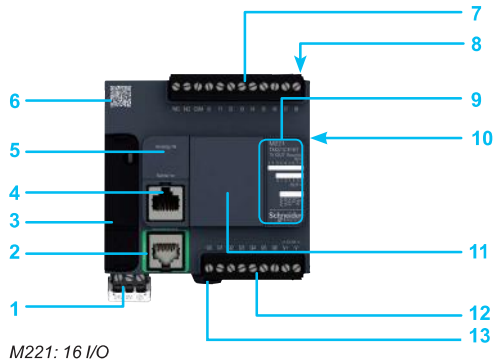
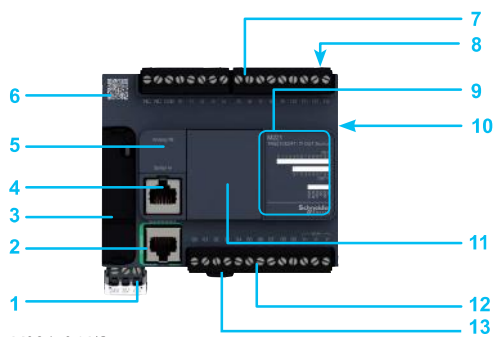


Modicon M221 and M221 Book logic controllers

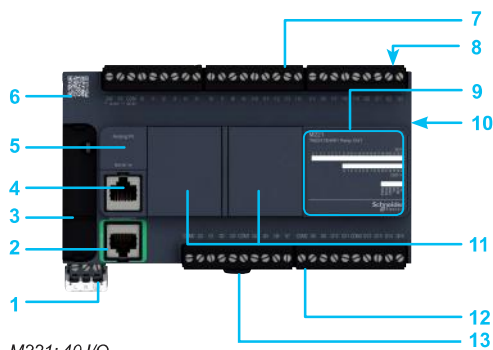
Modicon M221 logic controllers



M221: 16 I/O



M221: 24 I/O



M221: 40 I/O

Description

M221 logic controllers (TM221C●●●)

- 1 Removable screw terminal block, 3 terminals for connecting the 24 V $\overline{\text{---}}$ or 100-240 V \sim power supply (depending on the model)
- 2 On TM221CE●●● controllers: RJ 45 connector for Ethernet network, with activity and exchange speed LED indicator
- 3 Behind the removable cover:
 - Mini-B USB connector for connecting a PC equipped with SoMachine Basic software
 - Slot for the industrial SD memory card
 - Run/Stop switch
- 4 Serial link port (RS 232 or RS 485): RJ 45 connector
- 5 Behind a flap: dedicated removable connector for two analog inputs
- 6 QR code for access to the controller technical documentation
- 7 Connection of 24 V $\overline{\text{---}}$ logic inputs on removable screw terminal blocks (1)
- 8 On top of the controller: slot for backup battery
- 9 LED display block showing:
 - the status of the controller and its components (battery, industrial SD memory card)
 - the status of the serial link
 - the status of the embedded I/O
- 10 On the side of the controller: TM3 bus connector for the link with a Modicon TM3 expansion module
- 11 Slot(s) for I/O cartridge(s), communication cartridge, or application cartridge(s): one on M221 controllers with 16 and 24 I/O, two on M221 controllers with 40 I/O
- 12 Connection of relay/transistor logic outputs: on removable screw terminal blocks (1)
- 13 Clip for locking on $\overline{\text{L}}$ symmetrical rail

(1) Removable screw terminal blocks equipped with screw terminals, supplied with M221 controller.

Graphic display unit TMH2GDB



TMH2GDB

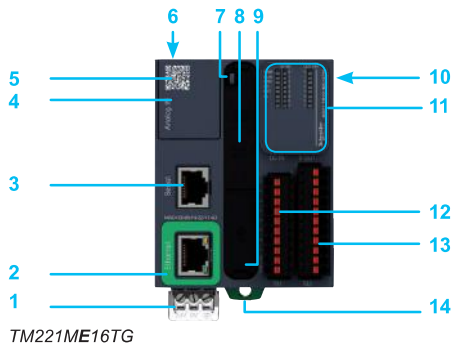
- 1 Control screen: backlit STN graphic screen, two-tone (white/red)
- 2 Ten command buttons, two of which can be customized with the option of identifying associated functions
- 3 Rotary navigation and control wheel

On the back of the display unit:

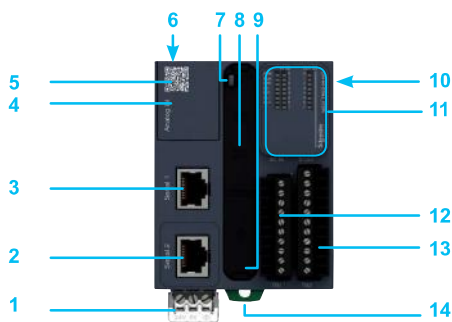
- 4 Mounting system consisting of locking nut, seal, and anti-rotation tee
- 5 RJ 45 connector for the cable connecting the graphic display unit to the Modicon M221/M221 Book logic controller

Modicon M221 and M221 Book logic controllers

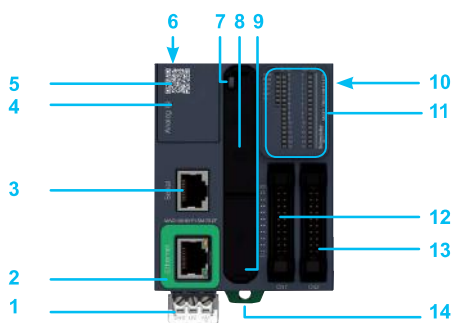
Modicon M221 Book logic controllers



TM221ME16TG



TM221M16T



TM221ME32TK

Description

M221 Book logic controllers (TM221M●●●)

- 1 Removable screw terminal block, 3 terminals for connecting the 24 V $\bar{\bar{}}$ supply
 - 2 On TM221ME16●● and TM221ME32●● controllers: RJ 45 connector for Ethernet network, with activity and exchange speed LED indicator
On TM221M16●● and TM221M32●● controllers: RJ 45 connector for SL2 serial link
 - 3 SL1 serial link port (RJ 45 connector)
 - 4 Behind the removable cover: removable connector for two analog inputs
 - 5 QR identification code for the controller technical documentation
 - 6 Backup battery slot
- Behind the removable cover: 7, 8, and 9
- 7 Slot for the industrial SD memory card
 - 8 Run/Stop switch
 - 9 Mini-B USB connector for connecting a PC equipped with EcoStruxure Machine Expert - Basic software
 - 10 TM3 bus connector for linking to a Modicon TM3 expansion module
 - 11 LED display block showing:
 - the status of the controller and its components (battery, industrial SD memory card)
 - the status of the serial links
 - the status of the I/O
 - 12 Connection of 24 V $\bar{\bar{}}$ logic inputs:
 - on 16-channel controllers: removable screw or spring terminal blocks (1)
 - on 32-channel controllers: HE10 connector
 - 13 Connection of relay/transistor logic outputs:
 - on 16-channel controllers: removable screw or spring terminal blocks (1)
 - on 32-channel controllers: HE10 connector
 - 14 Clip for locking on $\bar{\bar{}}$ symmetrical rail

(1) Removable terminal blocks equipped with screw or spring-type terminals depending on controller type. Terminal blocks supplied with M221 Book controller.

Graphic display unit TMH2GDB

Description: see page 16



TMH2GDB

Modicon M221 and M221 Book logic controllers

Modicon M221 logic controllers



TM221C16R, TM221C16T,
TM221C16U



TM221CE16R, TM221CE16T,
TM221CE16U



TM221C24R, TM221C24T,
TM221C24U



TM221CE24R, TM221CE24T,
TM221CE24U



TM221C40R, TM221C40T,
TM221C40U



TM221CE40R, TM221CE40T,
TM221CE40U



TMC2AI2



TMC2AQ2V



TMC2AQ2C



TMC2TI2



TMC2SL1



TMC2PACK01



TMC2HOIS01



TMC2CONV01

References

Modicon M221 logic controllers (1)

Number of logic I/O	Logic inputs	Logic outputs	Analog inputs	Integrated communication ports (2)		Reference	Weight kg/lb
				Ethernet (RJ 45)	Serial link (RJ 45)		
■ 100-240 V ~ power supply							
16 inputs/outputs	9 sink/source 24 V ~ inputs, inc. 4 high-speed inputs	7 relay outputs	2 x 0...10 V inputs	–	1	TM221C16R	0.346 0.763
				1	1	TM221CE16R	0.346 0.763
24 inputs/outputs	14 sink/source 24 V ~ inputs, inc. 4 high-speed inputs	10 relay outputs	2 x 0...10 V inputs	–	1	TM221C24R	0.395 0.871
				1	1	TM221CE24R	0.395 0.871
40 inputs/outputs	24 sink/source 24 V ~ inputs, inc. 4 high-speed inputs	16 relay outputs	2 x 0...10 V inputs	–	1	TM221C40R	0.456 1.005
				1	1	TM221CE40R	0.456 1.005
■ 24 V ~ power supply							
16 inputs/outputs	9 sink/source 24 V ~ inputs, inc. 4 high-speed inputs	7 source transistor outputs, inc. 2 high-speed outputs	2 x 0...10 V inputs	–	1	TM221C16T	0.346 0.763
				1	1	TM221CE16T	0.346 0.763
24 inputs/outputs	14 sink/source 24 V ~ inputs, inc. 4 high-speed inputs	10 source transistor outputs, inc. 2 high-speed outputs	2 x 0...10 V inputs	–	1	TM221C24T	0.395 0.871
				1	1	TM221CE24T	0.395 0.871
40 inputs/outputs	24 sink/source 24 V ~ inputs, inc. 4 high-speed inputs	16 source transistor outputs, inc. 2 high-speed outputs	2 x 0...10 V inputs	–	1	TM221C40T	0.456 1.005
				1	1	TM221CE40T	0.456 1.005
16 inputs/outputs	9 sink/source 24 V ~ inputs, inc. 4 high-speed inputs	7 sink transistor outputs, inc. 2 high-speed outputs	2 x 0...10 V inputs	–	1	TM221C16U	0.558 1.230
				1	1	TM221CE16U	0.626 1.380
24 inputs/outputs	14 sink/source 24 V ~ inputs, inc. 4 high-speed inputs	10 sink transistor outputs, inc. 2 high-speed outputs	2 x 0...10 V inputs	–	1	TM221C24U	0.770 1.698
				1	1	TM221CE24U	0.570 1.257
40 inputs/outputs	24 sink/source 24 V ~ inputs, inc. 4 high-speed inputs	16 sink transistor outputs, inc. 4 high-speed outputs	2 x 0...10 V inputs	–	1	TM221C40U	0.630 1.389
				1	1	TM221CE40U	0.780 1.720

Options for Modicon TM221C●●●● logic controllers (3)

Description	Function	Reference	Weight kg/lb	
I/O cartridges	2 analog inputs (12-bit resolution) configurable as: - 0...10 V voltage - 0...20 mA/4...20 mA current Screw terminal version	TMC2AI2	0.025 0.055	
	2 analog outputs (12-bit resolution) 0...10 V voltage Screw terminal version	TMC2AQ2V	0.025 0.055	
	2 analog outputs (12-bit resolution) 4...20 mA current Screw terminal version	TMC2AQ2C	0.025 0.055	
	2 temperature inputs (12-bit resolution) type K, J, R, S, B, E, T, N, C, PT100, PT1000, NI100, NI1000 Screw terminal version	TMC2TI2	0.025 0.055	
	Communication cartridge	1 additional serial link on screw terminal block	TMC2SL1 (4)	0.025 0.055
Cartridges for specific application	Hoisting application	2 analog inputs	TMC2HOIS01	0.025 0.055
	Packaging application	2 analog inputs	TMC2PACK01	0.025 0.055
	Conveyor system application	1 serial link	TMC2CONV01 (4)	0.025 0.055

(1) M221 controllers are supplied with:

- removable screw terminal blocks for connecting the I/O
- a removable screw terminal block for connecting the power supply
- a button cell backup battery (BR2032)
- a cable for connecting the analog inputs

(2) Each M221 logic controller has an embedded USB mini-B programming port.

(3) One cartridge for controllers with 16 and 24 I/O. Two cartridges maximum for controllers with 40 I/O, only one of which can be a communication cartridge.

(4) Just one cartridge per controller.

Modicon M221 and M221 Book logic controllers

Modicon M221 Book logic controllers



TM221M16RG



TM221M16T



TM221ME16RG



TM221ME16T



TM221M16TG



TM221M32TK



TM221ME32TK

References

Modicon M221 Book logic controllers(1)

24 V $\bar{\bar{}}$ power supply

No. of logic I/O	Logic inputs	Logic outputs	Analog inputs	Embedded communication ports (2)		Terminal block for I/O conn. Interval (mm/in.)	Reference	Weight kg/lb	
				Ethernet (RJ 45)	Serial link				
					SL1 (RJ 45)				SL2 (RJ 45)
16 inputs/ outputs	8 sink/source 24 V $\bar{\bar{}}$ inputs, inc. 4 high-speed inputs	8 relay outputs	2 x 0...10 V inputs	–	1	1	Screw (3.81/0.15)	TM221M16R	0.264 0.582
				–	1	1	Spring (3.81/0.15)	TM221M16RG	0.264 0.582
				1	1	–	Screw (3.81/0.15)	TM221ME16R	0.264 0.582
				1	1	–	Spring (3.81/0.15)	TM221ME16RG	0.264 0.582
				–	1	1	Screw (3.81/0.15)	TM221M16T	0.264 0.582
				–	1	1	Spring (3.81/0.15)	TM221M16TG	0.264 0.582
16 inputs/ outputs	8 sink/source 24 V $\bar{\bar{}}$ inputs, inc. 4 high-speed inputs	8 source transistor outputs, inc. 2 high-speed outputs	2 x 0...10 V inputs	–	1	1	Screw (3.81/0.15)	TM221ME16T	0.264 0.582
				–	1	1	Spring (3.81/0.15)	TM221ME16TG	0.264 0.582
				1	1	–	Screw (3.81/0.15)	TM221M32TK	0.270 0.595
				1	1	–	Spring (3.81/0.15)	TM221ME32TK	0.270 0.595
				1	1	–	HE 10 connector	TM221M32TK	0.270 0.595
				1	1	–	HE 10 connector	TM221ME32TK	0.270 0.595

(1) M221 Book controllers are supplied with:

- removable terminal blocks (screw or spring-type depending on controller model) for connecting the I/O
- a removable screw terminal block for connecting the power supply
- a button cell backup battery (BR2032)
- a cable for connecting the analog inputs

(2) Each M221 Book logic controller has an embedded USB mini-B programming port.

Modicon M221 and M221 Book logic controllers

Options, separate parts



TMH2GDB



ZB5AZ905



A9A15151



DX1AP52



XBTZ9980



TMA5D1



TMAHOL02

References

Remote graphic display unit, mounting accessories, cable

Designation	Description	Unit reference	Weight kg/lb
Remote graphic display unit	<input type="checkbox"/> For data display and modification (1) <input type="checkbox"/> Contains 1 bezel key ZB5AZ905	TMH2GDB	0.170 0.37
Tightening tool	For tightening the cover on Ø 22 mm unit	ZB5AZ905	0.016 0.04
Mounting plate for symmetrical rail (Sold in lots of 4)	For clipping onto 35 mm (1.378 in.) symmetrical rail (1 hole Ø 22 mm (0.87 in.))	A9A15151	0.040 0.09
Metal bracket for panel mounting, threaded (Sold in lots of 10)	1 hole Ø 22 mm (0.87 in.) Mounted using 2 screws, 7 mm (0.28 in.) diameter	DX1AP52	0.065 0.014
Connecting cables Used between TMH2GDB remote display unit and M221/M221 Book logic controller	Equipped with an RJ 45 connector at each end Length: 2.5 m (8.2 ft)	XBTZ9980	0.230 0.51
	Equipped with an RJ 45 connector at each end Length: 1 m (3.28 ft)	VW3A1104R10	0.050 0.110

Option

Industrial SD memory card	Application backup and program transfer Capacity: 256 MB	TMA5D1	0.004 0.009
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Separate parts

Designation	Description	Unit reference	Weight kg/lb
Mounting kit Sold in lots of 10	For plate or panel mounting of M221 and M221 Book controllers	TMAM2	0.065 0.143

Replacement parts

Designation	Description	Reference	Weight kg/lb
Set of terminal blocks for connecting the power supply on M221 and M221 Book logic controllers	8 removable screw terminal blocks	TMAT2PSET	0.127 0.280
Set of terminal blocks for connecting the I/O on M221 controllers	Removable screw terminal connectors: 8 different connectors for equipping a TM221C logic controller (8 x I/O)	TMAT2CSET	0.127 0.280
Set of terminal blocks for connecting the I/O on M221 Book controllers	4 x 10-way and 4 x 11-way removable terminal blocks with screw terminals	TMAT2MSET	0.127 0.280
	4 x 10-way and 4 x 11-way removable terminal blocks with spring terminals	TMAT2MSETG	0.127 0.280
Set of battery holders	2 spare battery holders for M221 and M221 Book controllers	TMAHOL02	0.130 0.286
Backup battery	The battery supplied with each controller is not available as a spare part in the Schneider catalog. If a replacement part is needed, use a Panasonic battery type BR2032 only.		

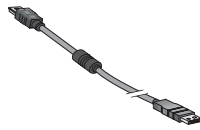
(1) Compatible only with M221 and M221 Book logic controllers whose firmware is version V1.3 or later.

Modicon M221 and M221 Book logic controllers

Programming software, expansion modules, connection cables



EcoStruxure Machine Expert - Basic software



TCSXCNAMUM3P

References

Programming software

Description	For use with	Reference
EcoStruxure Machine Expert - Basic	For Modicon M221 and M221 Book logic controllers	Only available as a download from our website www.schneider-electric.com

Expansion modules

Description	For use with	Reference
Modicon TM3 expansion modules	For Modicon M221 and M221 Book logic controllers	Please consult our catalogue ref. DIA3ED2140109EN

Connection cables

Description	Use	Length	Reference	Weight kg/lb
Programming cordsets	From the PC USB port to the USB mini-B port on M221 and M221 Book controllers	3 m (0.98 ft)	TCSXCNAMUM3P (1)	0.065 0.143
		1.8 m (5.90 ft)	BMXXCAUSBH018	0.065 0.143
Cable for connecting the analog inputs embedded in M221 and M221 Book controllers	Equipped with 1 dedicated removable connector at one end and bare wires at the other end	1 m (3.28 ft)	TMACBL1	0.024 0.053

(1) Unshielded, non-grounded cable. Only for use on temporary connections. For permanent connections, use cable reference BMXXCAUSBH018.