Human/Machine Interfaces

Magelis[™] SCU Small HMI controllers

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Selection guide

HMI controllers

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

Applications				cis and mimics, contro	ol and configuration of d		
			IEC 1131-2 control function				
Terminal type			Small HMI controllers For control of simple machine For control of simple process				
		For control of sim	ple machine	For control of simp	ole process		
Display	Туре	Color TFT LCD					
	Capacity	3.5" (65K colors)	5.7" (65K colors)	3.5" (65K colors)	5.7" (65K colors)		
Data entry		Via touch screen					
	Static function keys	-					
	Dynamic function keys	_					
	Service keys	-					
	Alphanumeric keys	-					
Memory capacity	Application	128 MB Flash EPR	OM				
noniory supusity	Expansion	-					
Functions	Maximum number of pages and maximum number of instructions	Limited by internal I	Flash EPROM memory	capacity			
	Variables per page	Unlimited (8000 var	Unlimited (8000 variables max.)				
	Programmed logic	5 languages accord	5 languages according to IEC 1131-2 (LD, ST, FBD, SFC, IL)				
	Counting/positioning	2 x 100 KHz high sp	2 x 100 KHz high speed counter inputs/2 x 50 KHz pulse train outputs				
	Control (PID)	Yes					
	Representation of variables	Alphanumeric, bitm	Alphanumeric, bitmap, bargraph, gauge, tank, tank level indicator, curves, polygon, button, light				
	Recipes	32 groups of 64 rec	ipes comprising 1024 ir	ngredients max.			
	Curves	Yes, with log					
	Alarm logs	Yes					
	Real-time clock	Built-in					
1/0	Integrated	 □ 14 x 24 V digit □ 2 high speed cot □ 8 digital relay out □ 2 pulse train sout 	unter (HSC) inputs	□ 2 x 13-bit analog □ 2 x 16-bit analogu (TC/PT100-1000)	nter (HSC) inputs		
	I/O modular expansion	-					
Communication	Downloadable protocols	Modbus, Modbus T	CP/IP (1)				
	Asynchronous serial link	RS-232C/RS-485 (. ,				
	USB ports	1 Host type A + 1 De					
	Buses and networks	1 CANopen master	1 CANopen master				
		Ethernet TCP/IP (1	Ethernet TCP/IP (10BASE-T/100 BASE-TX)				
	Printer link	USB port for paralle	el printer				
Design software			dows XP Professional a www.schneider-electri		ional 343647/64-bit (pleas		
Operating system		Magelis (333 MHz F		,			
Terminal type		HMISCU6A5	HMISCU8A5	HMISCU6B5	HMISCU8B5		
Pages		11					
(1) Depending on mod							

IEC 1131-2 control function		
HMI controllers	Touch screen Standard Advanced panels + control function	Standard Advanced panels with keypad + control function
Nggar an		
Color TFT LCD (320 x 240 pixels)	Backlit color TFT LCD (320 x 240 pixels to 1024 x 708 pixels) (1)	Monochrome STN LCD or color TFT LCD (320 x 2 pixels or 640 x 480 pixels) (1)
5.7" (65K colors)	5.7" (color) 7.5", 10.4", 12.1" or 15" (color) <i>(1)</i>	5.7" (monochrome or color) or 10.4" (color) (1)
Via touch screen		Via keypad and/or touch screen (configurable) and by industrial pointer
_		10 or 12 (1)
_		14 or 18 (1)
_		8
-		12
16 MB Flash EPROM -	16 MB Flash EPROM or 32 MB Flash EPROM (1) By 128 MB to 4 GB CF card (1)	
Limited by internal Flash EPROM memory capacity	Limited by internal Flash EPROM memory capacity	or CF card memory capacity
Unlimited (8000 variables max.)		
5 languages according to IEC 1131-2 (LD, ST, FBD, S	FC, IL)	
4 x 100 KHz high speed counter inputs/4 x 65 KHz pulse train outputs		
Yes		
Alphanumeric, bitmap, bargraph, gauge, tank, tank le 32 groups of 64 recipes comprising 1024 ingredients i Yes, with log		
Yes		
Built-in		
□ 16 x 24 V digital inputs	-	
16 sink or source transistor outputs (1)		
3 Modicon TM2 I/O modules max.	-	
Uni-TE, Modbus, Modbus TCP/IP (1) and for PLC bra	nds: Mitsubishi, Omron, Allen-Bradley and Siemens	
RS-232C/RS-422/RS-485 (COM1)	RS-232C/RS-422/RS-485 (COM1) and RS-485 (CO	DM2)
1 1 CANopen master with optional module (XBTZGC CAN)	1 or 2 (1) 1 CANopen master with external module (XBTZG C	ANM) which is mandatory for the control function
Ethernet TCP/IP (10BASE-T/100BASE-TX)	Ethernet TCP/IP (10BASE-T/100BASE-TX) (1)	
USB port for parallel printer	USB port for parallel printer and RS-232C (COM1) s	erial link
SoMachine on Windows XP Professional and Window	vs 7 Professional 343647/64-bit (please refer to our w	ebsite www.schneider-electric.com).
Magelis (131 MHz RISC CPU)	Magelis (131 MHz RISC or 266 MHz RISC CPU) (1)	Magelis (266 MHz RISC CPU)
XBTGC2330T	XBTGT2e/4e/5e/63/73 + XBTZGCANM	XBTGK2•/53



More technical information on www.schneider-electric.com



Magelis SCU Small HMI controllers

Fund

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:
- 2 complete Magelis SCU products for the control
 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.

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.

nctions:	Description:	References:	
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Presentation (continued)

HMI controllers Magelis SCU Small HMI controllers

SoMachine



Vijeo Designer (included in SoMachine)

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



Depending on the model, the Magelis HMI panels communicate with automation devices through 1 or 2 integrated serial links using the following communication protocols:

- Magelis SCU Small HMI controllers
 - Schneider Electric Modbus protocol managed by Control part
 - Schneider Electric (Uni-TE, Modbus) protocols managed by HMI part
 - Third -party protocols (Mitsubishi Electric, Omron, Allen-Bradley and Siemens) managed by HMI part
- Magelis XBTGC HMI controllers and XBTGT/GK Standard Advanced panels
 - Schneider Electric (Uni-TE, Modbus) protocols managed by HMI part
 - Third-party protocols (Mitsubishi Electric, Omron, Allen-Bradley and Siemens) managed by HMI part

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

In addition, on Magelis SCU, the Modbus TCP Slave protocol is supported by Control part with Ethernet network.

(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. **Functions**

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

Present	ation:	Description:	References:	
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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.





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

Description

HMI controllers

Magelis SCU Small HMI controllers Magelis SCU Small HMI controllers for control of simple machines



Presentation: page 4

page 6

Schneider

8

Description (continued)

HMI controllers

Magelis SCU Small HMI controllers Magelis SCU Small HMI controllers for control of simple processes



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.

Presentation:	Functions:
page 4	page 6

Description:

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





HMISCU6•5



HMISCU8•5

Complete prod	ucts 24 V	(Screen mo	dule + Con	troller 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 HM	SCU.B5	Small HMI	controll	ers for control	of simp	le processes (1)
Magelis HM Type of screen	No. of ports	Small HMI Application memory capacity	Compact Flash memory	ers for control Integrated I/O	of simp No. of Ethernet ports	le processes (Reference	1) Weight kg/lb
Type of screen	No. of ports	Application memory capacity	Compact Flash memory		No. of Ethernet		Weight
Type of screen	No. of ports	Application memory capacity (Screen mo 128 MB	Compact Flash memory	Integrated I/O	No. of Ethernet		Weight

(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.). Separate parts Description

Protective sheets (5 peel-off sheets)

HMI controllers

Magelis SCU Small HMI controllers

Reference

HMIZS61

HMIZS62

Weight kg/lb

Weight

kg/lb

_

_

_

_



XBTZGUSB

HMIZSURDP•



Designation Description Length Reference m/ft Enables the USB port to be located remotely on the rear of the HMI terminal on a panel or Remote USB port location for 1.0/3.28 XBTZGUSB type A terminal cabinet door (Ø 21 mm fixing device) _ Remote USB port location for HMIZSUSBB mini type B terminal **Remote Controller module** Enables separate mounting of the Controller 3.0/9.84 HMIZSURDP connection cable module and Screen module on DIN rail (for 5.0/16.40 HMIZSURDP5 example, inside an enclosure) HMIZSURDP10 10/32.81 Cable for transferring USB type connector 1.8/5.90 BMXXCAUSBH018 application to PC Accessories kit Contains: HMIZSUKIT _ (compatible with all Magelis SCU
An anti-rotation tee A USB A type clip
 A USB mini-B type clip Small controllers) An adaptor panel for mounting on an enclosure of 1 mm in thickness

Compatibility

HMISCU6.

HMISCU8.

Replacement parts			
Description	For use with	Reference	Weight kg/ <i>lb</i>
Direct I/O connector	All Magelis SCU Small controllers	HMIZSDIO	_
3.5" Screen module	Controller modules HMISAC and HMISBC	HMIS65	0.153/ <i>0.337</i>
5.7" Screen module	Controller modules HMISAC and HMISBC	HMIS85	0.405/ <i>0.</i> 893
Simple machine Controller module	Screen modules HMIS65 (3.5") and HMIS85 (5.7")	HMISAC	0.359/ <i>0.791</i>
Simple process Controller module	Screen modules HMIS65 (3.5") and HMIS85 (5.7")	HMISBC	0.398/ <i>0.877</i>
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	-

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Equivalent product table between XBTGC terminals and HMISCU terminals

While upgrading Magelis XBTGC range to Magelis SCU range, the following parameters must be considered:

- Magelis SCU has the same USB Host interface of Magelis XBTGC with a second USB device mini-B port.
- CANopen Master managing 16 slaves via an external module on XBTGC is now embedded directly on
- Magelis SCU with same connector SubD9.
- One serial port and Ethernet port are directly available on Magelis SCU.
- Magelis SCU supports more application memory (128 MB) compared to XBTGC (16 MB).
- Magelis SCU has less backup memory (128 KB) compared to XBTGC (512 KB).
- Magelis SCU and XBTGC have same inputs. Outputs on Magelis SCU are based on relays (except 2 with transistors) when compared to XBTGC with only transistor outputs.

■ Magelis SCU doesn't support TM2 modules directly. To keep these TM2 modules on Magelis SCU, an OTB block on CANopen can be used.

Magelis XBTGC supports four inputs for HSC 100 KHz and Magelis HMISCU supports only two inputs for HSC 100 KHz.

 Magelis XBTGC supports four inputs for PTO 65 KHz and Magelis HMISCU supports only two inputs for PTO 50 KHz.

Old Magelis XBTGC HMI controllers (1)		Replaced by Small HMI co	•	Compatibility	
Description	Reference	Description	References		
3.8" STN screen, amber or red	XBTGC1100T XBTGC1100U	3.5" QVGA color TFT	HMISCU6A5	No cut-out, push-button mounting system Display with identical resolution and 64 K colors	
5.7" STN screen, black and white mode	XBTGC2120T XBTGC2120U	5.7" QVGA color TFT	HMISCU8A5	No cut-out, push-button mounting system Display with identical resolution and 64 K colors	

(1) XBTGC2330 must be used if HSC and PTO cannot be converted to HMISCU or if TM2 modules need to be supported directly.

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