

MachineStruxure™

The NEXT  
generation



# Achieve benchmark performance while increasing profitability

Modicon logic controllers



**Schneider**  
Electric™

# MachineStruxure

## Maximize your business and machine performance with MachineStruxure

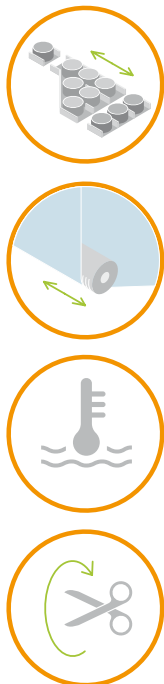
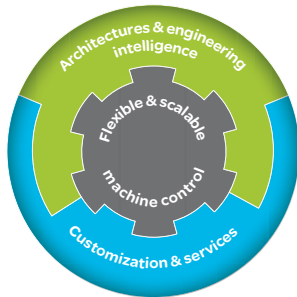
Machine builders like you are constantly looking for new ways to design and build more innovative machines in less time and at lower cost. MachineStruxure™ can help.

The NEXT generation of MachineStruxure is a complete machine automation solution that provides flexible and scalable machine control, ready-to-use architectures, efficient engineering solutions, and comprehensive customization and engineering support services. It can help you meet your challenges for improved efficiency and greater productivity, as well as allow you to deliver higher added value to your customers throughout the entire machine life cycle.

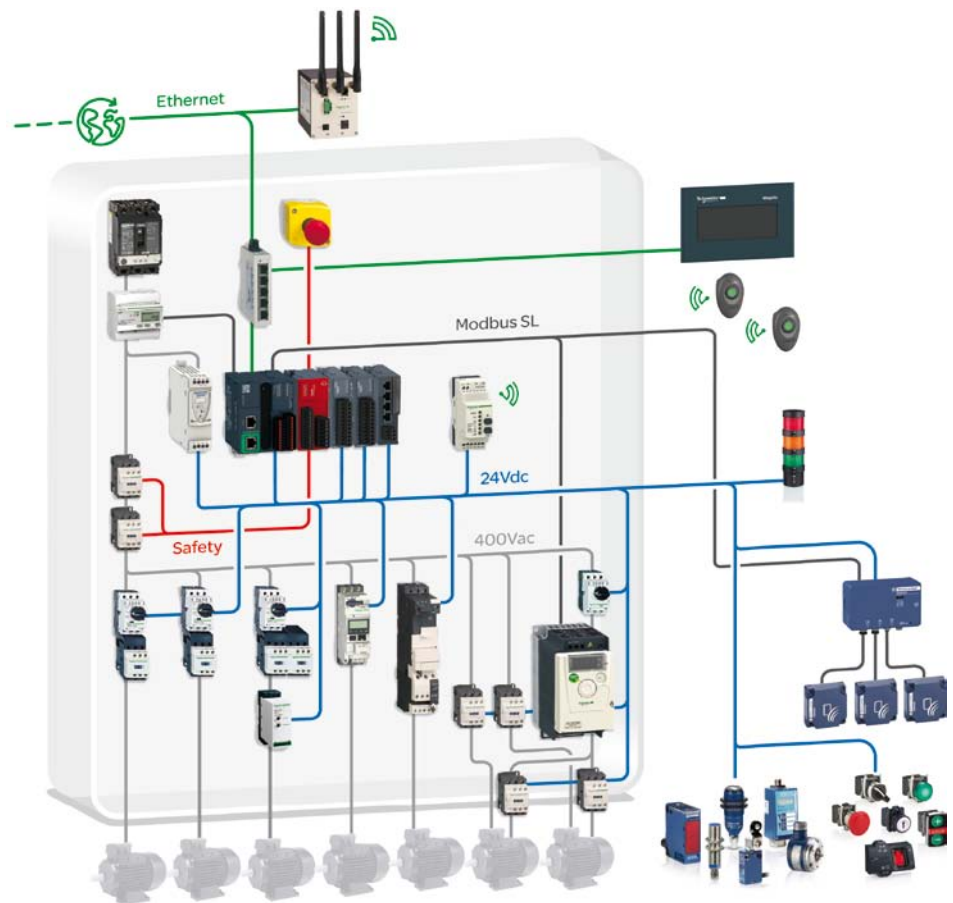
### Ready-to-use architectures and function blocks

Tested, Validated, and Documented Architectures (TVDA) are just one of the ways we help you reduce design time.

Whether your machines are simple or complex, Application Function Blocks (AFBs) make system design fast and easy.



Application Function Blocks (AFB)



# MachineStruxure

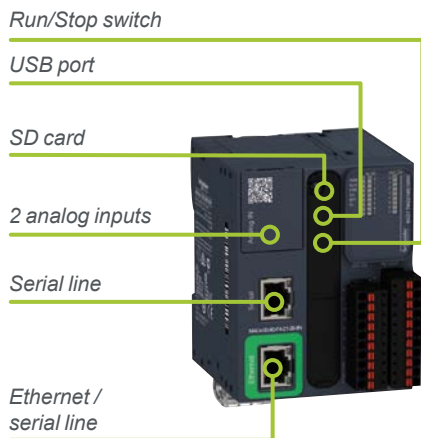
## Fastest and smallest logic controllers on the market

### Flexible and scalable machine control

With the new range of Modicon™ logic controllers, the next generation of MachineStruxure provides flexible and scalable machine control. Ethernet connectivity, USB port for programming, and an embeded web server: it's all included.



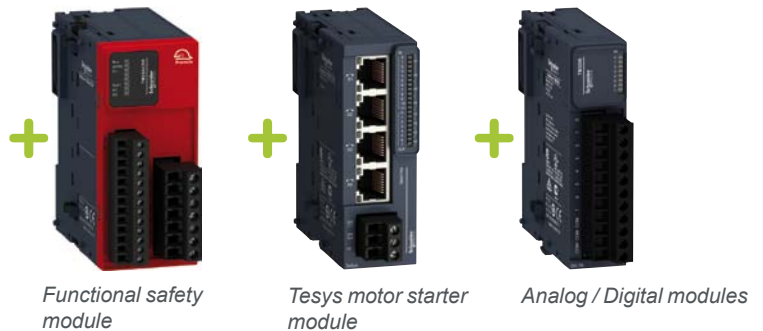
### Modicon M221: the small yet powerful logic controller for hardwired solutions



Modicon M221 Book and a broad choice of I/O extension modules

### Everything you need is embedded

The Modicon M221 offers best-in-class performance. Available also in book format, the Modicon M221 requires minimal installation and offers tremendous versatility.



- > SD card, Run/Stop switch, USB port, 2 analog inputs, serial line, Ethernet and serial line, cartridge extension (on standard version): it's all **embedded**.
- > Thanks to its high degree of **flexibility**, it's very easy to add additional modules (safety modules, Tesys motor starter module, extensive line of analog and digital modules, ...) - and still keep everything in **just one configuration**

# Intuitive machine programming with SoMachine

**SoMachine™ is the universal programming software for machines automated by MachineStruxure controllers. Simple navigation that requires only fewer clicks delivers a more efficient engineering process.**

But who says that all programs have to be engineered using the same program editor regardless of their complexity? This is why we offer SoMachine Basic, a simplified engineering tool for the new Modicon M221. All programming, visualization, and commissioning are handled in just one intuitive tool that is available as a free download. No training required.

## Connected everywhere

For simplified maintenance, commissioning, and uploads/downloads – simply use your smartphone or tablet and connect anytime, anywhere.



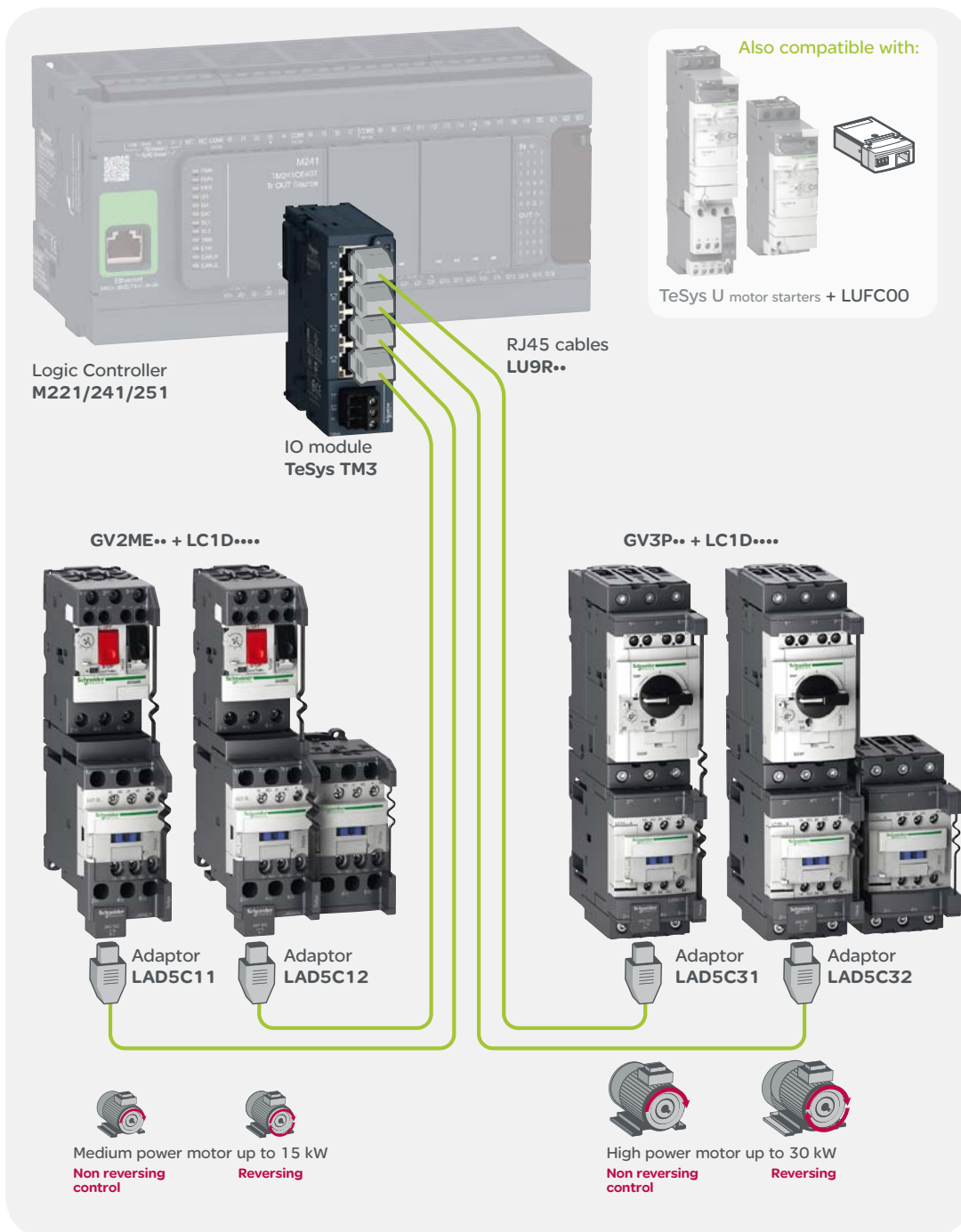
SoMachine simplifies every step in the design and commissioning of your machines.



# Let TeSys SoLink be your drive!

Integration system for motor starters

up to 30 kW/400 V in automation environment



**20 times**  
faster for control  
circuit wiring  
Simple and fast wiring



**100%**  
upgradable  
Plug & Play solutions



**0%**  
Chance of  
connection errors  
Intuitive connection



**100%**  
availability during  
machine life cycles  
Software & Hardware  
integrated

# Hardware control platforms

Logic controllers, motion controllers, drive controller and HMI controllers

Applications		Control of simple machines	Control of simple motion control machines, Control loops	Control of machines for distributed architectures
				
Configuration software		SoMachine Basic	SoMachine	
Power supply		24 V ~ and 100/240 V ~	24 V ~ and 100/240 V ~	24 V ~
Embedded inputs <i>(depending on model)</i>		<input type="checkbox"/> From 8 to 24 inputs <input type="checkbox"/> 2 analog inputs 0-10 V	<input type="checkbox"/> 14 or 24 Digital Inputs	<input type="checkbox"/> None
Embedded outputs <i>(depending on model)</i>		<input type="checkbox"/> From 7 to 16 transistor source or relay outputs	<input type="checkbox"/> 10 or 16 transistor outputs (source or sink) <input type="checkbox"/> 4 transistor outputs (source) + 6 relay outputs <input type="checkbox"/> 4 transistor outputs (source) + 12 relay outputs	<input type="checkbox"/> None
I/O expansion (compatible offer)		<input type="checkbox"/> Modicon TM3 expansion modules (digital / analog / TeSys motor starter controller / functional safety I/Os) <input type="checkbox"/> Modicon TMC2 cartridges (analog I/O, Applications)	<input type="checkbox"/> Modicon TM3 expansion modules (digital / analog / TeSys motor starter controller / functional safety I/Os) <input type="checkbox"/> Modicon TMC4 cartridges (analog I/O, Applications)	<input type="checkbox"/> Modicon TM3 expansion modules (digital / analog / TeSys motor starter controller / functional safety I/Os)
Integrated functions		<input type="checkbox"/> Regulation (PID) <input type="checkbox"/> 4 High speed counters (100 kHz) <input type="checkbox"/> 2 positioning outputs: PTO (P/D with trapezoidal profile and S curve), PWM, PLS (1)	<input type="checkbox"/> Regulation (PID) <input type="checkbox"/> 8 High speed counters (200 kHz) <input type="checkbox"/> 4 positioning outputs: PTO (P/D, CW and CCW with trapezoidal profile and S curve), PWM, PLS	<input type="checkbox"/> Regulation (PID)
Embedded communication	Serial links RS232/RS485	<input type="checkbox"/> 1 or 2 RJ45 ports (1) <input type="checkbox"/> 1 optional port with TMC2SL1 cartridge (1)	1 RJ45 port and 1 screw terminal port	1 RJ45 port
	Ethernet	1 Network with 1 RJ45 port	1 Network with 2 RJ45 ports (switch) or optional switch 4 ports module TM4ES4 (1)	1 Network with 2 RJ45 ports (switch)+ 1 Network with I/O scanning function (1)
	CANopen	–	Master (1)	Master (1)
	Other	–	Profibus DP: with optional module TM4PDPS1 (Slave)	
	USB mini-B programming port	Yes, with loading application program and firmware updating functions without the controller being powered by another source		
Ethernet Services	Basic services	Modbus TCP communication (client & server), Modbus TCP slave, Dynamic DHCP client Configuration, Programming, downloading, monitoring		
	Advanced services	SMS and emails (available 4 <sup>th</sup> quarter 2014)	Updated firmware, data exchange - NGVL and IEC VAR ACCESS, WEB server, IP Ethernet adapter network management SNMP.MIB2, FTP file transfer	Modbus TCP I/O scanning (1), dynamic DHCP Client Configuration, Fast Device Replacement (FDR)
User memory	RAM	640 KB	64 MB	64 MB
	Flash	256 KB	128 M	128 MB
	Option	SD card 256 MB	SD card 256 MB	
Data logging		–	Yes	
Processing power	Execution speed	0,2 µs / boolean instructions	22 ns / boolean instructions	
	Program	10 K boolean instructions	128 K boolean instructions	
Other		Run/Stop switch		
Controller type		<b>Modicon M221 and M221 Book logic controllers</b>	<b>Modicon M241 logic controllers</b>	<b>Modicon M251 logic controllers</b>

(1) Depending on product reference

<b>Speed control, high speed counter and motion control for coordinated axes</b>	<b>Speed control, high speed counter control and motion control for synchronized axes</b>	<b>Motion Controller for coordinated and synchronized axes</b>	<b>Control by integration of automation functions on Altivar 61 and Altivar 71 variable speed drives</b>	<b>Data control and parameter-setting IEC 1131-2 control function</b>
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SoMachine				
24 V ...				
<input type="checkbox"/> 26 to 38 digital inputs <input type="checkbox"/> 4 analog inputs <input type="checkbox"/> 16 to 28 transistor outputs including 4 reflex outputs <input type="checkbox"/> Up to 12 relay outputs	<input type="checkbox"/> 16 to 28 transistor outputs	<input type="checkbox"/> 20 Digital inputs, 4 of which are capture inputs <input type="checkbox"/> 8 Transistor Outputs	<input type="checkbox"/> 10 digital inputs <input type="checkbox"/> 2 analog inputs <input type="checkbox"/> 6 transistor outputs <input type="checkbox"/> 2 analog outputs	<input type="checkbox"/> 8 to 16 digital inputs <input type="checkbox"/> 8 to 16 digital outputs
<input type="checkbox"/> Modicon TM5 expansion modules (digital / analog / expert I/Os) <input type="checkbox"/> Modicon TM7 expansion blocks (digital / analog I/Os)		<input type="checkbox"/> Modicon TM5 and Modicon TM7 CANopen interface modules <input type="checkbox"/> Modicon TM5 Sercos III interface module and: - Modicon TM5 expansion modules (digital / analog / expert I/Os) - Modicon TM7 expansion blocks (digital / analog I/Os)	<input type="checkbox"/> Expansion card VW3A320* (digital / analog / relay / frequency control and probe I/Os)	
<input type="checkbox"/> Regulation (PID) <input type="checkbox"/> 8 High speed counters (200 kHz) <input type="checkbox"/> 4 PWM outputs <input type="checkbox"/> Position control	<input type="checkbox"/> Regulation (PID) <input type="checkbox"/> 8 High speed counters (200 kHz) <input type="checkbox"/> 4 PWM outputs <input type="checkbox"/> Position/Speed/Torque control <input type="checkbox"/> Master encoder, G Code	<input type="checkbox"/> Position/Speed/Torque <input type="checkbox"/> Master encoder, G Code <input type="checkbox"/> PID libraries / PWM	<input type="checkbox"/> 2 High speed counters (100 kHz) <input type="checkbox"/> Analog <input type="checkbox"/> Position	<input type="checkbox"/> 2 High speed counters (100 kHz) <input type="checkbox"/> 2 PWM outputs, PLS <input type="checkbox"/> Display, Control, Execution, ...
1 RJ45 port	1 RJ45 port	1 RJ45 port	–	1 RJ45 port
1 Network with 1 RJ45 port	1 Network with 1 RJ45 port	1 Network with 1 RJ45 port	1 Network with 1 RJ45 port	1 Network with 1 RJ45 port
Master (1)	Master (1)	Master/Slave	Master	Master
Profibus DP: with optional module TM5PCDPS (1) (Slave)	Profibus DP: with optional module TM5PCDPS (1) (Slave) CANmotion (Master)	<input type="checkbox"/> Sercos III bus(daisy chain) <input type="checkbox"/> Profibus DP: with optional module VW3E7040000 <input type="checkbox"/> EtherNet / IP (Adapter): with optional module VW3E70410000	–	–
Yes	Yes	Yes	Yes	Yes
Modbus TCP communication (client & server), Modbus TCP slave, Dynamic DHCP client Configuration, Programming, downloading, monitoring		Modbus TCP communication (client & server), Modbus TCP slave, Dynamic BOOTP/DHCP client Configuration, Programming, downloading, monitoring	Ethernet Modbus TCP, UDP, TCP, SNMP	Uni-TE, Modbus, Modbus TCP/IP, Parallel printer
WEB server, FTP server	WEB server, FTP server	NGVL data exchange, FTP file transfer, SoMachine Protocol, OPC Server, NetManage	WEB server, FTP server, Dynamic DHCP client Configuration, BOOTP server	WEB server, Web gate
64 MB	64 MB	512 MB	2 MB	
128 MB	128 MB	128 KB	2 MB	128 MB
–	–	SD card	–	
Yes	Yes	Yes	Yes	Yes
22 ns / boolean instructions		2 ns / instruction	–	–
128 K boolean instructions		–	–	–
–	–	Message log, error message and time-stamping, Sercos bus scanning	–	–
<b>Modicon M258 logic controllers</b>	<b>Modicon LMC058 motion controllers</b>	<b>Modicon LMC078 motion controllers</b>	<b>ATVIMC integrated controller card</b>	<b>HMISCU HMI controller</b>

# Modicon M221 and M221 Book logic controllers

**Applications**

**Control of simple machines**



**Supply voltage**

100-240 V ~ 24 V --- 100-240 V ~ 24 V --- 100-240 V ~ 24 V ---

<b>Inputs/outputs</b>	■ Logic inputs/outputs
	□ No. and type of inputs
	□ No. and type of outputs
	□ Connection of logic I/O
	■ Analog inputs
	□ Connection of analog inputs

16 logic I/O		24 logic I/O		40 logic I/O	
9 sink/source 24 V --- inputs, inc. 4 high-speed inputs	9 sink/source 24 V --- inputs, inc. 4 high-speed inputs	14 sink/source 24 V --- inputs, inc. 4 high-speed inputs	14 sink/source 24 V --- inputs, inc. 4 high-speed inputs	24 sink/source 24 V --- inputs, inc. 4 high-speed inputs	24 sink/source 24 V --- inputs, inc. 4 high-speed inputs
7 relay outputs	7 source transistor outputs, inc. 2 high-speed outputs	10 relay outputs	10 source transistor outputs, inc. 2 high-speed outputs	16 relay outputs	16 source transistor outputs, inc. 2 high-speed outputs
With removable screw terminal block					
2 x 0...10 V analog inputs					
On dedicated removable terminal block					

**I/O extension** Max. number of I/O expansion modules that can be connected/with bus expansion modules

- 7 Modicon TM3 expansion modules, along with limited number of outputs
- 14 Modicon TM3 expansion modules with the use of bus expansion modules (transmitter and receiver), along with limited number of outputs
- Possible use of Modicon TM2 expansion modules with restrictions.

<b>Embedded communication</b>	Ethernet link
	Serial link

- 1 Ethernet port on TM221CE\*\*\* controllers:
- Modbus TCP communication (client & server), Modbus TCP slave, Dynamic DHCP client Configuration, Programming, downloading, monitoring
  - SMS and emails (▲)
- 1 serial link port (RJ 45 connector) RS232/485 with + 5 V supply

<b>Functions</b>	Process control
	Counting
	Position control

- PID
- Up to 4 high-speed counter inputs (HSC), 100 kHz frequency
- On TM221C\*\*T and TM221CE\*\*T controllers only:
    - pulse width modulation (PWM)
    - pulse generator (PLS)
    - 2 P/D pulse train outputs (PTO) with trapezoidal profile and S curve (▲), 100 kHz frequency

<b>Format</b>	W x H x D
---------------	-----------

3 controller sizes:		
95 x 90 x 70 mm 3.74 x 3.54 x 2.75 in.	110 x 90 x 70 mm 4.33 x 3.54 x 2.75 in.	163 x 90 x 70 mm 6.41 x 3.54 x 2.75 in.

<b>Options</b>	■ Cartridges
	Number of cartridge slots
	■ Display unit

- 3 analog I/O expansion cartridges
  - 1 additional serial link communication cartridge
  - 3 application cartridges
    - for control of hoisting applications
    - for control of packaging applications
    - for control of conveying applications
- |   |   |   |
|---|---|---|
| 1 | 1 | 2 |
|---|---|---|
- Graphic display and monitoring unit (▲)

**Mounting**

Mounting on ┘ symmetrical rail or panel with specific mounting kit TMAM2

**Software programming**

With SoMachine Basic software

<b>Logic controller type</b>	Controllers without Ethernet port
	Controllers with embedded Ethernet port

Modicon M221					
TM221C16R	TM221C16T	TM221C24R	TM221C24T	TM221C40R	TM221C40T
TM221CE16R	TM221CE16T	TM221CE24R	TM221CE24T	TM221CE40R	TM221CE40T

▲ Available: 4th quarter 2014.



## Control of simple machines



24 V $\square$	24 V $\square$	24 V $\square$
<b>16 logic I/O</b>	<b>16 logic I/O</b>	<b>32 logic I/O</b>
8 sink/source 24 V $\square$ inputs, inc. 4 high-speed inputs	8 sink/source 24 V $\square$ inputs, inc. 4 high-speed inputs	16 sink/source 24 V $\square$ inputs, inc. 4 high-speed inputs
8 relay outputs	8 source transistor outputs, inc. 2 high-speed outputs	16 source transistor outputs, inc. 2 high-speed outputs
With removable screw terminal block or spring terminal block (1)		To HE 10 connector (with the Modicon Telefast ABE7 pre-wired system: connection cables and sub-bases)
2 x 0...10 V analog inputs		
On dedicated removable terminal block		
<ul style="list-style-type: none"> <li><input type="checkbox"/> 7 Modicon TM3 expansion modules, along with limited number of outputs</li> <li><input type="checkbox"/> 14 Modicon TM3 expansion modules with the use of bus expansion modules (transmitter and receiver), along with limited number of outputs</li> <li><input type="checkbox"/> Possible use of Modicon TM2 expansion modules with restrictions.</li> </ul>		
1 Ethernet port on TM221ME*** controllers: <ul style="list-style-type: none"> <li><input type="checkbox"/> Modbus TCP (client &amp; server), Modbus TCP slave, dynamic DHCP client Configuration, Programming, downloading, monitoring</li> <li><input type="checkbox"/> SMS and emails (▲)</li> </ul>		
1 serial link port (RJ 45 connector) RS232/485 with + 5 V supply 1 additional serial link port on TM221M***controllers (RJ 45 connector) RS485		
PID		
Up to 4 high-speed counter inputs (HSC), 100 kHz frequency		
<ul style="list-style-type: none"> <li><input type="checkbox"/> On TM221M16T/TG, TM221ME16T/TG, TM221M32TK and TM221ME32TK controllers only:               <ul style="list-style-type: none"> <li>- pulse width modulation (PWM)</li> <li>- pulse generator (PLS)</li> <li>- 2 P/D pulse train outputs (PTO) with trapezoidal profile and S curve (▲), 100 kHz frequency</li> </ul> </li> </ul>		
1 size only:		
70 x 90 x 70 mm		
2.75 x 3.543 x 2.75 in.		
-		
-		
Graphic display and monitoring unit (▲)		
Mounting on  symmetrical rail or panel with specific mounting kit TMAM2		
With SoMachine Basic software		

### Modicon M221 Book

TM221M16R TM221M16RG (1)	TM221M16T TM221M16TG (1)	TM221M32TK
TM221ME16R TM221ME16RG (1)	TM221ME16T TM221ME16TG (1)	TM221ME32TK

(1) Spring terminal block on references ending in the letter G.  
 ▲ Available: 4th quarter 2014.

**Applications**

**Control of simple motion**  
**Control of control loops**



**Supply voltage**

100-240 V ~      24 V ☐

**Inputs/Outputs**

- Logic inputs/outputs
  - ☐ No. and type of inputs
  - ☐ No. and type of outputs

Connection of logic inputs/outputs

**24 logic inputs/outputs**

14 sink/source 24 V ☐ inputs, inc. 8 high-speed inputs	14 sink/source 24 V ☐ inputs, inc. 8 high-speed inputs	14 sink/source 24 V ☐ inputs, inc. 8 high-speed inputs
10 outputs: with 4 source transistor high-speed outputs and 6 relay outputs	10 source transistor outputs, inc. 4 high-speed outputs	10 sink transistor outputs, inc. 4 high-speed outputs

With removable screw terminal block

**I/O extension**

- ☐ 7 Modicon TM3 expansion modules
- ☐ 14 Modicon TM3 expansion modules with the use of bus expansion modules (transmitter and receiver)
- ☐ Possible use of Modicon TM2 expansion modules with restrictions

**Embedded communication**

- Ethernet link
- CANopen
- Serial link

1 Ethernet port on TM241CE24• and TM241CEC24• controllers:  
Modbus TCP (client & server), Modbus TCP slave, dynamic DHCP Client Configuration, Programming, download monitoring.  
Updated firmware, data exchange - NGVL and IEC VAR ACCESS, WEB server, IP Ethernet adapter SNMP network management.MIB2, FTP file transfer

1 CANopen port on TM241CEC24• controllers (1 screw terminal block): 63 slaves, 252 TPDO/252 RPDO

2 serial link ports:  
☐ 1 port SL1 (RJ 45), RS232/485 with +5 V supply  
☐ 1 port SL2 (screw terminal) RS485

**Functions**

- Process control
- Counting
- Position control

PID

8 high-speed counter (HSC) inputs, 200 kHz frequency

4 position control outputs:  
P/D, CW and CCW pulse train (PTO) with trapezoidal profile and S curve (▲), 100 kHz frequency  
pulse width modulation (PWM)  
frequency generator (FG)

**Options**

- Cartridges
  - Number of cartridge slots
- Communication modules

3 I/O expansion cartridges:  
- with 2 voltage/current analog inputs  
- with 2 inputs for temperature probes  
- with 2 voltage/current analog outputs

2 application cartridges:  
- for control of hoisting applications  
- for control of packaging applications

1

- ☐ 1 Ethernet port Modicon TM4 module with switch function and 4 integrated ports for TM241C24•
- ☐ 1 Modicon TM4 module for slave Profibus DP link

**Mounting**

Mounting on symmetrical rail or panel

**Software programming**

With SoMachine software

**Controller type**

- with serial links
- with embedded Ethernet port and serial links
- with embedded Ethernet and CANopen ports, and serial links

<b>TM241C24R</b>	<b>TM241C24T</b>	<b>TM241C24U</b>
<b>TM241CE24R</b>	<b>TM241CE24T</b>	<b>TM241CE24U</b>
<b>TM241CEC24R</b>	<b>TM241CEC24T</b>	<b>TM241CEC24U</b>

▲ Available: 4th quarter 2014.

**Control of simple motion**  
**Control of control loops**



100-240 V ~

24 V ☐

**40 logic inputs/outputs**

24 sink/source 24 V ☐ inputs,  
inc. 8 high-speed inputs

24 sink/source 24V ☐ inputs,  
inc. 8 high-speed inputs

24 sink/source 24V ☐ inputs,  
inc. 8 high-speed inputs

16 outputs: with 4 source transistor high-speed  
outputs and 12 relay outputs

16 source transistor outputs,  
inc. 4 high-speed outputs

16 sink transistor outputs,  
inc. 4 high-speed outputs

With removable screw terminal block

- ☐ 7 Modicon TM3 expansion modules
- ☐ 14 Modicon TM3 expansion modules with the use of bus expansion modules (transmitter and receiver)
- ☐ Possible use of Modicon TM2 expansion modules with restrictions

1 Ethernet port on TM241CE40• and TM241CEC40• controllers:  
 Modbus TCP (client & server), Modbus TCP slave, dynamic DHCP Client Configuration, Programming, download monitoring.  
 Updated firmware, data exchange - NGVL and IEC VAR ACCESS, WEB server, IP Ethernet adapter SNMP network management.  
 MIB2, FTP file transfer

–

- 2 serial link ports:
- ☐ 1 port SL1 (RJ 45), RS232/485 with +5 V supply
  - ☐ 1 port SL2 (screw terminal) RS485

PID

8 high-speed counter (HSC) inputs, 200 kHz frequency

- 4 position control outputs:
- ☐ P/D, CW and CCW pulse train (PTO) with trapezoidal profile and S curve (▲), 100 kHz frequency
  - ☐ pulse width modulation (PWM)
  - ☐ frequency generator (FG)

- ☐ 3 I/O expansion cartridges:
  - with 2 voltage/current analog inputs
  - with 2 inputs for temperature probes
  - with 2 voltage/current analog outputs
- ☐ 2 application cartridges:
  - for control of hoisting applications
  - for control of packaging applications

2

- ☐ 1 Ethernet port Modicon TM4 module with switch function and 4 integrated ports for TM241C24•
- ☐ 1 Modicon TM4 module for slave Profibus DP link

Mounting on symmetrical rail or panel

With SoMachine software

TM241C40R	TM241C40T	TM241C40U
TM241CE40R	TM241CE40T	TM241CE40U
–	–	–

▲ Available: 4th quarter 2014.

**Applications**

Control of modular machines on distributed architectures



**Supply voltage**

24 V  $\dots$

**I/O expansion**

- 7 Modicon TM3 expansion modules
- 14 Modicon TM3 expansion modules with the use of bus expansion modules (transmitter and receiver)
- Possible use of Modicon TM2 expansion modules with restrictions.

<b>Embedded communication</b>	Ethernet link
	CANopen
	Serial link

- Ethernet 1: 2 ports connected by a switch, "Machine" or "Factory" network (2 RJ 45 connectors)
  - Ethernet 2: 1 "fieldbus" Ethernet port (1 RJ 45 connector)
- Modbus TCP (client & server), Modbus TCP slave, dynamic DHCP Client Configuration, Programming, download monitoring.  
 Updated firmware, data exchange - NGVL and IEC VAR ACCESS, WEB server, IP Ethernet adapter SNMP network management.MIB2, FTP file transfer
- 
- 
- 
- 1 serial link port (RJ 45), RS232/485 with +5 V supply

<b>Options</b>	Communication modules
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- 1 Ethernet port Modicon TM4 module with switch function and 4 integrated ports
- 1 Modicon TM4 module for slave Profibus DP link

**Mounting**

Mounting on symmetrical rail or panel

**Software programming**

With SoMachine software

**Controller type**

**TM251MESE**

## Control of modular machines on distributed architectures



24 V ...

- 7 Modicon TM3 expansion modules
- 14 Modicon TM3 expansion modules with the use of bus expansion modules (transmitter and receiver)
- Possible use of Modicon TM2 expansion modules with restrictions.

- Ethernet: 2 ports connected by a switch, "Machine" or "Factory" network (2 RJ 45 connectors)

Modbus TCP (client & server), Modbus TCP slave, dynamic DHCP Client Configuration, Programming, download monitoring.  
Updated firmware, data exchange - NGVL and IEC VAR ACCESS, WEB server, IP Ethernet adapter SNMP network management.MIB2, FTP file transfer

- 1 master CANopen port (1 x 9-way SUB-D connector)

- 1 serial link port (RJ 45), RS232/485 with +5 V supply

- 1 Ethernet port Modicon TM4 module with switch function and 4 integrated ports
- 1 Modicon TM4 module for slave Profibus DP link

Mounting on  symmetrical rail or panel

With SoMachine software

**TM251MESC**

# HMI controllers

## Magelis™ SCU Small HMI controllers,

<b>Applications</b>		<b>Display of text messages, graphic objects and mimics, control and configuration of data</b>			
<b>Terminal type</b>		<b>IEC 1131-2 control function</b>			
		<b>Small HMI controllers</b>			
		<b>For control of simple machine</b>		<b>For control of simple process</b>	
					
<b>Display</b>		Color TFT LCD			
Type	Capacity	3.5" (65 k colors)	5.7" (65 k colors)	3.5" (65 k colors)	5.7" (65 k colors)
<b>Data entry</b>		Via touch screen			
	Static function keys	-			
	Dynamic function keys	-			
	Service keys	-			
	Alphanumeric keys	-			
<b>Memory capacity</b>		128 MB Flash EPROM			
Application	Expansion	-			
<b>Functions</b>		Limited by internal Flash EPROM memory capacity			
Maximum number of pages and maximum number of instructions	Variables per page	Unlimited (8000 variables max.)			
Programmed logic	Counting/positioning	5 languages according to IEC 1131-2 (LD, ST, FBD, SFC, IL)			
Control (PID)	Representation of variables	2 x 100 kHz high speed counter inputs/2 x 50 kHz pulse train outputs			
Recipes	Curves	Yes			
Alarm logs	Real-time clock	Alphanumeric, bitmap, bargraph, gauge, tank, tank level indicator, curves, polygon, button, light			
		32 groups of 64 recipes comprising 1024 ingredients max.			
		Yes, with log			
		Yes			
		Built-in			
<b>I/O</b>	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		<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/PT100-1000) <input type="checkbox"/> 2 x 12-bit analog outputs (Voltage/current)	
	I/O modular expansion	-			
<b>Communication</b>		Modbus, Modbus TCP/IP (1)			
Downloadable protocols	Asynchronous serial link	RS 232C/RS 485 (COM1)			
USB ports	Buses and networks	1 Host type A + 1 Device type mini-B			
		1 CANopen master			
		Ethernet TCP/IP (10BASE-T/100 BASE-TX)			
	Printer link	USB port for parallel printer			
<b>Design software</b>		SoMachine on Windows XP Professional and Windows 7 Professional 343647/64-bit (please refer to our website <a href="http://www.schneider-electric.com">www.schneider-electric.com</a> ).			
<b>Operating system</b>		Magelis (333 MHz RISC CPU)			
<b>Terminal type</b>		<b>HMISCU6A5</b>	<b>HMISCU8A5</b>	<b>HMISCU6B5</b>	<b>HMISCU8B5</b>

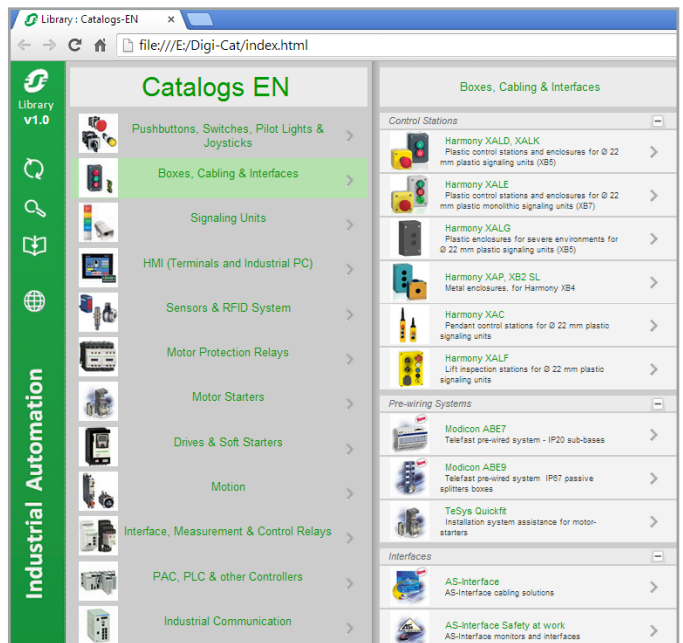
(1) Depending on model.

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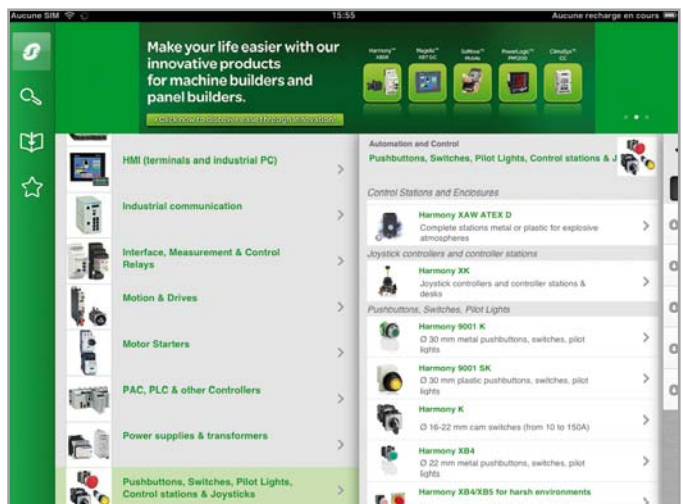
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