





logic controller, Modicon M241, 24 IO, transistor, NPN, Ethernet

TM241CE24U

Main

Range of product	Modicon M241	
Product or component type	Logic controller	
[Us] rated supply voltage	24 V DC	
Discrete input number	14, discrete input 8 fast input conforming to IEC 61131-2 Type 1	
Discrete output type	Transistor	
Discrete output number	10 transistor 4 fast output	
Discrete output voltage	24 V DC for transistor output	
Discrete output current	0.5 A for transistor output (Q0Q9) 0.1 A for fast output (PTO mode) (Q0Q3)	

Complementary

Discrete I/O number	24
Maximum number of I/O expansion module	7 (local I/O-Architecture) 14 (remote I/O-Architecture)
Supply voltage limits	20.428.8 V
Inrush current	50 A
Power consumption in W	32.640.4 W (with max number of I/O expansion module)
Discrete input logic	Sink or source
Discrete input voltage	24 V
Discrete input voltage type	DC
Voltage state 1 guaranteed	>= 15 V for input
Voltage state 0 guaranteed	<= 5 V for input
Discrete input current	5 mA for input 10.7 mA for fast input
Input impedance	4.7 kOhm for input 2.81 kOhm for fast input
Response time	50 μs turn-on, I0I13 terminal(s) for input 50 μs turn-off, I0I13 terminal(s) for input <= 2 μs turn-on, I0I7 terminal(s) for fast input <= 2 μs turn-off, I0I7 terminal(s) for fast input <= 34 μs turn-on, Q0Q9 terminal(s) for output <= 250 μs turn-off, Q0Q9 terminal(s) for output <= 2 μs turn-on, Q0Q3 terminal(s) for fast output <= 2 μs turn-off, Q0Q3 terminal(s) for fast output

Configurable filtering time	1 µs for fast input
	12 ms for fast input
	0 ms for input 1 ms for input
	4 ms for input
	12 ms for input
Discrete output logic	Negative logic (sink)
Output voltage limits	30 V DC
Maximum current per output common	2 A with Q0Q3 for fast output
Common	2 A with Q4Q7 for output 1 A with Q8Q9 for output
Maximum output frequency	20 kHz for fast output (PWM mode)
	100 kHz for fast output (PLS mode)
	1 kHz for output
Accuracy	+/- 0.1 % at 0.020.1 kHz for fast output
	+/- 1 % at 0.11 kHz for fast output
Maximum leakage current	5 μA for output
Maximum voltage drop	<1 V
Maximum tungsten load	<2.4 W
Protection type	Short-circuit protection
	Short-circuit and overload protection with automatic reset
	Reverse polarity protection for fast output
Reset time	10 ms automatic reset output
	12 s automatic reset fast output
Memory capacity	64 MB for system memory RAM
Data backed up	128 MB built-in flash memory for backup of user programs
Data storage equipment	<= 16 GB SD card (optional)
Battery type	BR2032 lithium non-rechargeable, battery life: 4 year(s)
Backup time	2 years at 25 °C
Execution time for 1 KInstruction	0.3 ms for event and periodic task 0.7 ms for other instruction
Application structure	8 external event tasks
	4 cyclic master tasks
	8 event tasks
	3 cyclic master tasks + 1 freewheeling task
Realtime clock	With
Clock drift	<= 60 s/month at 25 °C
Positioning functions	PTO function 4 channel(s) (positioning frequency: 100 kHz) PTO function 4 channel(s) for transistor output (positioning frequency: 1 kHz)
Counting input number	4 fast input (HSC mode) at 200 kHz 14 standard input at 1 kHz
Control signal type	A/B at 100 kHz for fast input (HSC mode)
	Pulse/direction at 200 kHz for fast input (HSC mode) Single phase at 200 kHz for fast input (HSC mode)
Integrated connection type	Non isolated serial link serial 1 with RJ45 connector and RS232/RS485 interface
	Non isolated serial link serial 2 with removable screw terminal block connector and
	RS485 interface
	USB port with mini B USB 2.0 connector Ethernet with RJ45 connector
Supply	(serial 1)serial link supply: 5 V, <200 mA
Transmission rate	1.2115.2 kbit/s (115.2 kbit/s by default) for bus length of 15 m for RS485
	1.2115.2 kbit/s (115.2 kbit/s by default) for bus length of 3 m for RS232
	480 Mbit/s for bus length of 3 m for USB
	10/100 Mbit/s for Ethernet

Sthernet services FDR DHCP server via TM4 Ethernet switch network module DHCP client embedded Ethernet port SMS notifications Updating firmware SMIVP client/server Programming NGVL Monitoring IEC VAR ACCESS FTP client/server Downloading SUL client Modus (PP cignote IV 0 scanner	Communication port protocol	Non isolated serial link: Modbus master/slave
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·		16 EtherNet/IP:
64 ms 64 Modbus TCP	Cycle time	10 ms 16 EtherNet/IP
		64 mg 64 Madhua TCD

Mounting support	Top hat type TH35-15 rail conforming to IEC 60715 Top hat type TH35-7.5 rail conforming to IEC 60715 plate or panel with fixing kit
Height	90 mm
Depth	95 mm
Width	150 mm
Net weight	0.53 kg

Environment

Environment	
Standards	ANSI/ISA 12-12-01 CSA C22.2 No 142 CSA C22.2 No 213 IEC 61131-2:2007 Marine specification (LR, ABS, DNV, GL) UL 508
product certifications	RCM cULus CE UKCA DNV-GL ABS LR
Resistance to electrostatic discharge	8 kV in air conforming to IEC 61000-4-2 4 kV on contact conforming to IEC 61000-4-2
Resistance to electromagnetic fields	10 V/m 80 MHz1 GHz conforming to IEC 61000-4-3 3 V/m 1.4 GHz2 GHz conforming to IEC 61000-4-3 1 V/m 2 GHz3 GHz conforming to IEC 61000-4-3
Resistance to fast transients	2 kV (power lines) conforming to IEC 61000-4-4 1 kV (Ethernet line) conforming to IEC 61000-4-4 1 kV (serial link) conforming to IEC 61000-4-4 1 kV (input) conforming to IEC 61000-4-4 1 kV (transistor output) conforming to IEC 61000-4-4
Resistance to conducted disturbances	10 V 0.1580 MHz conforming to IEC 61000-4-6 3 V 0.180 MHz conforming to Marine specification (LR, ABS, DNV, GL) 10 V spot frequency (2, 3, 4, 6.2, 8.2, 12.6, 16.5, 18.8, 22, 25 MHz) conforming to Marine specification (LR, ABS, DNV, GL)
Electromagnetic emission	Conducted emissions - test level: 12069 dBμV/m QP (power lines) at 10150 kHz conforming to IEC 55011 Conducted emissions - test level: 63 dBμV/m QP (power lines) at 1.530 MHz conforming to IEC 55011 Radiated emissions - test level: 40 dBμV/m QP class A at 30230 MHz conforming to IEC 55011 Conducted emissions - test level: 7963 dBμV/m QP (power lines) at 1501500 kHz conforming to IEC 55011 Radiated emissions - test level: 47 dBμV/m QP class A at 2301000 MHz conforming to IEC 55011
Immunity to microbreaks	10 ms
Ambient air temperature for operation	-1050 °C (vertical installation) -1055 °C (horizontal installation)
Ambient air temperature for storage	-2570 °C
Relative humidity	1095 %, without condensation (in operation) 1095 %, without condensation (in storage)
IP degree of protection	IP20 with protective cover in place
Pollution degree	2
Operating altitude	02000 m
Storage altitude	03000 m

Vibration resistance	3.5 mm at 58.4 Hz on symmetrical rail 3 gn at 8.4150 Hz on symmetrical rail 3.5 mm at 58.4 Hz on panel mounting 3 gn at 8.4150 Hz on panel mounting
Shock resistance	15 gn for 11 ms

Packing Units

•	
Unit Type of Package 1	PCE
Number of Units in Package 1	1
Package 1 Height	11.606 cm
Package 1 Width	13.17 cm
Package 1 Length	18.76 cm
Package 1 Weight	650.0 g
Unit Type of Package 2	S03
Number of Units in Package 2	8
Package 2 Height	30 cm
Package 2 Width	30 cm
Package 2 Length	40 cm
Package 2 Weight	6.06 kg
Unit Type of Package 3	P06
Number of Units in Package 3	64
Package 3 Height	75.0 cm
Package 3 Width	40.0 cm
Package 3 Length	80.0 cm
Package 3 Weight	53.6 kg



Green PremiumTM **label** is Schneider Electric's commitment to delivering products with best-inclass environmental performance. Green Premium promises compliance with the latest regulations, transparency on environmental impacts, as well as circular and low-CO₂ products.

Guide to assessing product sustainability is a white paper that clarifies global eco-label standards and how to interpret environmental declarations.

Learn more about Green Premium >

Guide to assess a product's sustainability >





Transparency RoHS/REACh

Well-being performance

Ø	Mercury Free	
	Rohs Exemption Information	Yes
②	Pvc Free	

Certifications & Standards

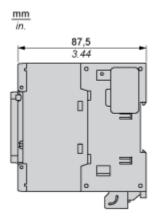
Reach Regulation	REACh Declaration
Eu Rohs Directive	Pro-active compliance (Product out of EU RoHS legal scope)
China Rohs Regulation	China RoHS declaration
Environmental Disclosure	Product Environmental Profile
Weee	The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins
Circularity Profile	End of Life Information

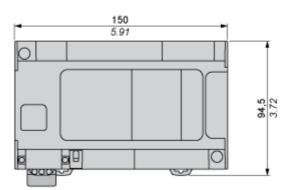
Product datasheet

TM241CE24U

Dimensions Drawings

Dimensions

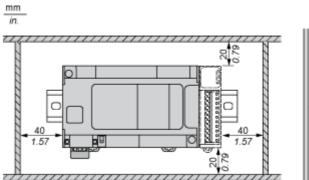


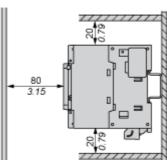


TM241CE24U

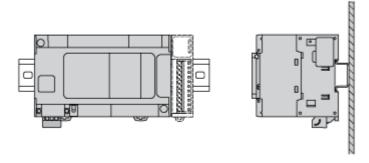
Mounting and Clearance

Clearance

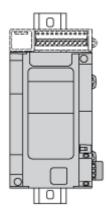




Mounting Position

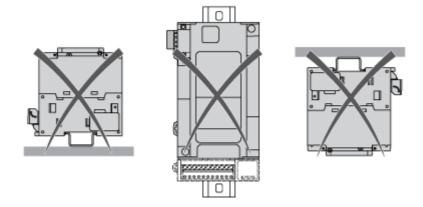


Acceptable Mounting



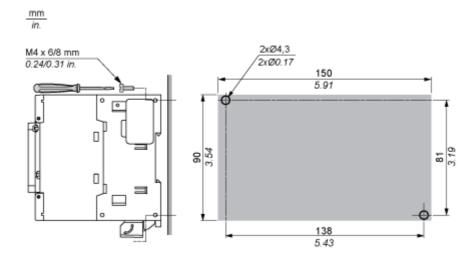
NOTE: Expansion modules must be mounted above the logic controller.

Incorrect Mounting



Direct Mounting On a Panel Surface

Mounting Hole Layout

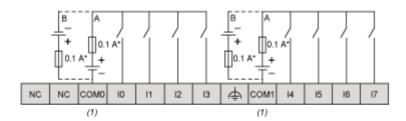


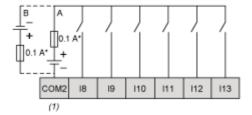
TM241CE24U

Connections and Schema

Digital Inputs

Wiring Diagram





(*): Type T fuse

(1): The COM0, COM1 and COM2 terminals are not connected internally

(A): Sink wiring (positive logic)

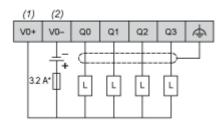
(B): Source wiring (negative logic)

Fast Input Wiring (I0...I7)



Fast Transistor Outputs

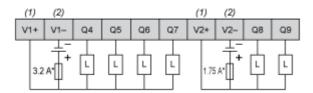
Wiring Diagram



- (*): Type T fuse
- (1) The V0+, V1+, V2+ and V3+ terminals are not connected internally.
- (2) The V0-, V1-, V2- and V3- terminals are not connected internally.

Transistor Outputs

Wiring Diagram

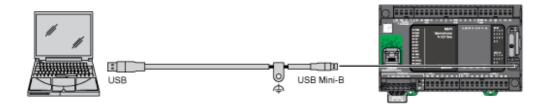


(*): Type T fuse

(1): The V1+ and V2+ terminals are not connected internally.

(2): The V1- and V2- terminals are not connected internally.

USB Mini-B Connection



Ethernet Connection to a PC

