small HMI controllers

Presentation

The ultra-compact range of Magelis SCU Small HMI controllers are part of Schneider Electric's Flexible Machine Control concept, a key element in MachineStruxure™.

The Magelis SCU HMI controllers offer brings together Human Machine Interface and control functions within in a single product. This reduces the amount of equipment required and the associated costs throughout the life cycle of the machine.

The Magelis SCU Small HMI controllers integrate, as standard, all their functions. They benefit, in particular, from the same innovation as the Magelis STU Small panels range: Mounting via a 22 mm diameter hole (pushbutton type) which considerably simplifies installation (see page 8).

Of modular design, this range comprises:
- ■ 2 complete Magelis SCU products for the control of simple machines, comprising:
  - □ A 3.5" or 5.7" 65 k color TFT Screen module
  - □ A Controller module with 16 integrated digital inputs/10 integrated digital outputs
- ■ 2 complete Magelis SCU products for the control of simple processes, comprising:
  - □ A 3.5" or 5.7" 65 k color TFT Screen module
  - □ A Controller module with 8 integrated digital inputs/8 integrated digital outputs and 4 integrated analog inputs/2 integrated analog outputs

The Screen modules and Controller modules (for simple machines or processes) are also available separately as replacement parts. Magelis SCU Small HMI controllers operate with the same Screen modules as Magelis STU Small panels, which simplifies upgrading of an installation (only the rear module needs to be replaced). A wide choice of communication interfaces is also integrated: USB port, serial link, Ethernet and CANopen.

HMI controllers
Magelis™ SCU Small HMI controllers

SoMachine

Vijeo Designer (included in SoMachine)

Operation

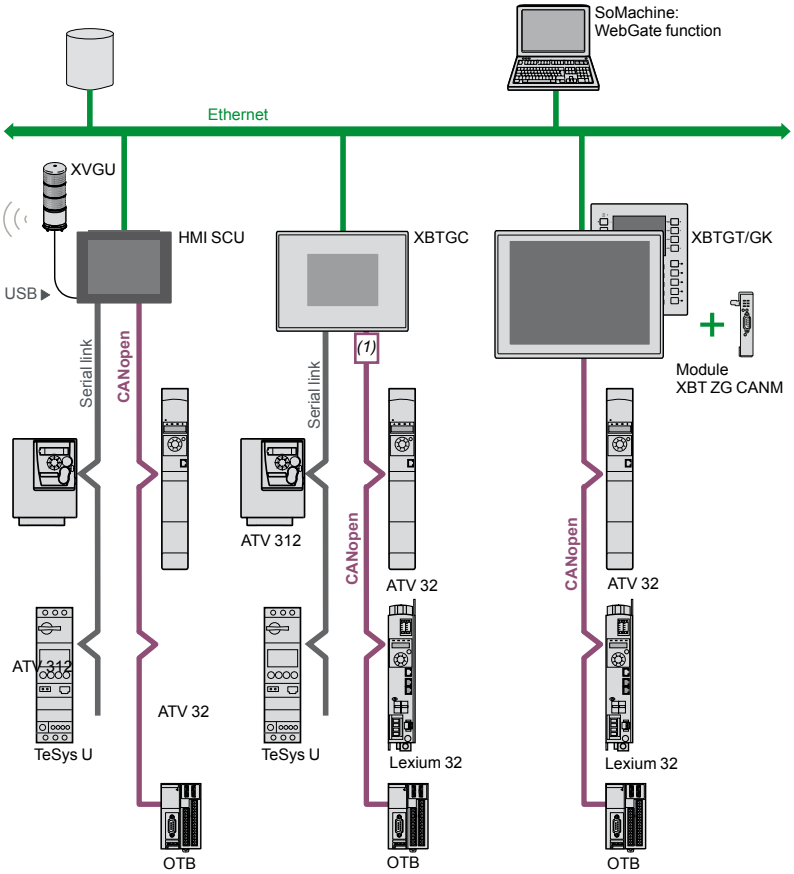
With their fast multitasking processors, the HMI controllers combine HMI and control functions and share the same screen and communication features and dimensions. The internal memory can be freely used by both the HMI function and the control function.
Processing is split 75% on the HMI part and 25% on the control part. The processing can be configured for 3 tasks, including 1 master task.

Configuration

Magelis SCU Small HMI controllers are configured using Schneider Electric's unique machine automation software, SoMachine.
This software, combining both HMI and control functions, is based on Vijeo Designer software*(2)* running on Windows XP Professional or Windows 7 Professional 32/64-bit.
SoMachine software*(2)* boasts an advanced user interface with many configurable windows, enabling unique projects to be developed quickly and easily.

Communication

Examples of communication architectures



Depending on the model, Magelis SCU Small HMI controllers, Magelis XBTGC HMI controllers and Magelis XBTGT/GK Standard Advanced panels communicate with automation devices via 1 or 2 integrated serial links using the following communication protocols:

- Schneider Electric (Uni-TE, Modbus)
- Third-party: Mitsubishi Electric, Omron, Allen-Bradley and Siemens

Depending on the model, they can be connected to Ethernet TCP/IP networks with the Modbus TCP protocol or a third-party protocol, and can be used as the CANopen master to control all the peripherals which can be connected on this bus.

(1) With XBTZGCCAN CANopen master module.
(2)For more information on Vijeo Designer software and SoMachine software, please refer to our website www.schneider-electric.com.

HMI controllers
Magelis™ SCU Small HMI controllers

Functions

Magelis SCU Small HMI controllers are part of Schneider Electric's Flexible Machine Control concept, a key element in MachineStruxure™.

Magelis SCU Small HMI controllers offer the following HMI functions:
- Display of animated mimics with 8 types of animation (pressing the touch panel, color changes, filling, movement, rotation, size, visibility and value display)
- Control, modification of numeric and alphanumeric values
- Display of current time and date
- Real-time curves and trend curves with log
- Alarm display, alarm log and management of alarm groups
- Multiwindow management
- Page calls initiated by the operator
- Multilingual application management (10 languages simultaneously)
- Recipe management
- Data processing via Java script
- Application support and USB key external memory logs
- Management of serial printers, barcode readers

Magelis SCU Small HMI controllers have been designed for Transparent Ready architectures and equipment (combination of Web and Ethernet TCP/IP technologies).

With the WebGate function, it is possible to control or carry out maintenance remotely.

Eventually, Magelis SCU will enable a smartphone or a PC tablet to be remotely connected to the HMI application.

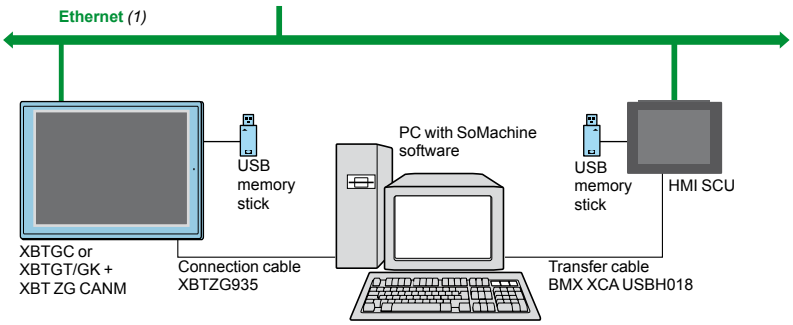
Magelis SCU Small HMI controllers offer the following HMI functions:
- Execution of programmed logic sequences with the five IEC 1131-2 languages (LD, ST, FBD, SFC,IL)
- Management of equipment on the CANopen fieldbus

In addition to the aforementioned functions, Magelis SCU Small HMI controllers enable management of:
- Integrated digital I/O
- Integrated analog I/O: Voltage, current and temperature (thermocouple, PT100, PT1000)
- 2 high speed counter (HSC) inputs,100 kHz 1 channel or 50 kHz 2 channel
- 2 pulse train fast outputs, PTO/PWM 50 kHz

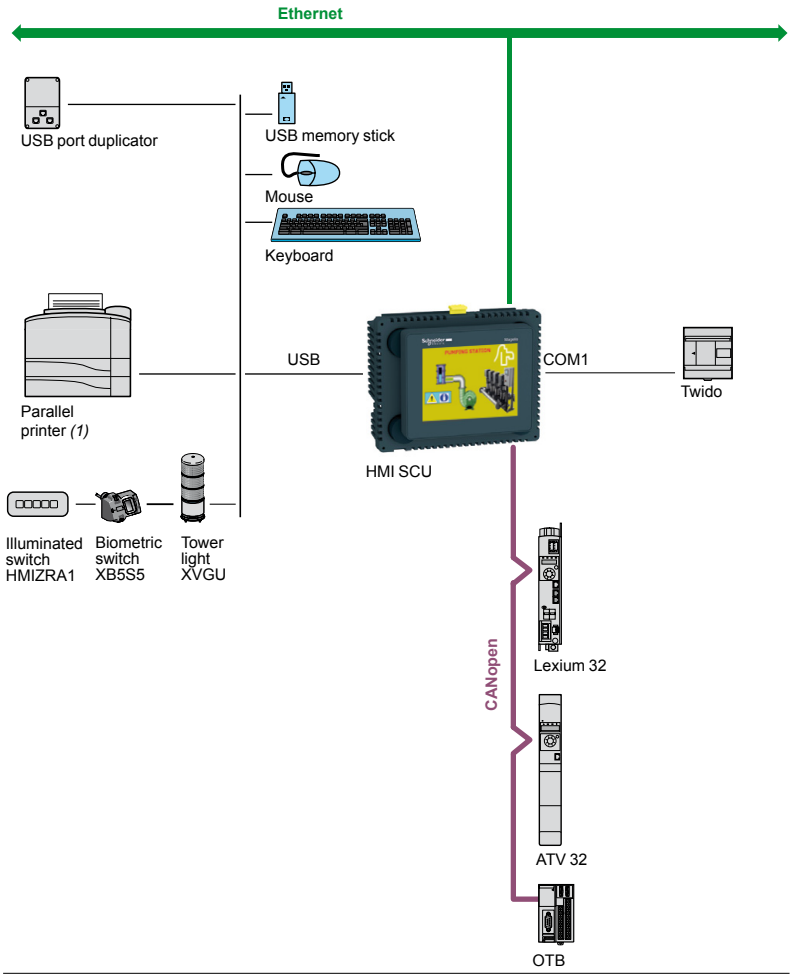
Operating modes for the terminals

The following illustrations show the equipment that can be connected to Magelis SCU and XBTGC controllers as well as to Magelis XBTGT/GK Advanced panels according to their two operating modes.

Edit mode



Run mode



(1) Should be a Hewlett Packard printer via a USB/PIO converter.

HMI controllers

Magelis™ SCU Small HMI controllers

Magelis™ SCU Small HMI controllers for control of simple machines

Description

Magelis HMI SCU●A5 Small HMI controllers

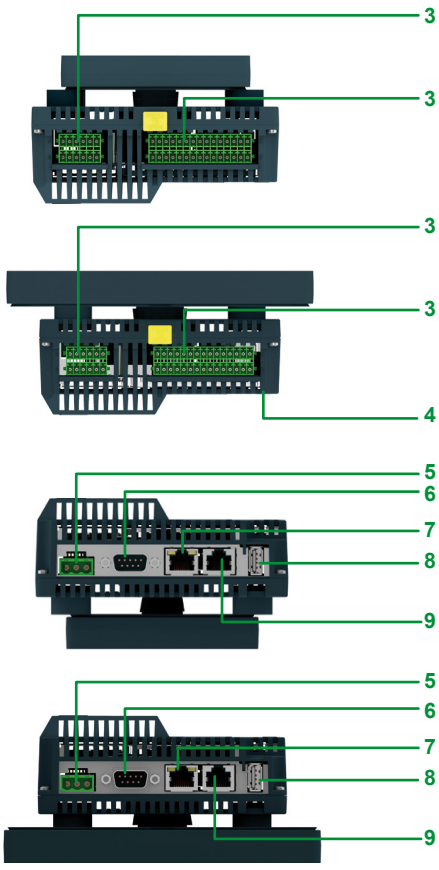
Front Panel

Magelis SCU Small HMI controllers for control of simple machines have the following on the front panel:

1 A 3.5" touch screen for displaying mimics (color TFT LCD)

or

2 A 5.7" touch screen for displaying mimics (color TFT LCD)



Upper rear panel

The upper rear panel has the following:

3 Four removable terminal blocks for 16 digital inputs including 2 high speed counter (HSC) inputs (100 kHz 1 channel or 50 kHz 2 channel), 8 digital relay outputs and 2 source transistor outputs (PTO/PWM 50 kHz or 20 kHz pulse train if HSC used)

Lower rear panel

The lower rear panel has the following:

4 A USB mini-B device connector for application transfer (on left-hand side of panel)

5 A removable screw terminal block for 24 V ⎓ power supply

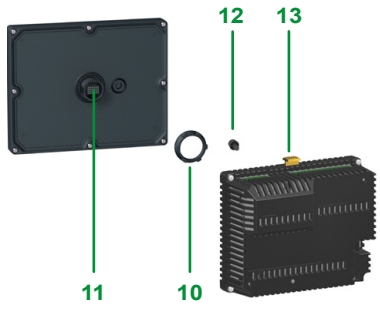
6 A 9-way SUB-D connector for CANopen link, fitted with an LED for signalling power supply and system operation status

7 An RJ45 connector for Ethernet TCP/IP, 10BASE-T/100BASE-TX link

8 A type A USB master connector for:

- Connection of a peripheral device
- Connection of a USB memory stick
- Application transfer

9 An RJ45 male connector for RS 232C or RS 485 serial link connection to PLCs (COM1)



Fixing system

Magelis SCU Small HMI controllers consist of a front module (comprising the screen) and a rear module (comprising the CPU plus terminals and connectors). The two modules are fixed together via a hole measuring 22 mm in diameter.

The fixing system contains the following elements:

10 A fixing nut

11 A seal

12 An anti-rotation tee (can be used as an option)

13 A release mechanism: Simply press to separate the two modules once they have been fixed together

This system is included with the complete products (see page 11).

Note: *The 2 modules can also be mounted separately: Using a remote connection cable enables the rear module and the front module to be separated and the Controller module mounted on DIN rail (see page 11).*

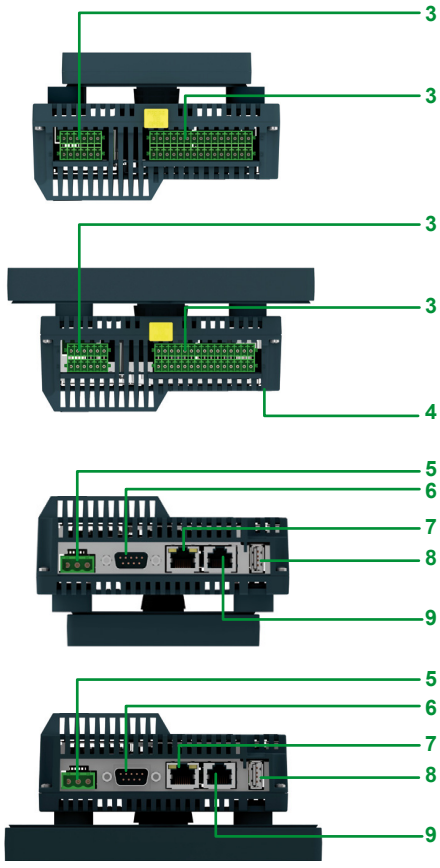
Presentation: page 4

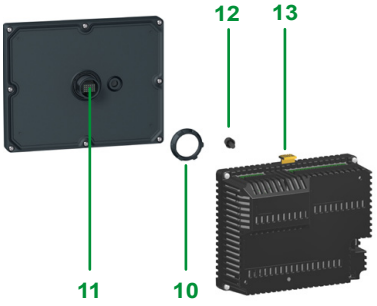
Functions: page 6

HMI controllers

Magelis™ SCU Small HMI controllers

Magelis™ SCU Small HMI controllers for control of simple processes





Description

Magelis HMI SCU●B5 Small HMI controllers

Front panel

Magelis SCU Small HMI controllers for control of simple processes have the following on the front panel:

1 A 3.5" touch screen for displaying mimics (color TFT LCD)

or

2 A 5.7" touch screen for displaying mimics (color TFT LCD)

Upper rear panel

The upper rear panel has the following:

3 Four removable terminal blocks for 8 digital inputs including 2 fast HSC inputs (100 KHz 1 channel or 50 kHz 2 channel), 6 digital relay outputs, 2 transistor source outputs (PTO/PWM 50 kHz or 20 kHz pulse train if HSC used), 2 analog inputs (voltage, current), 2 temperature inputs (Thermocouple, PT100, PT1000) and 2 analog outputs (voltage, current)

Lower rear panel

The lower rear panel has the following:

4 A USB mini-B device connector for application transfer (on left-hand side of panel)

5 A removable screw terminal block for 24 V ⎓ power supply

6 A 9-way SUB-D connector for CANopen link, fitted with an LED for signalling power supply and system operation status

7 An RJ45 connector for Ethernet TCP/IP, 10BASE-T/100BASE-TX link

8 A type A USB master connector for:

- Connection of a peripheral device
- Connection of a USB memory stick
- Application transfer

9 An RJ45 male connector for RS 232C or RS 485 serial link connection to PLCs (COM1)

Fixing system

Magelis HMI SCU Small HMI controllers consist of a front module (comprising the screen) and a rear module (comprising the CPU plus terminals and connectors). The two modules are fixed together via a hole measuring 22 mm in diameter.

The fixing system contains the following elements:

10 A fixing nut

11 A seal

12 An anti-rotation tee (can be used as an option)

13 A release mechanism: Simply press to separate the two modules once they have been fixed together

This system is included with the complete products (see page 11).

Note: *The 2 modules can also be mounted separately: Using a remote connection cable enables the rear module and the front module to be separated and the Controller module mounted on DIN rail (see page 11).*

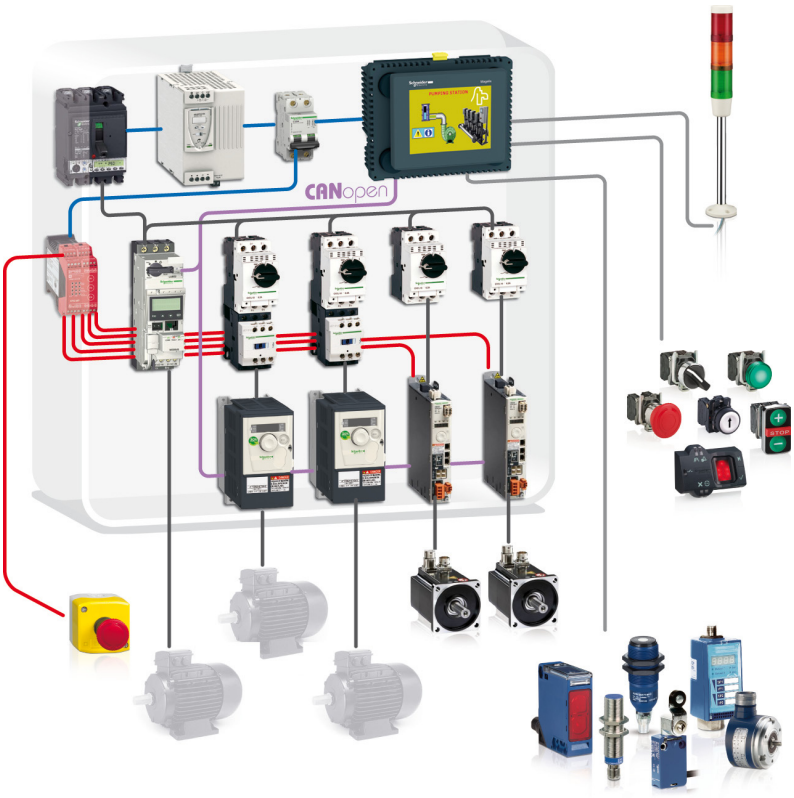
HMI controllers
Magelis™ SCU Small HMI controllers
CANopen

Presentation

Magelis SCU Small HMI controllers integrate the CANopen bus master function.

SoMachine software is used to configure the CANopen machine bus *(1)* for the Magelis SCU Small HMI controllers *(1)*.

Example architecture



The above configuration shows an example architecture based on the Magelis SCU Small HMI controllers which provide the CANopen bus master function.
The CANopen bus is made up of a master station, a Magelis SCU Small HMI Controller and slave stations. The master is responsible for the configuration, exchanges and diagnostics to the slaves.

The various services offered are:
- One or more profiles are supplied for Schneider Electric slaves such as ATV 312/61/71 variable speed drives and Lexium 32 servo drives. This makes it possible to configure the slave according to a predefined mode.
Profiles provide the user with a defined operating mode so there is no need to check how the mode is configured.
- For third-party slaves:
  - The user can choose from a list which can be modified. This simply involves importing an EDS-type (Electronic Data Sheet) description file.
  - The slave can be positioned on the bus: The slave number, speed, monitoring, etc. can be defined.
  - The user can select variables from the list of variables managed by the slave.
  - A link between variables and the data exchanged.
  - Symbolization of data exchanged.

The CANopen bus is used to manage various slaves such as:
- Digital and analog slaves
- Variable speed drives, motor starters, etc.

(1) For more information on SoMachine software and CANopen bus, please refer to our website www.schneider-electric.com.

HMI controllers
Magelis™ SCU Small HMI controllers

HMISCU6●5

HMISCU8●5

Magelis HMISCU●A5 Small HMI controllers for control of simple machines *(1)*

Complete products 24 V ⎓ (Screen module + Controller module)

Type of screen	No. of ports	Application memory capacity	Compact Flash memory	Integrated I/O	No. of Ethernet ports	Reference	Weight kg/lb
3.5" QVGA color TFT	2 USB 1 COM1 1 CANopen	128 MB	No	16 digital I/ 10 digital O	1	**HMISCU6A5**	0.512/ *1.129*
5.7" QVGA color TFT	2 USB 1 COM1 1 CANopen	128 MB	No	16 digital I/ 10 digital O	1	**HMISCU8A5**	0.764/ *1.684*

Magelis HMISCU●B5 Small HMI controllers for control of simple processes *(1)*

Type of screen	No. of ports	Application memory capacity	Compact Flash memory	Integrated I/O	No. of Ethernet ports	Reference	Weight kg/lb
Complete products 24 V ⎓ (Screen module + Controller module)							
3.5" QVGA color TFT	2 USB 1 COM1 1 CANopen	128 MB	No	8 digital I/8 digital O 4 analog I/ 2 analog O	1	**HMISCU6B5**	0.551/ *1.215*
5.7" QVGA color TFT	2 USB 1 COM1 1 CANopen	128 MB	No	8 digital I/8 digital O 4 analog I/ 2 analog O	1	**HMISCU8B5**	0.803/ *1.770*

Separate parts

Description	Compatibility	Reference	Weight kg/lb
Protective sheets (5 peel-off sheets)	HMISCU6●●	**XBTZS61**	0.200/ *0.441*
	HMISCU8●●	**XBTZS62**	0.200/ *0.441*


XBTZGUSB

Designation	Description	Length m/ft	Reference	Weight kg/lb
Remote USB port location for type A terminal	Enables the USB port to be located remotely on the rear of the HMI terminal on a panel or cabinet door (Ø 21 mm fixing device)	1.0/*3.281*	**XBTZGUSB**	–
Remote USB port location for mini type B terminal		–	**HMIZSUSBB**	–
Remote Controller module connection cable	Enables separate mounting of the Controller module and Screen module on DIN rail (for example, inside an enclosure)	3.0/*9.842*	**HMIZSURDP**	–
		5.0/*16.404*	**HMIZSURDP5**	
Cable for transferring application to PC	USB type connector	1.8/*5.905*	**BMXXCAUSBH018**	–
Accessories kit (compatible with all Magelis SCU Small controllers)	Contains: ■ An anti-rotation tee ■ A USB A type clip ■ A USB mini-B type clip ■ An adaptor panel for mounting on an enclosure of 1 mm in thickness	–	**HMIZSUKIT**	–


HMIZSURDP●

Replacement parts

Description	For use with	Reference	Weight kg/lb
Direct I/O connector	All Magelis SCU Small controllers	**HMIZSDIO**	–
3.5" Screen module	Controller modules **HMISAC and HMISBC**	**HMIS65**	0.153/ *0.337*
5.7" Screen module	Controller modules **HMISAC and HMISBC**	**HMIS85**	0.405/ *0.893*
Simple machine Controller module	Screen modules **HMIS65** (3.5") and **HMIS85** (5.7")	**HMISAC**	0.359/ *0.791*
Simple process Controller module	Screen modules **HMIS65** (3.5") and **HMIS85** (5.7")	**HMISBC**	0.398/ *0.877*
Fixing nuts	Set of 10 Ø 22 mm nuts (the front module of the SCU Small controller is fixed on the enclosure using a Ø 22 mm nut, see page 8)	**ZB5AZ901**	–
Tightening tool	For tightening fixing nut	**ZB5AZ905**	–

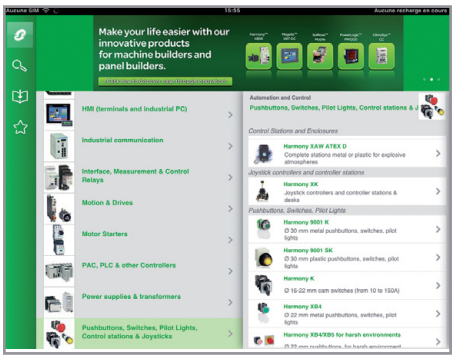
(1) Mounting system for Ø 22 mm hole, power supply and I/O connectors, locking device for USB connector and instruction sheet included with terminals. The setup documentation for Magelis SCU Small controllers is supplied in electronic format with the SoMachine software (please refer to our website www.schneider-electric.com.).

Search, visualize, and download

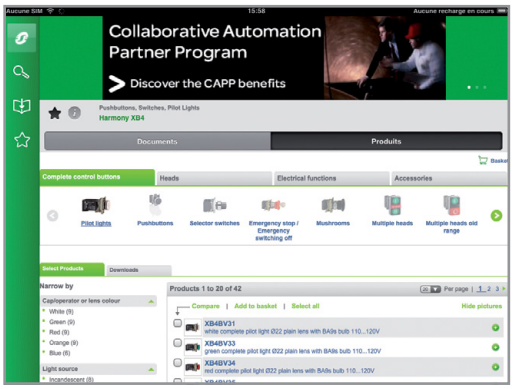
Use your tablet or your PC to quickly access detailed and comprehensive information on all our products

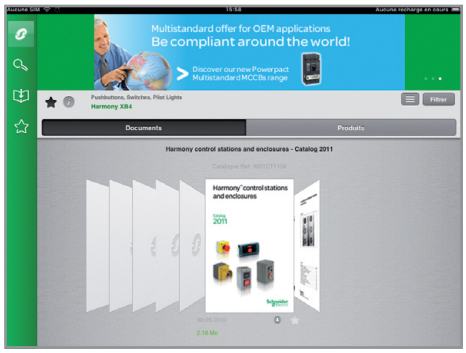
Tablets

Application name: “Automation Library by Schneider Electric”



All product ranges
displayed by function



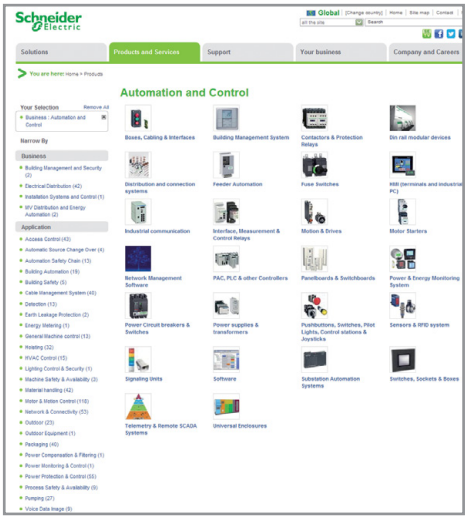


Dynamic catalogues
(hyperlinks, video, ...)

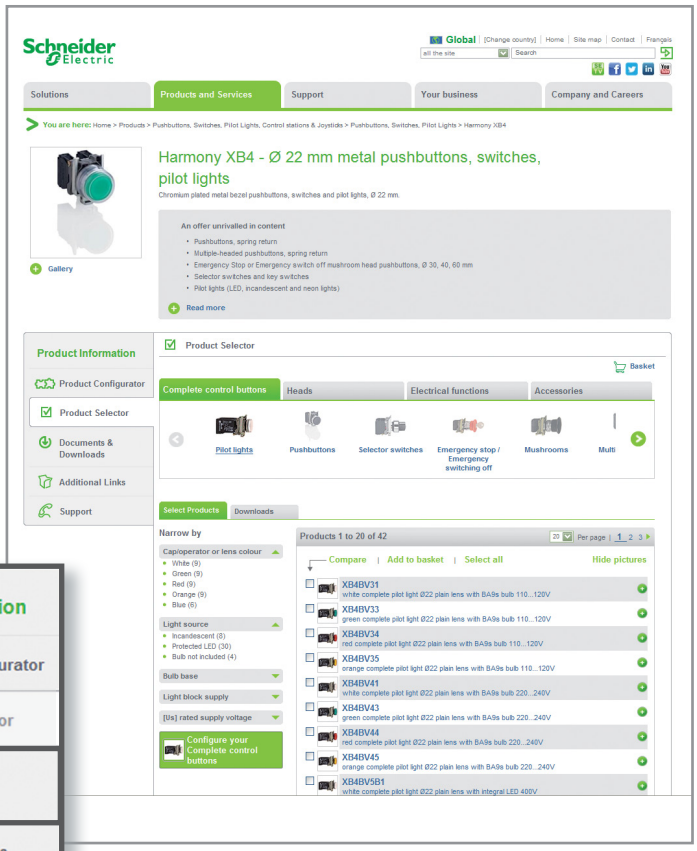
Product selector: dynamic filters to get easily your part number

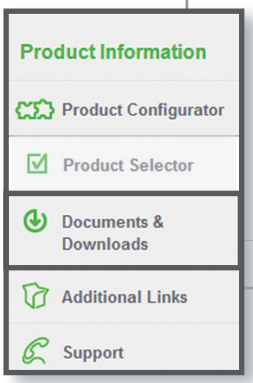
Personal computer

Path: www.schneider-electric.com > **Products and Services** > Automation and control > Product offer



All product ranges
displayed by function



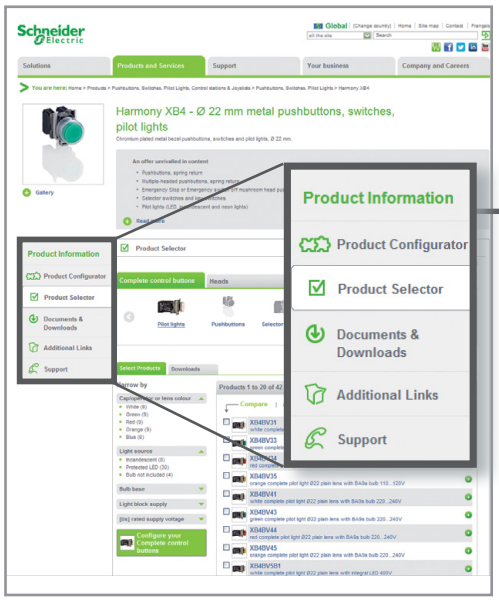


Dynamic catalogues
(hyperlinks, video, ...)

Product selector: dynamic filters to get easily your part number

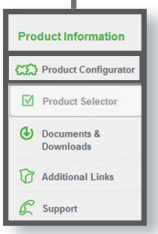
Access product references with adapted tools

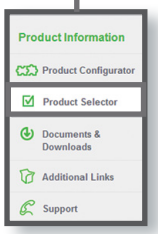
Path: www.schneider-electric.com > **Products and Services** > Automation and control > ... > Product offer

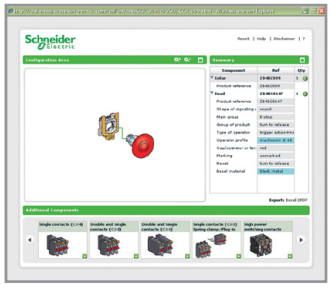


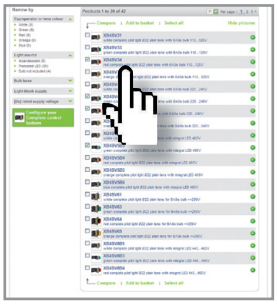
Graphic product configurator
Select the right product with just a few clicks

Dynamic product selector
Visualize product characteristics and dimensions







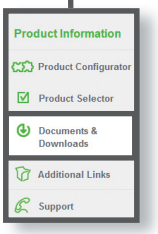


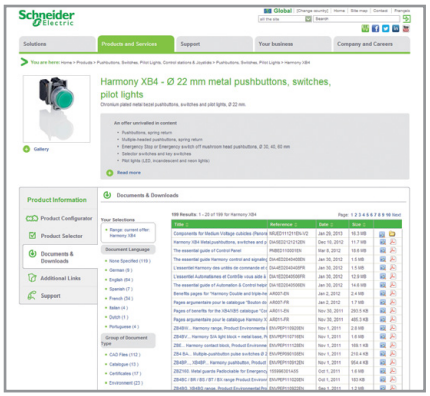
Product data sheet
with technical characteristics and dimensions

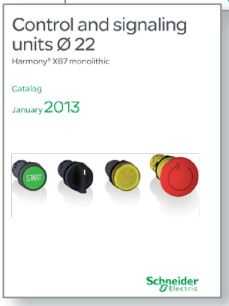
Dimensions

Technical characteristics

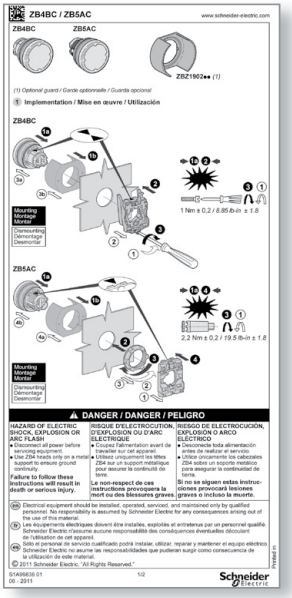
Documents and downloads
Visualize and download catalogues, technical publications, certificates, etc.







Essential guides



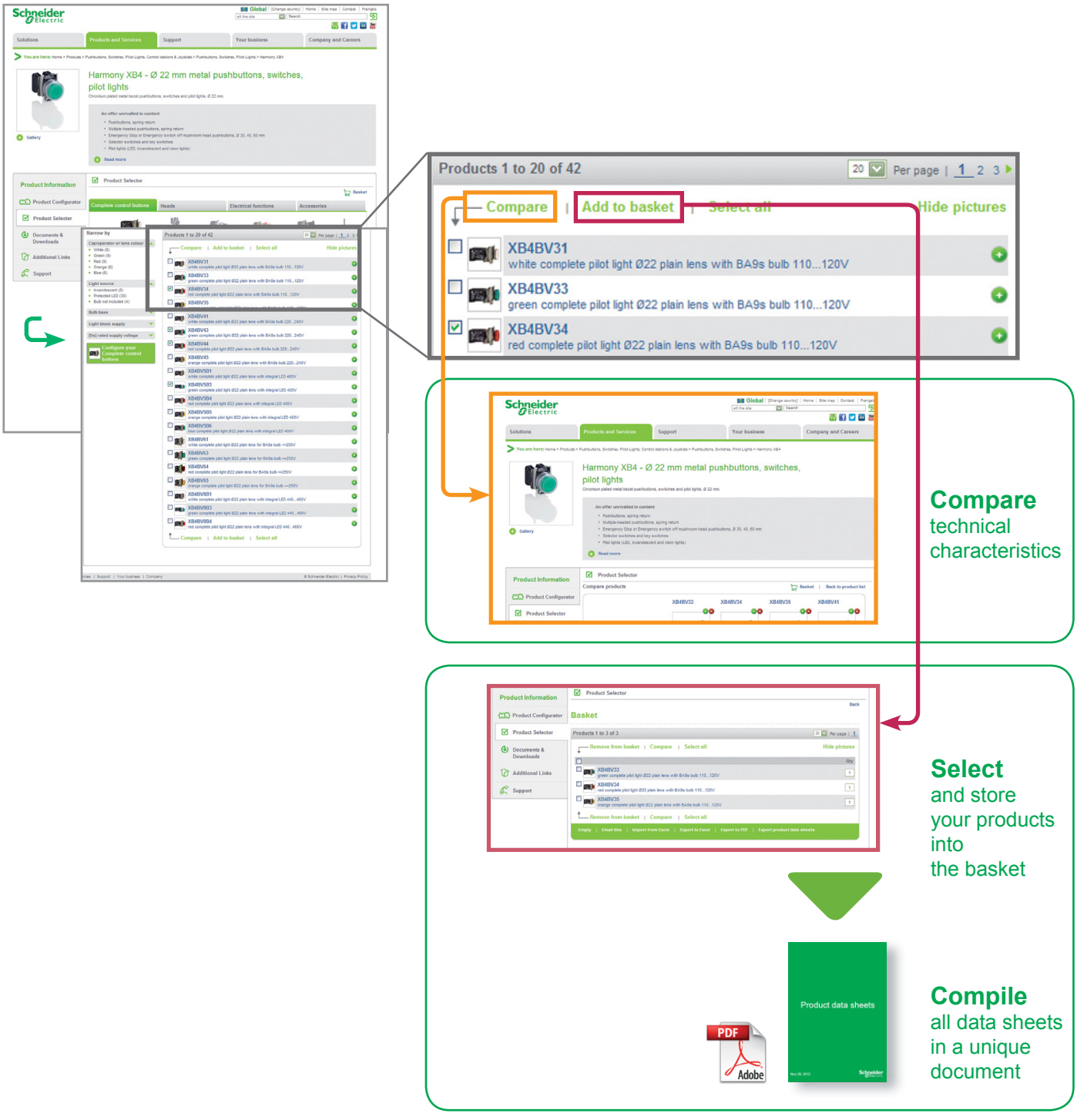
Dynamic catalogues

Certificates

Technical publications

Compare, select, and compile

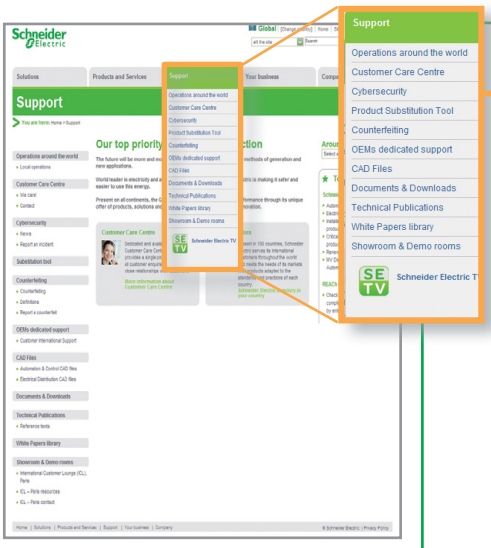
Path: www.schneider-electric.com > **Products and Services** > Automation and control > ... > Harmony XB4*

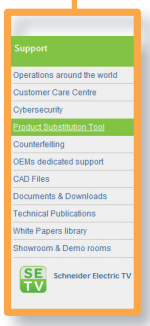


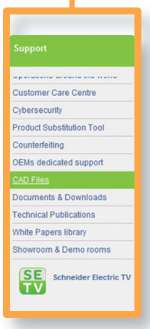
* Example of research on a product

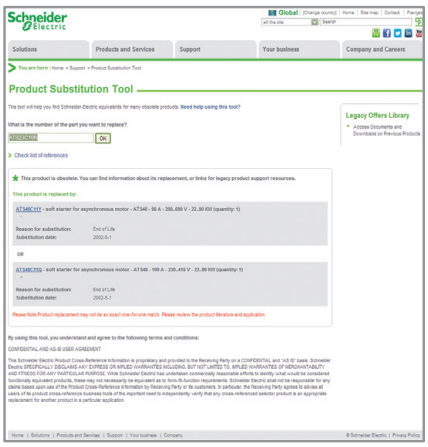
Check the product status, design your equipment

Path: www.schneider-electric.com > **Support** > Product Substitution Tool
Path: www.schneider-electric.com > **Support** > CAD files

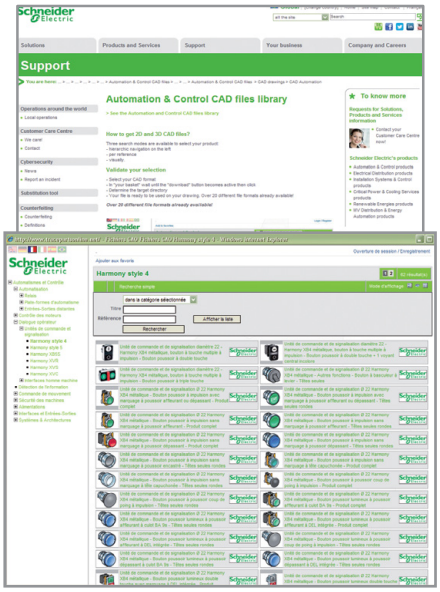








Product status:
indicate whether the product is still commercialized. Otherwise, the tool suggests a product substitution.



CAD files:
available in various formats they will be easily integrated into your installation design software.

Please note that all references to products and services are just examples.

Product reference index

Schneider Electric Industries SAS

Head Office
35, rue Joseph Monier
F-92500 Rueil-Malmaison
France

www.schneider-electric.com

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