

Human/Machine Interfaces

Magelis™ XBTGC HMI Controllers

Catalog

August 2019



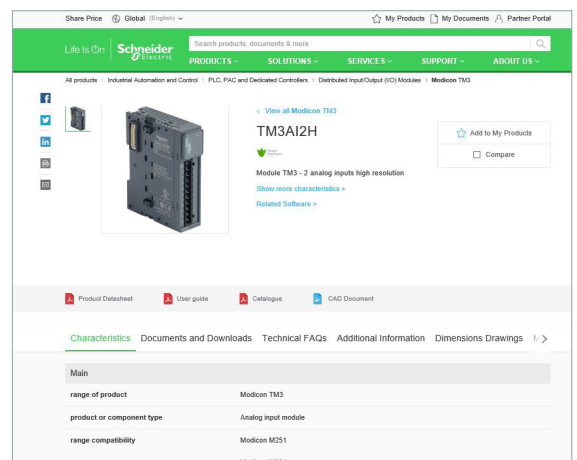
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References

Modicon TM3
I/O expansion modules for Modicon controllers
Analog I/O modules

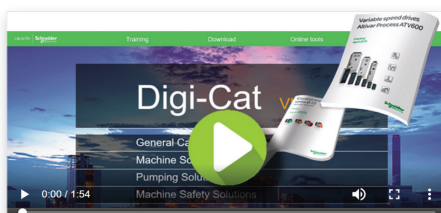
Number and type of channels	Input range	Output range	Resolution	Input format (internal (mA))	Reference	Weight (kg)
2 voltage measurement inputs	-15...+10 VDC 0...10 VDC 0...20 mA A, 20 mA	16.000 or 10.000 A sign	16.000 or 10.000	0.0010	TM3AI2H	0.110
4 voltage measurement inputs	-15...+10 VDC 0...10 VDC 0...20 mA A, 20 mA	12.000 or 10.000 A sign	12.000 or 10.000	0.0010	TM3AI2G	0.100
4 voltage measurement or temperature inputs (I ₁ , I ₂ , S, T, N, E, C)	-15...+10 VDC 0...10 VDC 0...20 mA A, 20 mA	16.000 or 10.000 A sign	16.000 or 10.000	0.0010	TM3AI2H	0.110
4 differential temperature inputs (I ₁ , I ₂ , S, T, N, E, C)	-15...+10 VDC 0...10 VDC 0...20 mA A, 20 mA	16.000 or 10.000 A sign	16.000 or 10.000	0.0010	TM3AI2G	0.100
8 self-measurement	-15...+10 VDC	12.000 or 10.000 A sign	12.000 or 10.000	0.0010	TM3AI2H	0.110



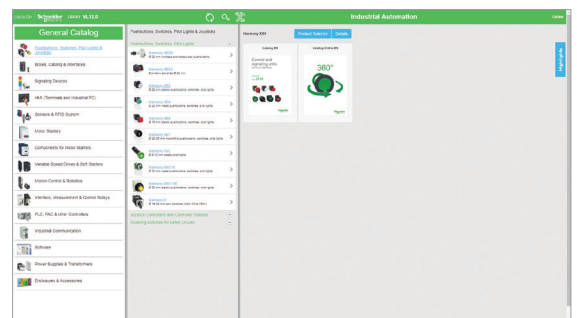
Each commercial reference presented in a catalog contains a hyperlink. Click on it to obtain the technical information of the product:

- Characteristics, Dimensions and drawings, Mounting and clearance, Connections and schemas, Performance curves
- Product image, Instruction sheet, User guide, Product certifications, End of life manual

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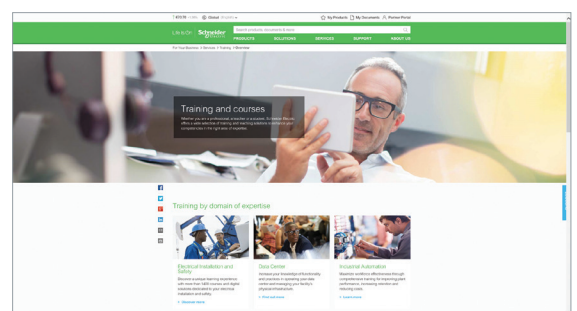


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Human Machine Interfaces

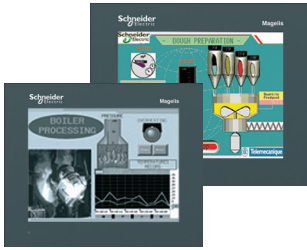
Magelis™ SCU Small HMI Controllers, Magelis XBTGC HMI Controllers

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	
Display	Type	Color TFT LCD
	Capacity	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 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	<input type="checkbox"/> 14 x 24 V ∓ digital inputs <input type="checkbox"/> 2 high speed counter (HSC) inputs <input type="checkbox"/> 8 digital relay outputs <input type="checkbox"/> 2 pulse train source transistor outputs
	I/O modular expansion	–
Communication	Downloadable protocols	Modbus, Modbus TCP/IP (1)
	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
	Printer link	Ethernet TCP/IP (10BASE-T/100BASE-TX) USB port for parallel printer
Design software	EcoStruxure Machine Expert on Windows XP Professional and Windows 7 Professional 32-bit/64-bit (2).	
Operating system	Magelis (333 MHz RISC CPU)	
Terminal type	HMISCU6A5	HMISCU8A5
Pages	For more information, refer to Magelis SCU catalog on our website www.schneider-electric.com .	

(1) Depending on model.
 (2) For more information, refer to EcoStruxure Machine Expert catalog on our website www.schneider-electric.com.
 (3) For more information, refer to SoMachine catalog on our website www.schneider-electric.com.

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 process	
Display	Type	Color TFT LCD (320 x 240 pixels)
	Capacity	3.5" (65K colors) 5.7" (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 EPROM
	Expansion	16 MB Flash EPROM
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 4 x 100 KHz high speed counter inputs/4 x 65 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	<input type="checkbox"/> 6 x 24 V ∓ digital inputs <input type="checkbox"/> 2 high speed counter (HSC) inputs <input type="checkbox"/> 6 digital relay outputs <input type="checkbox"/> 2 pulse train source transistor outputs <input type="checkbox"/> 2 x 13-bit analog inputs (Voltage/current) <input type="checkbox"/> 2 x 16-bit analogue temperature inputs (TC/PT 100-1000) <input type="checkbox"/> 2 x 12-bit analog outputs (Voltage/current)
	I/O modular expansion	<input type="checkbox"/> 16 x 24 V ∓ digital inputs <input type="checkbox"/> 16 sink or source transistor outputs (1)
Communication	Downloadable protocols	Modbus, Modbus TCP/IP (1) 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) RS-232C/RS-422/RS-485 (COM1)
	USB ports	1 Host type A + 1 Device type mini-B 1
	Buses and networks	1 CANopen master 1 CANopen master with optional module (XBTZGC CAN)
	Printer link	Ethernet TCP/IP (10BASE-T/100BASE-TX) USB port for parallel printer
Design software	EcoStruxure Machine Expert on Windows XP Professional and Windows 7 Professional 32-bit/64-bit (2).	
Operating system	Magelis (333 MHz RISC CPU) SoMachine on Windows XP Professional and Windows 7 Professional 32-bit/64-bit (3).	
Terminal type	HMISCU6B5	HMISCU8B5 XBTGC2330T XBTGC2330U
Pages	For more information, refer to Magelis SCU catalog on our website www.schneider-electric.com . 9	

(1) Depending on model.
 (2) For more information, refer to EcoStruxure Machine Expert catalog on our website www.schneider-electric.com.
 (3) For more information, refer to SoMachine catalog on our website www.schneider-electric.com.



Magelis XBTGC Human Machine Interfaces

Presentation

Magelis XBTGC Human Machine Interfaces are part of Schneider Electric's Flexible Machine Control concept, a key element in MachineStruxure™.

The Magelis Human Machine Interfaces 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 compact design of Magelis XBTGC Human Machine Interfaces optimises setup (see [page 8](#)).

This range depending on the model, comprises:

- 5.7" color screen, 16 integrated inputs/16 integrated outputs (sink or source)
- Wide choice of communication interfaces: USB port, serial link, Ethernet and CANopen

Operation

With their fast multitasking processors, all the Human Machine Interfaces combine HMI and control functions and share the same screen, 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 XBTGC Human Machine Interfaces 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 (1) running on Windows XP Professional or Windows 7 Professional 343647/64-bit. SoMachine software (1) has an advanced user interface with many configurable windows, enabling unique projects to be developed quickly and easily.

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

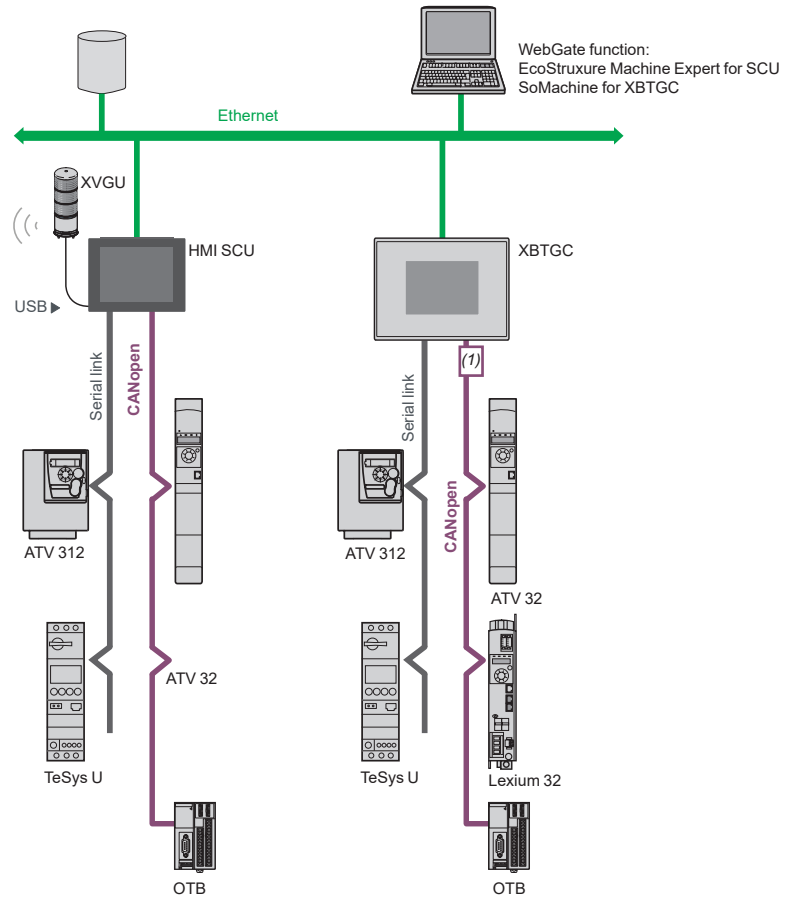


SoMachine



Vijeo Designer
(included in SoMachine)

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 Human Machine Interfaces
 - Schneider Electric Modbus protocol
- Magelis XBTGC Human Machine Interfaces
 - Schneider Electric (Uni-TE, Modbus) protocols
 - Third-party protocols: 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. For more information on CANopen bus references, please refer to CANopen for machines catalog on our website www.schneider-electric.com.

Functions

Magelis HMI Controllers and Magelis Standard Advanced panels are part of Schneider Electric's Flexible Machine Control concept, a key element in MachineStruxure™.

Magelis XBTGC 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 XBTGC 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. They also 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

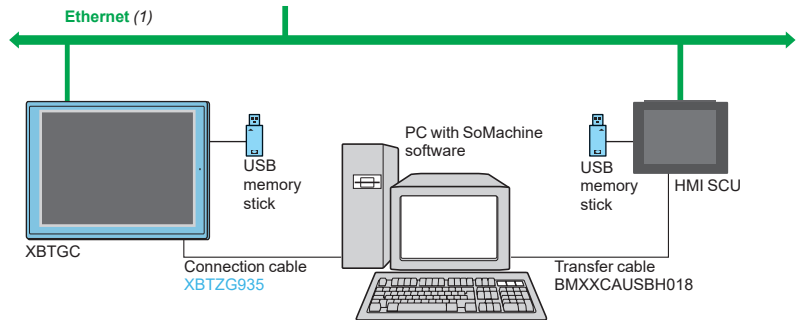
In addition to the above functions, Magelis XBTGC HMI Controllers enable management of:

- Integrated digital I/O
- 4 high speed counter (HSC) inputs, 100 kHz 1 channel or 50 kHz 2 channel
- 4 pulse train fast outputs, PTO/PWM 65 kHz

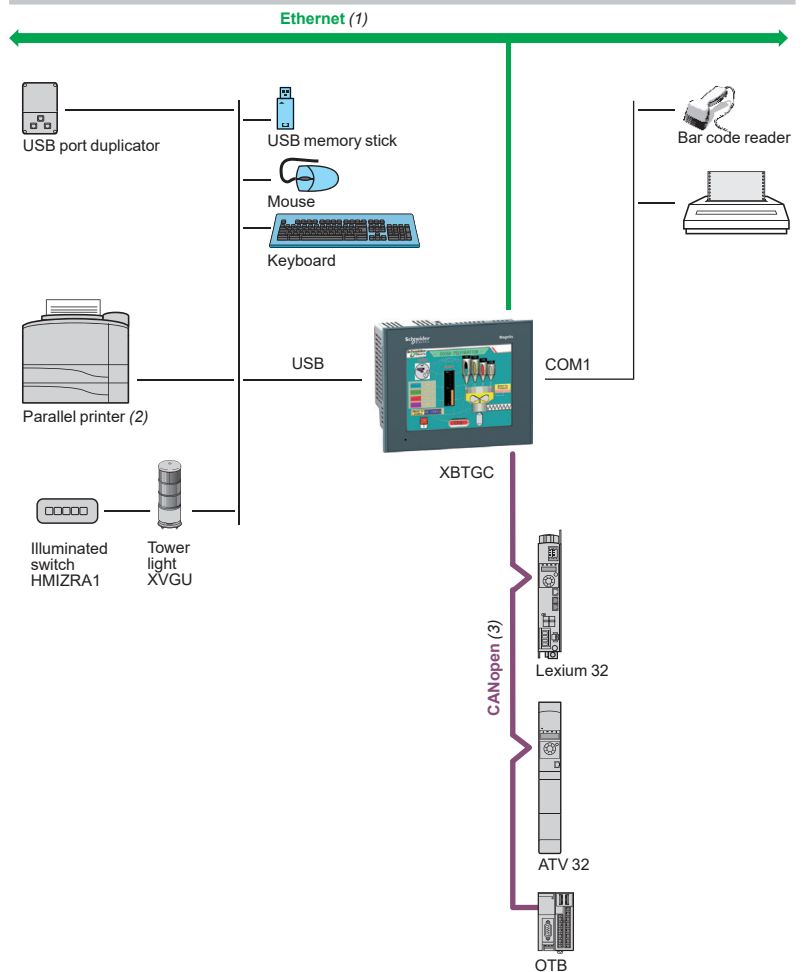
Operating modes for the terminals

The following illustrations show the equipment that can be connected to Magelis SCU and XBTGC controllers according to their two operating modes.

Edit mode



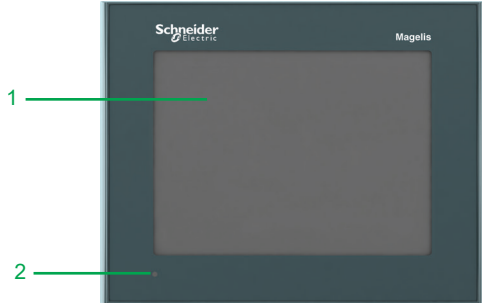
Run mode



(1) With HMISCU●●●, XBTGC2330T/U.

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

(3) Requires XBTZGCCAN CANopen master module for XBTGC. For more information on CANopen bus references, please refer to CANopen for machines catalog on our website www.schneider-electric.com.

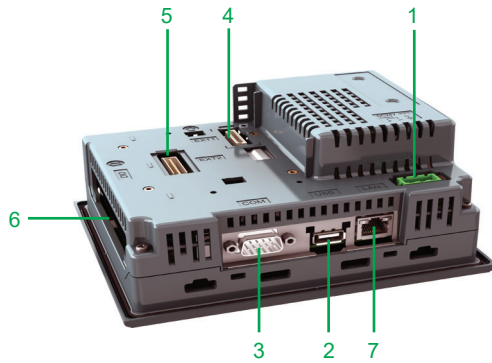


Description

Magelis XBTGC2330 HMI Controllers

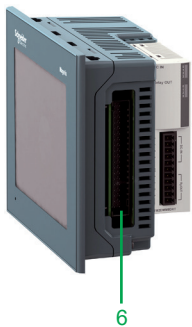
The front panel comprises:

- 1 A touch screen for displaying mimics (5.7" color)
- 2 A multicolor indicator (green, orange and red) showing the terminal's operating mode



The rear panel comprises:

- 1 A removable screw terminal block for 24 V $\overline{\text{---}}$ power supply
- 2 A type A USB master connector for peripheral connection and application transfer
- 3 A 9-way male SUB-D connector for RS 232C or RS 4243647/485 serial link to PLCs (COM1)
- 4 An interface for connecting the I/O expansion module (1)
- 5 An interface for connecting the CANOpen bus master module (2)
- 6 A removable terminal block for 16 digital inputs and 16 digital outputs
- 7 An RJ45 connector for Ethernet TCP/IP 10BASE-T/100BASE-TX link



(1) Compatible only for legacy Modicon TM2 expansion modules.

(2) For more information on CANOpen bus references, please refer to CANOpen for machines catalog on our website www.schneider-electric.com.



XBTGC2●●●●

Magelis XBTGC HMI Controllers ⁽¹⁾

Type of screen	No. of ports	Application memory capacity	Compact Flash memory	Integrated I/O	No. of Ethernet ports	Reference	Weight kg/lb
5.7" screen							
TFT 65 k colors	1 COM 1	16 MB	No	16 I/16 O source	1	XBTGC2330T	1.000/ 2.205
	1 USB			16 I/16 O sink	1	XBTGC2330U	1.000/ 2.205

Separate parts

Description	Compatibility	Size	Reference	Weight kg/lb
Protective sheets (5 peel-off sheets)	XBTGC2●●0	–	XBTZG62	0.200/ 0.441
Designation	Description	Length m/ft	Reference	Weight kg/lb
Remote USB port location for type A XBT terminal	Enables the USB port to be located remotely on the rear of the XBT terminal on a panel or cabinet door (Ø 21 mm fixing device)	1/3.281	XBTZGUSB	–
Remote USB port location for mini type B XBT terminal		–	XBTZGUSB	–
XBTGC connection to CANopen master fieldbus	Connection via card on bus extension	–	XBTZGCCAN	–
Cable for transferring application to PC	USB TTL connector	2/6.561	XBTZG935	–



XBTZGUSB

Replacement parts

Description	Used for	Reference	Weight kg/lb
Seals	XBTGC23●●	XBTZG52	0.030/ 0.066
USB fastenings	XBTGC 2●●0	XBTZGCLP4	–
Mounting kit	4 clips and screws (max. tightening torque: 0.5 Nm), included with all XBTGC terminals	XBTZGFIX	0.100/ 0.220
Spring clip for expansion modules on XBTGC	XBTGC2●●0 terminals	XBTZGCHOK	0.030/ 0.066
Power supply connector	XBTGC2●●●	XBTZGPWS1	0.030/ 0.066
Direct I/O connector	XBTGC2000	XBTZGDIO2	–

(1) Instruction sheet included with terminals. The setup documentation for XBTGC terminals is supplied in electronic format with the SoMachine software (please refer to our website www.schneider-electric.com).

X	
XBTGC2330T	9
XBTGC2330U	9
XBTZG52	9
XBTZG62	9
XBTZG935	9
XBTZGCCAN	9
XBTZGCHOK	9
XBTZGCLP4	9
XBTZGDIO2	9
XBTZGFIX	9
XBTZGPWS1	9
XBTZGUSB	9
XBTZGUSBB	9



www.schneider-electric.com/hmi

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