TM241CEC24R





Main

Range of product	Modicon M241
Product or component type	Logic controller
[Us] rated supply voltage	100240 V AC
Discrete input number	14 discrete input including 8 fast input conforming to IEC 61131-2 Type 1
Discrete output type	Relay Transistor
Discrete output number	6 relay 4 transistor including 4 fast output
Discrete output voltage	24 V DC transistor output 5125 V DC relay output 5250 V AC relay output
Discrete output current	2 A with Q4Q9 terminal(s) relay output 0.1 A with TR0TR3 terminal(s) fast output (PTO mode) 0.5 A with TR0TR3 terminal(s) transistor output

Complementary

Discrete I/O number	24	
Number of I/O expansion module	7 (local I/O architecture) 14 (remote I/O architecture)	
Supply voltage limits	85264 V	
Network frequency	50/60 Hz	
Discrete input logic	Sink or source	
Discrete input voltage	24 V	
Discrete input voltage type	DC	
Voltage state 1 guaranteed	>= 15 V input	
Voltage state 0 guaranteed	<= 5 V input	
Discrete input current	5 mA input	
Input impedance	4.7 kOhm input	
Response time	50 µs turn-on operation with I0I13 terminal(s) input	
Configurable filtering time	1 µs fast input	
Discrete output logic	Positive logic (source)	
Output voltage limits	125 V DC relay output 30 V DC transistor output 277 V AC relay output	
Output frequency	<= 1 kHz transistor output <= 20 kHz fast output (PWM mode) <= 100 kHz fast output (PLS mode)	
Accuracy	+/- 0.1 % at 0.020.1 kHz for fast output +/- 1 % at 0.11 kHz for fast output	
Protection type	Short-circuit protection transistor output Short-circuit and overload protection with automatic reset transistor output Reverse polarity protection transistor output Without protection relay output	
Reset time	10 ms automatic reset output 12 s automatic reset fast output	
Memory capacity	8 MB program 64 MB system memory RAM	
Data backed up	128 MB built-in flash memory backup of user programs	
Data storage equipment	<= 16 GB SD card optional	
Battery type	BR2032 lithium non-rechargeable, battery life: 4 yr	

2 years at 77 °F (25 °C)	
0.3 ms event and periodic task 0.7 ms other instruction	
8 event tasks 4 cyclic master tasks 3 cyclic master tasks + 1 freewheeling task 8 external event tasks	
With	
<= 60 s/month at 77 °F (25 °C)	
PTO function 4 channel(s) (positioning frequency: 100 kHz)	
4 fast input (HSC mode) at 200 kHz 14 standard input at 1 kHz	
A/B signal at 100 kHz fast input (HSC mode) Pulse/direction signal at 200 kHz fast input (HSC mode) Single phase signal at 200 kHz fast input (HSC mode)	
USB port with connector mini B USB 2.0 Ethernet with connector RJ45 Non isolated serial link "serial 1" with connector RJ45 and interface RS232/RS485 Non isolated serial link "serial 2" with connector removable screw terminal block and interface RS485 CANopen J1939 with connector male SUB-D 9	
Serial link supply "serial 1" at 5 V, <= 200 mA	
1.2115.2 kbit/s (115.2 kbit/s by default) for bus length of 15 m - communication protocol: RS485 1.2115.2 kbit/s (115.2 kbit/s by default) for bus length of 9.84 ft (3 m) - communication protocol: RS232 480 Mbit/s for bus length of 9.84 ft (3 m) - communication protocol: USB 10/100 Mbit/s - communication protocol: Ethernet 1000 kbit/s for bus length of 65.62 ft (20 m) - communication protocol: CANopen 800 kbit/s for bus length of 40 m - communication protocol: CANopen 500 kbit/s for bus length of 328.08 ft (100 m) - communication protocol: CANopen 250 kbit/s for bus length of 820.21 ft (250 m) - communication protocol: CANopen 125 kbit/s for bus length of 3280.84 ft (1000 m) - communication protocol: CANopen 20 kbit/s for bus length of 8202.1 ft (2500 m) - communication protocol: CANopen	
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Modbus non isolated serial link with master/slave method	
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Modbus non isolated serial link with master/slave method 1 - 10BASE-T/100BASE-TX port with copper cable support Ethernet/IP adapter DHCP client IEC VAR ACCESS Modbus TCP client Modbus TCP server Modbus TCP slave device SNMP client/server FTP client/server SQL client Send and receive email from the controller based on TCP/UDP library Web server (WebVisu & XWeb system) OPC UA server	
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Marking	CE	
Sensor power supply	24 V DC at 400 mA supplied by the controller	
Surge withstand	2 kV power lines (AC) in common mode conforming to EN/IEC 61000-4-5 2 kV relay output in common mode conforming to EN/IEC 61000-4-5 1 kV shielded cable in common mode conforming to EN/IEC 61000-4-5 1 kV power lines (AC) in differential mode conforming to EN/IEC 61000-4-5 1 kV relay output in differential mode conforming to EN/IEC 61000-4-5 1 kV input in common mode conforming to EN/IEC 61000-4-5 1 kV transistor output in common mode conforming to EN/IEC 61000-4-5	
Web services	Web server	
Maximum number of connections	16 connection(s) Ethernet/IP device 8 connection(s) Modbus server	
CANopen feature profile	DR 303-1 DS 301 V4.02	
Number of slave	63 CANopen	
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	3.54 in (90 mm)	
Depth	3.74 in (95 mm)	
Width	5.91 in (150 mm)	
Product weight	1.17 lb(US) (0.53 kg)	

Environment

standards	UL 508 CSA C22.2 No 142 ANSI/ISA 12-12-01	
	UL 1604 CSA C22.2 No 213 EN/IEC 61131-2 : 2007 Marine specification (LR, ABS, DNV, GL)	
product certifications	CSA CULus IACS E10 RCM	
resistance to electrostatic discharge	4 kV on contact conforming to EN/IEC 61000-4-2 8 kV in air conforming to EN/IEC 61000-4-2	
resistance to electromagnetic fields	9.14 V/yd (10 V/m) (80 MHz1 GHz) conforming to EN/IEC 61000-4-3 2.74 V/yd (3 V/m) (1.4 GHz2 GHz) conforming to EN/IEC 61000-4-3 0.91 V/yd (1 V/m) (2 GHz3 GHz) conforming to EN/IEC 61000-4-3	
resistance to fast transients	2 kV power lines conforming to EN/IEC 61000-4-4 2 kV relay output conforming to EN/IEC 61000-4-4 1 kV Ethernet line conforming to EN/IEC 61000-4-4 1 kV serial link conforming to EN/IEC 61000-4-4 1 kV input conforming to EN/IEC 61000-4-4 1 kV transistor output conforming to EN/IEC 61000-4-4	
resistance to conducted disturbances	10 V (0.1580 MHz) conforming to EN/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, condition of test: power lines (radio frequency: 10150 kHz) conforming to EN/IEC 55011 Conducted emissions, test level: 63 dBμV/m QP, condition of test: power lines (radio frequency: 1.530 MHz) conforming to EN/IEC 55011 Conducted emissions, test level: 79 dBμV/m QP/66 dBμV/m AV, condition of test: power lines (radio frequency: 0.150.5 MHz) conforming to EN/IEC 55011 Conducted emissions, test level: 73 dBμV/m QP/60 dBμV/m AV, condition of test: power lines (radio frequency: 0.5300 MHz) conforming to EN/IEC 55011 Radiated emissions, test level: 40 dBμV/m QP with class A, condition of test: 10 m (radio frequency: 30230 MHz) conforming to EN/IEC 55011 Conducted emissions, test level: 7963 dBμV/m QP, condition of test: power lines (radio frequency: 1501500 kHz) conforming to EN/IEC 55011 Radiated emissions, test level: 47 dBμV/m QP with class A, condition of test: 10 m (radio frequency: 2301000 MHz) conforming to EN/IEC 55011	
immunity to microbreaks	10 ms	
ambient air temperature for operation	14131 °F (-1055 °C) horizontal installation 14122 °F (-1050 °C) vertical installation	
ambient air temperature for storage	-13158 °F (-2570 °C)	

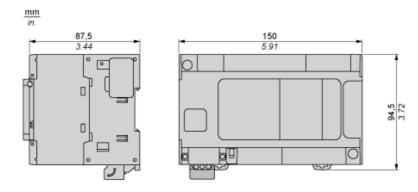


relative humidity	1095 % without condensation in operation 1095 % without condensation in storage	
IP degree of protection	IP20 with protective cover in place	
pollution degree	2	
operating altitude	06561.68 ft (02000 m)	
storage altitude	09842.52 ft (03000 m)	
vibration resistance	3.5 mm (vibration frequency: 58.4 Hz) on symmetrical rail 3 gn (vibration frequency: 8.4150 Hz) on symmetrical rail 3.5 mm (vibration frequency: 58.4 Hz) on panel mounting 3 gn (vibration frequency: 8.4150 Hz) on panel mounting	
shock resistance	15 gn 11 ms	

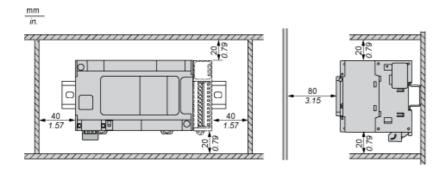
Offer Sustainability

Green Premium product	Green Premium product
Compliant - since 1350 - Schneider Electric declaration of conformity	Compliant - since 1350 - Schneider Electric declaration of conformity
Reference contains SVHC above the threshold - go to CaP for more details	Reference contains SVHC above the threshold
Available	Available
Available	Available
WARNING: This product can expose you to chemicals including:	WARNING: This product can expose you to chemicals including:
Lead and lead compounds, which is known to the State of California to cause cancer and birth defects or other reproductive harm.	Lead and lead compounds, which is known to the State of California to cause cancer and birth defects or other reproductive harm.
For more information go to www.p65warnings.ca.gov	For more information go to www.p65warnings.ca.gov

Dimensions

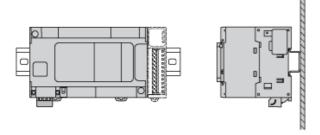


Clearance

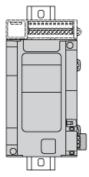


Mounting Position



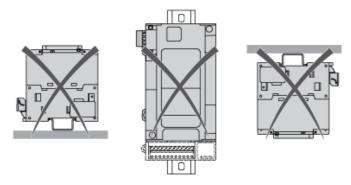


Acceptable Mounting



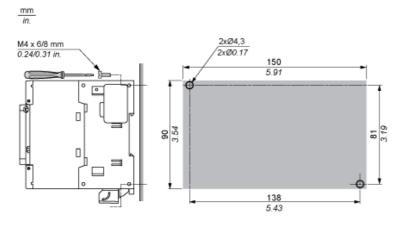
NOTE: Expansion modules must be mounted above the logic controller.

Incorrect Mounting



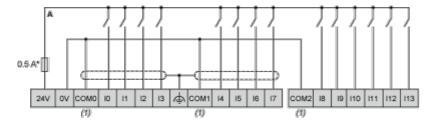
Direct Mounting On a Panel Surface

Mounting Hole Layout



Digital Inputs

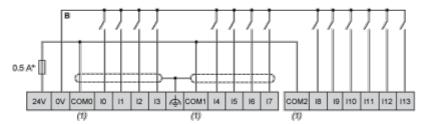
Wiring Diagram (Positive Logic)



(*): Type T fuse

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

Wiring Diagram (Negative Logic)

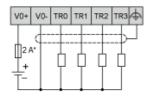


(*): Type T fuse

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

Fast Transistor Outputs

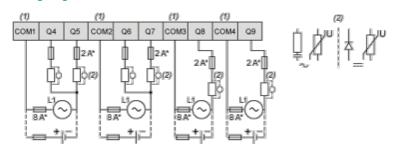
Wiring Diagram



(*): 2 A fast-blow fuse

Relay Outputs

Wiring Diagram

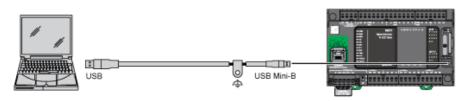


(*): Type T fuse

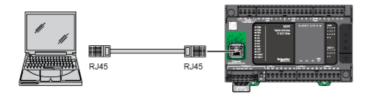
(1): The terminals COM1 to COM4 are not connected internally.

(2): To improve the life time of the contacts, and to protect from potential inductive load damage, you must connect a free wheeling diode in parallel to each inductive DC load or an RC snubber in parallel of each inductive AC load

USB Mini-B Connection

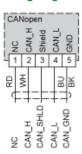


Ethernet Connection to a PC



CANopen Connection

Wiring Diagram



Pin	Signal	Description	Marking	Color of Cable
1	Not used	Reserved	NC	red
2	CAN_H	CAN_H bus line (dominant high)	CAN_H	white
3	CAN_SHLD	Optional CAN shield	Shield	-
4	CAN_L	CAN_L bus line (dominant low)	CAN_L	blue
5	CAN_GND	CAN Ground	GND	black