



## Main

|                              |                                          |
|------------------------------|------------------------------------------|
| Range of product             | Modicon M258                             |
| Product or component type    | Logic controller                         |
| Product specific application | -                                        |
| Discrete I/O number          | 42                                       |
| Discrete output number       | 4 for fast output<br>12 for relay output |

## Complementary

|                                               |                                                                                                                                                                                                                     |
|-----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Discrete input number                         | 4 for regular input<br>12 for input<br>10 for fast input                                                                                                                                                            |
| Discrete input logic                          | Source for input<br>Sink for regular input<br>Sink for fast input                                                                                                                                                   |
| Discrete input voltage                        | 24 V                                                                                                                                                                                                                |
| Discrete input voltage type                   | DC                                                                                                                                                                                                                  |
| Voltage state1 guaranteed                     | >= 15 V for regular input<br>>= 15 V for fast output<br>>= 15 V for fast input                                                                                                                                      |
| Current state 1 guaranteed                    | >= 2 mA for regular input<br>>= 2 mA for fast output<br>>= 2 mA for fast input                                                                                                                                      |
| Voltage state 0 guaranteed                    | <= 5 V for regular input<br><= 5 V for fast output<br><= 5 V for fast input                                                                                                                                         |
| Current state 0 guaranteed                    | <= 1.5 mA for regular input<br><= 1.5 mA for fast output<br><= 1.5 mA for fast input                                                                                                                                |
| Discrete input current                        | 4 mA for regular input<br>4 mA for fast input                                                                                                                                                                       |
| Input impedance                               | 6 kOhm for regular input<br>6 kOhm for fast input                                                                                                                                                                   |
| Configurable filtering time                   | 4 ms for fast input/regular input and fast output<br>12 ms for fast input/regular input and fast output<br>1.5 ms for fast input/regular input and fast output<br>0 ms for fast input/regular input and fast output |
| Anti bounce filtering                         | 2 µs...4 ms (configurable)fast input/regular input and fast output                                                                                                                                                  |
| Cable length                                  | <= 30 m regular input<br><= 30 m fast output<br><= 30 m fast input                                                                                                                                                  |
| Isolation between channels and internal logic | 500 Vrms AC                                                                                                                                                                                                         |
| Isolation between channels                    | None                                                                                                                                                                                                                |
| Discrete output logic                         | Source                                                                                                                                                                                                              |
| Discrete output voltage                       | 24 V DC                                                                                                                                                                                                             |
| Output voltage limits                         | 19.2...28.8 V                                                                                                                                                                                                       |
| Discrete output current                       | 4 mA for fast output                                                                                                                                                                                                |
| [Us] rated supply voltage                     | 24 V DC for main supply<br>24 V DC for I/O power segment<br>24 V DC for embedded expert modules power                                                                                                               |

|                                |                                                                                                                                                                                                                                                                                                                                                                                                                      |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Supply voltage limits          | 20.4...28.8 V                                                                                                                                                                                                                                                                                                                                                                                                        |
| [In] rated current             | 10 A for I/O power segment<br>0.33 A for main supply<br>0.04 A for embedded expert modules power                                                                                                                                                                                                                                                                                                                     |
| Peak current                   | 1.2 A during > 70 s main supply<br>≤ 50 kA during ≤ 150 s embedded expert modules power<br>≤ 25 kA during ≤ 500 s I/O power segment<br>≤ 100 kA during ≤ 70 s main supply                                                                                                                                                                                                                                            |
| Power consumption              | ≤ 17.22 W                                                                                                                                                                                                                                                                                                                                                                                                            |
| Execution time per instruction | Boolean: 22 ns                                                                                                                                                                                                                                                                                                                                                                                                       |
| Memory description             | Internal RAM 64 MB<br>Flash 128 MB                                                                                                                                                                                                                                                                                                                                                                                   |
| Realtime clock                 | Without any user calibration realtime clock, drift: < 30 s/month at 25 °C<br>With user calibration realtime clock, drift: ≤ 6 s/month                                                                                                                                                                                                                                                                                |
| Data backed up                 | Variables of type retain and retain persistent CR2477M Renata, 1.5 years autonomy                                                                                                                                                                                                                                                                                                                                    |
| Integrated connection type     | 2 free slots PCI<br>1 isolated serial link USB type A, 480 Mbit/s<br>1 isolated serial link mini B USB, 480 Mbit/s<br>1 isolated serial link female RJ45, Modbus master/slave RTU/ASCII or character mode ASCII (RS232/RS485), 300...115200 bps<br>1 isolated serial link female RJ45, Ethernet Modbus TCP/IP slave (10BASE-T/100BASE-TX)<br>1 CANopen male SUB-D 9, CANopen master                                  |
| Transmission rate              | 800 kbit/s for bus length of 25 m, CANopen<br>20 kbit/s for bus length of 2500 m, CANopen<br>1000 kbit/s for bus length of 4 m, CANopen<br>10 kbit/s for bus length of 5000 m, CANopen<br>500 kbit/s for bus length of 100 m, CANopen<br>50 kbit/s for bus length of 1000 m, CANopen<br>250 kbit/s for bus length of 250 m, CANopen<br>125 kbit/s for bus length of 500 m, CANopen                                   |
| Counting input number          | 8 counting input(s) 200 kHz                                                                                                                                                                                                                                                                                                                                                                                          |
| Local signalling               | 1 LED red for BATT (battery status)<br>1 LED green/yellow for Eth LA (Ethernet activity)<br>1 LED green/red for USB host<br>1 LED green/red for RUN/MS (module status)<br>1 LED green/red for Eth ST (Ethernet status)<br>1 LED green/red for Eth NS (Ethernet network status)<br>1 LED green/red for APP1<br>1 LED green/red for APP0<br>1 LED for MBS COM<br>1 LED for CAN0 STS<br>1 LED per channel for I/O state |
| Marking                        | CE                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Mounting support               | Symmetrical DIN rail                                                                                                                                                                                                                                                                                                                                                                                                 |
| Width                          | 262.5 mm                                                                                                                                                                                                                                                                                                                                                                                                             |
| Height                         | 99 mm                                                                                                                                                                                                                                                                                                                                                                                                                |
| Depth                          | 85 mm                                                                                                                                                                                                                                                                                                                                                                                                                |
| Product weight                 | 0.8 kg                                                                                                                                                                                                                                                                                                                                                                                                               |

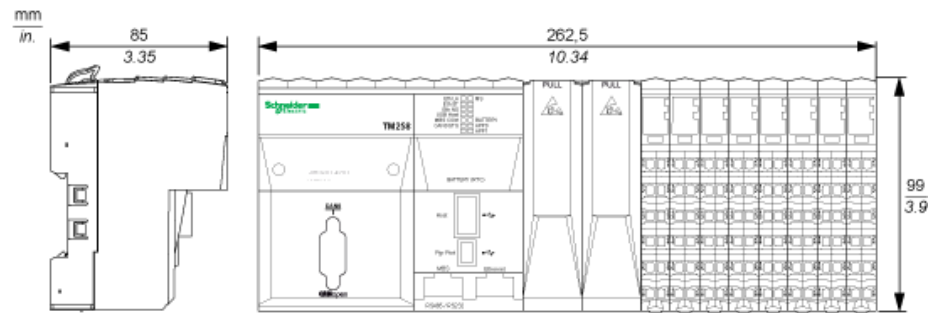
## Environment

|                                       |                                                                                                                                                        |
|---------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| Standards                             | CSA 22-2 No 142<br>IEC 61131-2<br>UL 508<br>CSA 22-2 No 213                                                                                            |
| Product certifications                | CSA<br>C-Tick<br>CULus<br>GOST-R                                                                                                                       |
| Ambient air temperature for operation | 0...60 °C with derating factor horizontal installation<br>0...55 °C without derating factor horizontal installation<br>0...50 °C vertical installation |
| Ambient air temperature for storage   | -25...70 °C                                                                                                                                            |
| Relative humidity                     | 5...95 % without condensation                                                                                                                          |
| IP degree of protection               | IP20 conforming to IEC 61131-2                                                                                                                         |
| Pollution degree                      | 2 conforming to IEC 60664                                                                                                                              |
| Operating altitude                    | 0...2000 m                                                                                                                                             |

|                                       |                                                                                                                                                  |
|---------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| Storage altitude                      | 0...3000 m                                                                                                                                       |
| Vibration resistance                  | 3.5 mm 5...8.4 Hz DIN rail<br>1 gn 8.4...150 Hz DIN rail                                                                                         |
| Shock resistance                      | 15 gn for 11 ms                                                                                                                                  |
| Resistance to electrostatic discharge | 8 kV in air conforming to EN/IEC 61000-4-2<br>4 kV on contact conforming to EN/IEC 61000-4-2                                                     |
| Resistance to electromagnetic fields  | 10 V/m 80...2000 MHz conforming to EN/IEC 61000-4-3<br>1 V/m 2...2.7 GHz conforming to EN/IEC 61000-4-3                                          |
| Resistance to fast transients         | 2 kV power lines conforming to EN/IEC 61000-4-4<br>1 kV shielded cable conforming to EN/IEC 61000-4-4<br>1 kV I/O conforming to EN/IEC 61000-4-4 |
| Surge withstand                       | 1 kV common mode conforming to EN/IEC 61000-4-5<br>0.5 kV differential mode conforming to EN/IEC 61000-4-5                                       |
| Disturbance radiated/conducted        | CISPR11                                                                                                                                          |

## Controller

## Dimensions



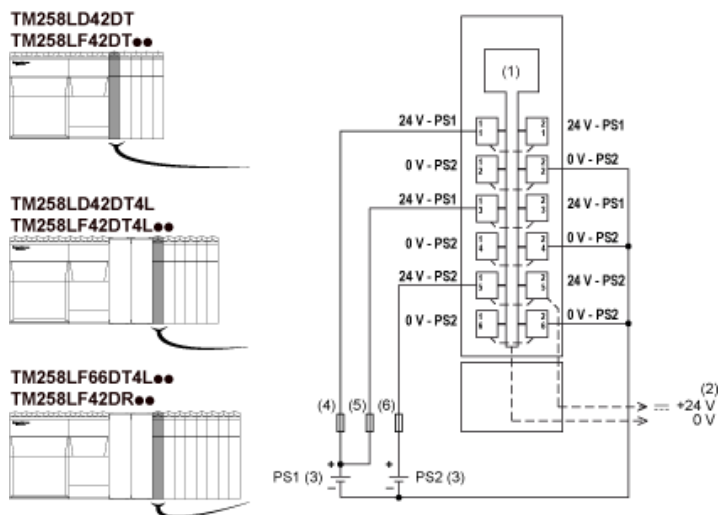
## TM5 System Wiring Recommendations

### Wire Sizes to Use with Removable Spring Terminal Blocks

| mm<br>in.       |  |  |  |  |
|-----------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| mm <sup>2</sup> | 0,08...2,5                                                                        | 0,25...2,5                                                                        | 0,25...1,5                                                                        | 2 x 0,25...2 x 0,75                                                               |
| AWG             | 28...14                                                                           | 24...14                                                                           | 24...16                                                                           | 2 x 24...2 x 18                                                                   |

## External Power Supplies

### Wiring Diagram of the Controller Power Distribution Module



- (1) Internal electronics
- (2) 24 Vdc I/O power segment integrated into the bus bases
- (3) PS1/PS2: External isolated SELV power supply 24 Vdc
- (4) External fuse, Type T slow-blow, 3 A 250 V
- (5) External fuse, Type T slow-blow, 2 A 250 V
- (6) External fuse, Type T slow-blow, 10 A max., 250 V