

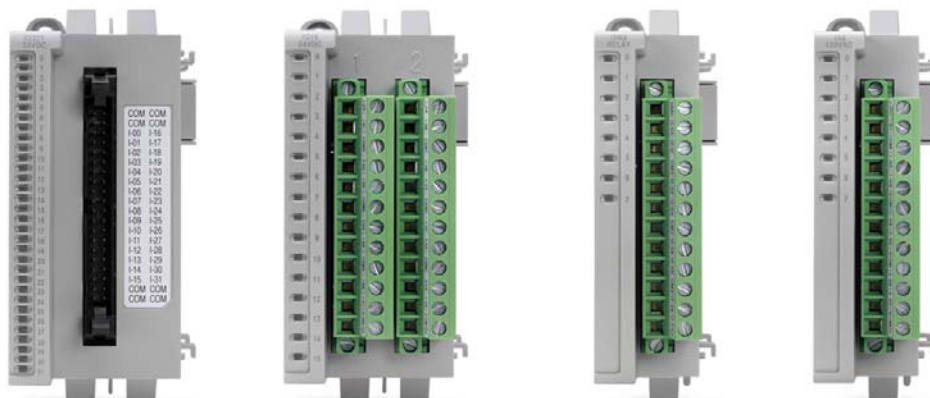
Micro800 Power Requirements⁽¹⁾

Controller/Module	Power Requirement
Micro810 12-point (with or without LCD)	3 W (5V A for AC module)
Micro820 20-point ⁽²⁾ (without plug-ins, max)	5.62 W
Micro830 and Micro850 (without plug-in/expansion I/O)	
10/16-point	5 W
24-point	8 W
48-point	11 W
Plug-in modules, each	1.44 W
Expansion I/O (system bus power consumption)	2085-IQ16 – 0.85 W 2085-IQ32T – 0.95 W 2085-IA8 – 0.75 W 2085-IM8 – 0.75 W 2085-OA8 – 0.90 W 2085-OB16 – 1.00 W 2085-OV16 – 1.00 W 2085-OW8 – 1.80 W 2085-OW16 – 3.20 W 2085-IF4 – 1.70 W 2085-IF8 – 1.75 W 2085-OF4 – 3.70 W 2085-IRT4 – 2.00 W

(1) When setting up a Micro800 system, verify that total power consumption of the controller, plug-in and expansion I/O does not exceed the output power capacity of the power supply used. See [External Power Supply \(2080-PS120-240VAC\) on page 59](#) for power supply specifications.

(2) Micro820 controllers require a maximum of 8.5 W with plug-ins.

Select Micro850 Expansion I/O



The 2085 I/O expansion modules provide superior functionality in a small-sized low-cost package. A variety of digital and analog modules complement and extend the capabilities of Micro850 controllers by maximizing the flexibility of I/O count and type.

Micro850 expansion I/O modules include high density discrete and analog I/O modules, including a high accuracy RTD and Thermocouple module.

There are available solid state output modules which are recommended to reduce switching noise and for applications which require more switching cycles, than relays. Triac outputs are available for AC loads. Sink and source transistor outputs are available for DC loads.

The following section provides the list of available Micro850 expansion I/O modules and their specifications.

Micro850 Expansion I/O Modules

Catalog Number	Type	Description
2085-IA8	Discrete	8-point, 120V AC input
2085-IM8	Discrete	8-point, 240V AC input
2085-OA8	Discrete	8-point, 120/240V AC Triac Output
2085-IQ16	Discrete	16-point, 12/24V DC Sink/Source Input
2085-IQ32T	Discrete	32-point, 12/24V DC Sink/Source Input
2085-OV16	Discrete	16-point, 12/24V DC Sink Transistor Output
2085-OB16	Discrete	16-point, 12/24V DC Source Transistor Output
2085-OW8	Discrete	8-point, AC/DC Relay Output
2085-OW16	Discrete	16-point, AC/DC Relay Output

Micro850 Expansion I/O Modules

Catalog Number	Type	Description
2085-IF4	Analog	4-channel, 14-bit isolated ⁽²⁾ voltage/current input
2085-IF8	Analog	8-channel, 14-bit isolated ⁽²⁾ voltage/current input
2085-OF4	Analog	4-channel, 12-bit isolated ⁽²⁾ voltage/current output
2085-IRT4	Specialty	4-channel, 16-bit RTD and TC isolated ⁽²⁾ input module
2085-ECR ⁽¹⁾	Terminator	2085 bus terminator

(1) The 2085-ECR bus terminator should always be the last module on the system, if any expansion I/O module is attached to the system.

(2) Refers to isolation from field side wiring to controller, **not** channel-to-channel isolation.

Discrete Expansion I/O**2085-IQ16 and 2085-IQ32T DC Sink/Source Input Modules⁽¹⁾**

Attribute	2085-IQ16	2085-IQ32T
Number of inputs	16 sink/source	32 sink/source
Dimensions, HxWxD	44.5 x 90 x 87 mm (1.75 x 3.54 x 3.42 in.)	
Shipping weight, approx.	220 g (7.76 oz)	
Bus current draw, max	170 mA @ 5V DC	190 mA @ 5V DC
Wire size	0.25... 2.5 mm ² (22...14 AWG) solid or stranded copper wire rated @ 75 °C (167 °F), or greater, 1.2 mm (3/64 in.) insulation max	
Wiring category ⁽²⁾	2 – on signal ports	
Terminal screw torque, max	0.5...0.6 Nm (4.4...5.3 lb-in.) ⁽³⁾	
Input circuit type	24V AC/DC sink/source	
Power dissipation, total	4.5 W	7 W
Power supply	24V DC	
Status indicators	16 yellow indicators	32 yellow indicators
Isolation voltage	50V (continuous), Reinforced Insulation Type, channel to system Type tested @ 720V DC for 60 s	
Enclosure type rating	Meets IP20	
North American temp code	T4	
Operating voltage range	10...30V DC, Class 2 21.6...26.4V AC, Class 2 See Derating Curve for 2085-IQ16 and Derating Curve for 2085-IQ32T on page 43	
Off-state voltage, max	5V DC	

Input Specifications – 2085-IF4 and 2085-IF8

Attribute	2085-IF4	2085-IF8
Input impedance	Voltage terminal >1 M Ω Current terminal <100 Ω	
Absolute accuracy	$\pm 0.10\%$ Full Scale @ 25 ° C	
Accuracy drift with temp	Voltage terminal – 0.00428 % Full Scale/° C Current terminal – 0.00407 % Full Scale/° C	
Calibration required	Factory calibrated. No customer calibration supported.	
Overload, max.	30V continuous or 32 mA continuous, one channel at a time.	
Channel diagnostics	Over and under range or open circuit condition by bit reporting	

Output Specifications – 2085-OF4

Attribute	2085-OF4
Number of outputs	4
Resolution Voltage Current	12 bits unipolar; 11 bits plus sign bipolar 2.56 mV/cnt unipolar; 5.13 mV/cnt bipolar 5.13 μ A/cnt
Data format	Left justified, 16 bit 2s complement
Step response time up to 63%	2 ms
Conversion rate, max	2 ms per channel
Output current terminal, user configurable	0 mA output until module is configured 4...20 mA (default) 0...20 mA
Output voltage terminal, user configurable	± 10 V 0...10V
Current load on voltage output, max	3 mA
Absolute accuracy Voltage terminal Current terminal	0.133 % Full Scale @ 25 ° C or better 0.425 % Full Scale @ 25 ° C or better
Accuracy drift with temp	Voltage terminal – 0.0045 % Full Scale/° C Current terminal – 0.0069 % Full Scale/° C
Resistive load on mA output	15...500 ohm @ 24V DC

Specialty Expansion I/O**2085-IRT4 Temperature Input Module**

Attribute	2085-IRT4
Number of inputs	4
Dimensions, HxWxD	44.5 x 90 x 87 mm (1.75 x 3.54 x 3.42 in.)
Shipping weight, approx.	220 g (7.76 oz)
Bus current draw, max	5V DC, 160 mA 24V DC, 50 mA

2085-IRT4 Temperature Input Module

Attribute	2085-IRT4
Wire size	0.25... 2.5 mm ² (22...14 AWG) solid or stranded copper wire rated @ 75 °C (167 °F), or greater, 1.2 mm (3/64 in.) insulation max
Wiring category ⁽¹⁾	2 – on signal ports
Terminal screw torque	0.5... 0.6 Nm (4.4... 5.3 lb-in.) ⁽²⁾
Input type	Thermocouple type: B, C, E, J, K, TXK/XK (L), N, R, S, T RTD type: 100 Ω Pt α = 0.00385 Euro 200 Ω Pt α = 0.00385 Euro 100 Ω Pt α = 0.003916 U.S. 200 Ω Pt α = 0.003916 U.S. 100 Ω Nickel 618 200 Ω Nickel 618 120 Ω Nickel 672 10 Ω Copper 427 mV range: 0... 100 mV Ohm input: 0... 500 Ω
Resolution	16 bits
Channel update time, typical	12... 500 ms per enabled channel
Input impedance	> 10 M Ω
Accuracy	±0.5... ±3.0 °C accuracy for Thermocouple inputs ±0.2... ±0.6 °C accuracy for RTD inputs
Power dissipation, total	2 W
Enclosure type rating	Meets IP20
Status indicators	1 green health indicator
Isolation voltage	50V (continuous), Reinforced Insulation Type, channel to system. Type tested @ 720V DC for 60 s
North American temp code	T4

(1) Use this Conductor Category information for planning conductor routing. Refer to Industrial Automation Wiring and Grounding Guidelines, publication [1770-4.1](#).

(2) RTB hold down screws should be tightened by hand. They should not be tightened using a power tool.

*Environment Specifications***Environment Specifications for All Micro850 Expansion I/O Modules**

Attribute	Value
Temperature, operating	IEC60068-2-1 (Test Ad, Operating Cold), IEC60068-2-2, (Test Bd, Operating Dry Heat), IEC 60068-2-14 (Test Nb, Operating Thermal Shock): -20...65 °C (-4... 149 °F)
Temperature, nonoperating	IEC 60068-2-1 (Test Ab, Unpackaged Nonoperating Cold), IEC 60068-2-2 (Test Bb, Unpackaged Nonoperating Dry Heat), IEC 60068-2-14 (Test Na, Unpackaged Nonoperating Thermal Shock): -40...85 °C (-40... 185 °F)
Temperature, surrounding air, max.	65 °C (149 °F)
Relative humidity	IEC 60068-2-30 (Test Db, Unpackaged Damp Heat): 5...95% noncondensing
Vibration	IEC 60068-2-6 (Test Fc, Operating): 2 g @ 10...500 Hz