Human/Machine Interfaces

Magelis[™] SCU Small HMI controllers

Catalog

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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 Terminal type

Display of text messages, graphic objects and mimics, control and configuration of data Small HMI controllers







		\$ TO		\$ == 1		
Display	Туре	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 EPR	MC			
	Expansion	-				
Functions	Maximum number of pages and maximum number of instructions	Limited by internal F	Flash EPROM memory of	apacity		
	Variables per page	Unlimited (8000 var	· ·			
	Programmed logic		ing to IEC 1131-2 (LD, S			
	Counting/positioning	2 x 100 kHz high sp	eed counter inputs/2 x 5	0 kHz pulse train outputs		
	Control (PID)	Yes				
	Representation of variables	Alphanumeric, bitm	ap, bargraph, gauge, tar	nk, tank level indicator, cu	ırves, polygon, button, ligh	
	Recipes	32 groups of 64 reci	pes comprising 1024 inc	gredients max.		
	Curves	Yes, with log				
	Alarm logs	Yes				
	Real-time clock	Built-in				
1/0	Integrated	☐ 14 x 24 V digit☐ 2 high speed cou☐ 8 digital relay out☐ 2 pulse train sou	nter (HSC) inputs	□ 6 x 24 V digital inp □ 2 high speed counte □ 6 digital relay output □ 2 pulse train source □ 2 x 13-bit analog inp □ 2 x 16-bit analogue t (TC/PT100-1000) □ 2 x 12-bit analog out	er (HSC) inputs is transistor outputs outs (Voltage/current) temperature inputs	
	I/O modular expansion	-				
Communication	Downloadable protocols	Modbus, Modbus T	CP/IP (1)			
	Asynchronous serial link	RS 232C/RS 485 (C	COM1)			
	USB ports	1 Host type A + 1 De	evice type mini-B			
	Buses and networks	1 CANopen master				
		Ethernet TCP/IP (10	DBASE-T/100 BASE-TX)		
	Printer link	USB port for paralle	l printer			
Design software		SoMachine on Windows XP Professional and Windows 7 Professional 343647/64-bit (please refer to our website www.schneider-electric.com).				
Operating system		Magelis (333 MHz RISC CPU)				
Terminal type		HMISCU6A5	HMISCU8A5	HMISCU6B5	HMISCU8B5	

(1) Depending on model.





HMI controllers	Touch screen Standard Advanced panels + control function	Standard Advanced panels with keypad + control function
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 240 pixels or 640 x 480 pixels) (1)
5.7" (65 K 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/o by industrial pointer
_		10 or 12 <i>(1)</i>
_		14 or 18 <i>(1)</i>
-		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 of	or CF card memory capacity
Unlimited (8000 variables max.)		
5 languages according to IEC 1131-2 (LD, ST, FBD, S	SFC, 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	· · · · · · · · · · · · · · · · · · ·	
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	ands: Mitsubishi, Omron, Allen-Bradley and Siemens	
RS 232C/RS 422/RS 485 (COM1)	RS 232C/RS 422/RS485 (COM1) and RS 485 (COM	12)
1 CANopen master with optional module (XBTZGC	1 or 2 (1) 1 CANopen master with external module (XBTZG CA	ANM) which is mandatory for the control function
CAN) 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) se	erial link
SoMachine on Windows XP Professional and Window	ws 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 XBTGC2330U	XBTGT2e/4e/5e/63/73 + XBTZGCANM	XBTGK2•/53 + XBTZGCANM

For more information, please refer to our website www.schneider-electric.com.

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.

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.

Magelis SCU Small HMI controllers



SoMachine



Vijeo Designer (included in SoMachine)

Configuration

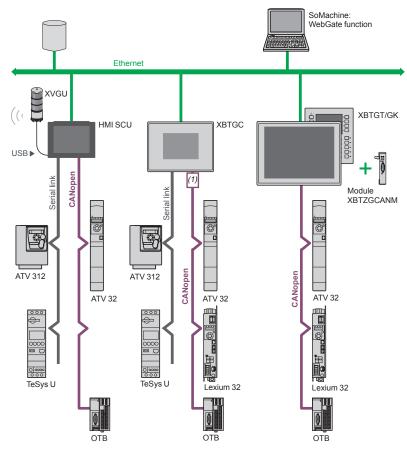
Magelis SCU Small HMI controllers are configured using Schneider Electric's unique machine automation software, SoMachine.

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

Examples of communication architectures



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.

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

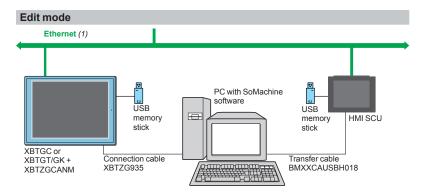
In addition to the aforementioned functions, Magelis SCU Small HMI controllers enable management of:

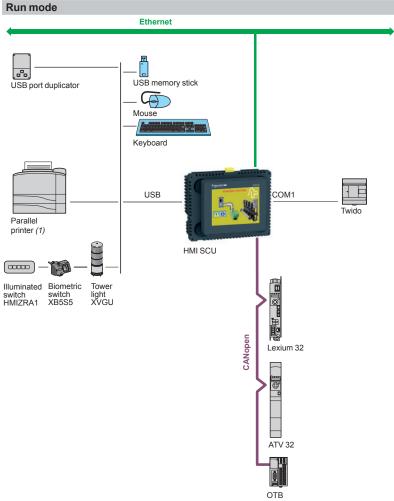
- Integrated digital I/O
- Integrated analog I/O: Voltage, current and temperature (thermocouple, PT100, PT1000)
- 2 high speed counter (HSC) inputs,100 kHz 1 channel or 50 kHz 2 channel
- 2 pulse train fast outputs, PTO/PWM 50 kHz

Magelis SCU Small HMI controllers

Operating modes for the terminals

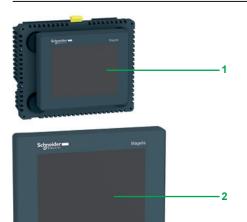
The following illustrations show the equipment that can be connected to Magelis SCU and XBTGC controllers as well as to Magelis XBTGT/GK Advanced panels according to their two operating modes.





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

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



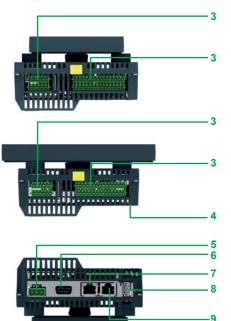
Description

Magelis HMISCU•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

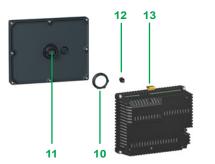
The upper rear panel has the following:

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
- 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

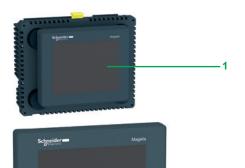
This system is included with the complete products (see page 11).

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

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



Description

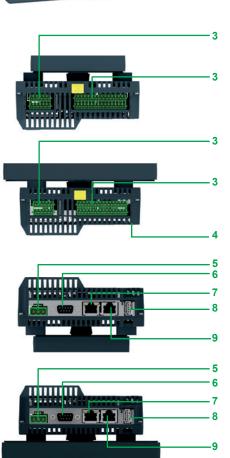
Magelis HMISCUeB5 Small HMI controllers

Front panel

2

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)



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).



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.
- $\hfill\Box$ The slave can be positioned on the bus: The slave number, speed, monitoring, etc. can be defined.
- $\hfill\Box$ 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.

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								
Type of screen	No. of ports	Application memory capacity	Compact Flash memory	Integrated I/O	No. of Ethernet ports	Reference	Weight kg/ <i>lb</i>	
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	

⁽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.).

Magelis SCU Small HMI controllers



XBTZGUSB

Separate parts			
Description	Compatibility	Reference	Weight kg/ <i>lb</i>
Protective sheets (5 peel-off sheets)	HMISCU6●●	XBTZG61	0.200/ <i>0.441</i>
	HMISCU8●●	XBTZG62	0.200/ 0.441



HMIZSURDP•

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	1.0/3.28	XBTZGUSB	-
Remote USB port location for mini type B terminal	cabinet door (Ø 21 mm fixing device)	_	HMIZSUSBB	_
Remote Controller module	Enables separate mounting of the Controller module and Screen module on DIN rail (for	3.0/9.84	HMIZSURDP	_
connection cable		5.0/16.40	HMIZSURDP5	_
	example, inside an enclosure)	10/32.81	HMIZSURDP10	_
Cable for transferring application to PC	USB type connector	1.8/5.90	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	_

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/ 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	

HMI controllersMagelis SCU Small HMI controllers

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) Description Reference		Replaced by Small HMI co		Compatibility
		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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