



Main

Range of product	Modicon M168 logic controller
Product or component type	Base controller
Product specific application	For solutions
Variant	Programmable
Communication port protocol	Modbus
Input/output number	23
Input/output number	7 discrete input(s) 5 configurable analog input(s) 8 discrete output(s) 1 dedicated PWM output(s) 2 configurable analog output(s)

Complementary

Discrete input number	7
Discrete input logic	Sink or source (positive/negative)
Discrete input voltage	24 V
Discrete input voltage type	AC/DC
Sensor power supply	4.4...5 V DC 18...36 V DC
Voltage state1 guaranteed	> 15 V for discrete input(s)
Voltage state 0 guaranteed	<= 10 V for discrete input(s)
Input impedance	<= 10 kOhm for discrete input(s)
Input frequency	47 Hz...63 kHz for discrete input(s)
Discrete output number	5 (8 mA) 3 (5 mA)
Contacts type and composition	7 NO for discrete output(s) 1 C/O for discrete output(s)
Minimum load	10 mA at 12 V
Discrete output current	8 mA for relay output 5 mA for relay output
Load current	8 A at 5...30 V DC 8 A at 24...250 V AC 5 A at 5...30 V DC 5 A at 24...250 V AC
Mechanical durability	>= 10000000 cycles for relay output
Electrical durability	>= 120000 cycles DC-12 braking current: 8 A at 30 V, 2 A >= 6000 cycles DC-13 braking current: 8 A at 24 V, 2 A, L/R = 300 ms >= 300000 cycles AC-12 braking current: 8 A at 250 V, 2.5 A >= 6000 cycles AC-15 braking current: 8 A at 250 V, 3 A, cos phi = 0.3 >= 120000 cycles DC-12 braking current: 5 A at 30 V, 2 A >= 200000 cycles DC-13 braking current: 5 A at 24 V, 1 A, L/R = 48 ms >= 300000 cycles AC-12 braking current: 5 A at 250 V, 2.5 A >= 50000 cycles AC-15 braking current: 5 A at 250 V, 3 A, cos phi = 0.4
Operating rate in Hz	<= 10 Hz - off load for discrete output 8 mA <= 0.1 Hz - operating current for discrete output 8 mA <= 20 Hz - off load for discrete output 5 mA <= 0.1 Hz - operating current for discrete output 5 mA
Response time	10 ms on closing for discrete output 8 mA 5 ms on opening for discrete output 8 mA 8 ms on closing for discrete output 5 mA 4 ms on opening for discrete output 5 mA
Analogue input number	5
Analogue input type	Voltage 0...10 V or 0...5 V ratio - resolution: 0.01 V Current 0...20 mA/4...20 mA - resolution: 0.01 mA Temperature probe -100...+200 °C - resolution: 0.5 °C - Pt 1000 probe Temperature probe -50...+120 °C - resolution: 0.1 °C - NTC probe Temperature probe -50...+150 °C - resolution: 0.1 °C - PTC probe

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Analogue output number	2
Analogue output type	Voltage 0...10 V - resolution: 0.01 V Current 0-20 mA or 4-20 mA - resolution: 0.05 mA
Load impedance ohmic	>= 1000 Ohm voltage 40...300 Ohm current
Absolute accuracy error	-5 %...+2 % of full scale 1...5 kOhm for analog output voltage +/- 2 % of full scale > 5 kOhm for analog output voltage +/- 3 % of full scale for analog output current +/- 0.5 % of full scale for analog input
LSB value	10 mV for analog output voltage 0.02 mA for analog output current 0.07 °C for analog input NTC 0.5 °C for analog input Pt 1000 5 mV for analog input voltage 0.01 mA for analog input current
Communication service	Open collector synchro on AC power supply
Protection type	Reverse polarity protection for analog input voltage Overload protection for analog output voltage Reverse polarity protection for power supply
[Us] rated supply voltage	24 V AC 20...40 V DC
Supply voltage limits	20.4...27.6 V
Network frequency	50/60 Hz
Network frequency limits	47...63 Hz
Immunity to microbreaks	10 ms
Power consumption in W	<= 22 W
Power consumption in VA	30 VA at 24 V
Memory capacity	544 kB
Realtime clock	With clock, clock drift <= 30 s/month
Data backed up	Date and hour (internal battery autonomy: 3 days)
Number of port	1 Modbus RJ45connector slave,transmission rate : 1.2...57.6 kbit/s 1 Modbus RJ45connector master/slave,transmission rate : 1.2...57.6 kbit/s 1 expansion bus terminal blockconnector master/slave
Electrical connection	1 removable screw terminal block (9 terminals) for analog input (AI1 to AI5, GND, +5 V, 24 V) 1 removable screw terminal block (8 terminals) for discrete input (DI1 to DI7, COM) 1 removable screw terminal block (2 terminals) for fan output (FAN+, FAN-) 1 removable screw terminal block (5 terminals) for expansion bus (+24 V, GND, CAN-, CAN+) 1 removable screw terminal block (2 terminals) for power supply (L/+, N/-) 1 removable screw terminal block (5 terminals) for discrete output (NO1 to NO3, COM 1-2, COM 3) 1 removable screw terminal block (6 terminals) for discrete output (NO4 to NO7, COM 6-7, COM 4-5) 1 removable screw terminal block (3 terminals) for discrete output (NO8, NC8, COM8) 1 removable screw terminal block (3 terminals) for analog output (AO1, AO2, GND)
Cable length	<= 30 m for power supply <= 100 m for embedded sensor PS <= 100 m for isolated digital input <= 100 m for analog input <= 100 m for no isolated digital input <= 100 m for relay digital output <= 30 m for configurable analog output <= 1 m for PWM analog output <= 1000 m for SL1 bus <= 1000 m for SL2 bus <= 1000 m (2 twisted pair cables) for expansion bus <= 30 m for supply for remote display <= 3 m (USB) for PC programming tool <= 3 m (TTL) for PC programming tool
Display type	Without display
Local signalling	1 LED green for PWR 1 LED green for RUN 1 LED red for alarm status 1 LED red for expansion bus 1 LED red for user
Mounting support	35 mm symmetrical DIN rail
Software function	Applicatives functions blocks

Width	179 mm
Height	129.19 mm
Depth	61.5 mm
Product weight	0.585 kg

Environment

Standards	EN/IEC 61000-6-3 EN/IEC 60730-1 EN/IEC 61000-6-1
Product certifications	RoHS REACH UL 60730-1A CSA 60730-1
Marking	CE
Ambient air temperature for operation	-20...65 °C -20...55 °C for UL conformance
Ambient air temperature for storage	-30...70 °C
Relative humidity	5...95 % without condensation
IP degree of protection	IP20 IP40 on front face
Pollution degree	2
Overvoltage category	III
Operating altitude	0...2000 m
Storage altitude	0...3048 m
Vibration resistance	3.5 mm constant amplitude 5...< 8.4 Hz 1 gn constant amplitude 8.4...150 Hz
Shock resistance	15 gn for 11 ms

Offer Sustainability

Sustainable offer status	Not Green Premium product
RoHS	Compliant - since 1041 - Schneider Electric declaration of conformity