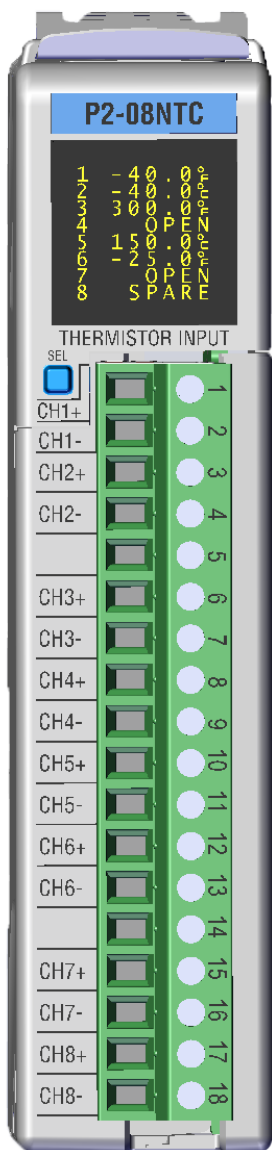


Analog Input Modules

P2-08NTC \$,0118,;

Thermistor Analog Input

The P2-08NTC Thermistor Input Module provides eight Thermistor input channels.



Terminal block included



NOTE: The most recent Productivity Suite software and firmware versions may be required to support new modules and new features.

NTC Input Specifications

Input Channels	8 Single Ended (Temperature only)	
Data Format	Floating Point	
Common Mode Rejection	-97dB @ DC, >50dB @ 50/60Hz*	
Input Impedance	>5MΩ	
Maximum Ratings	Fault protected inputs to ±50V	
Resolution	16-bit, ±0.1°C or °F	
Thermistor Input Ranges	2252 10K-AN Type 3 10K-CP Type 2 5K 3K 1.8K	-40° to 150°C (-40° to 302°F)
Thermistor Linearization	Automatic	
Maximum Inaccuracy	±0.5°C maximum (8, 16 and 33Hz) ±1°C maximum (123 and 470Hz) (Excluding thermistor error; Including temperature drift)	
Excitation Current	10uA–210uA autoscaling	
Accuracy vs. Temperature	±35PPM per °C (maximum)	
Linearity Error	Non-linear	
Warm-up Time	30 minutes for ±1°C repeatability	
Sample Duration Time (Single channel update rate)	Dependent on digital filter settings 61ms @ 33Hz, 16ms @ 123Hz, 4ms @ 470Hz	
File Characteristics**	Digital filter cutoff frequencies: 33Hz, 123Hz, or 470Hz.	
All Channel Update Rate	2.2 s @ 33Hz	
Open Circuit Detection Time	Within 2s @ 33Hz	
Conversion Method	Sigma-Delta	
External DC Power Required	None	

* Meets EMC and Safety requirements. See the Declaration of Conformity for details.

** Frequencies <123Hz, Display push button may need to be pressed/hold >2 seconds.

† To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific component part number web page.

Removable Terminal Block Specifications

Part Number	P2-RTB	P2-RTB-1
Number of positions	18 screw terminals	18 push release terminals
Wire Range	30–16 AWG (0.051–1.31 mm ²) Solid/stranded conductor 3/64 in (1.2 mm) insulation max. 1/4 in (6–7 mm) strip length	28–16 AWG (0.081–1.31 mm ²) Solid/stranded conductor 3/64 in (1.2 mm) insulation max. 19/64 in (7–8 mm) strip length
Conductors	USE COPPER CONDUCTORS, 75°C or equivalent.	
Screw Driver Width	0.1 in. (2.5 mm) maximum	NA
Screw Size	M2	N/A
Screw Torque	2.5 lb·in (0.28 N·m)	N/A

* Recommended screw driver: P/N TW-SD-MSL-1.

Analog Input Modules

P2-08NTC (cont'd)

General Specifications	
Operating Temperature	0° to 60°C (32° to 140°F)
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1000VDC
Heat Dissipation	500mW
Enclosure Type	Open equipment
Module Keying to Backplane	Electronic
Module Location	Any I/O slot in a Productivity2000 system
Field Wiring	Removable terminal block (included). The P2-08NTC module is not compatible with the ZIPLink wiring system.
Connector Type (included)	18-position removable terminal block
Weight	136g (4.8 oz)
Agency Approvals**	UL 508 File E139594, Canada & USA CE (EN61131-2*)

*Meets EMC and Safety requirements. See the Declaration of Conformity for details.

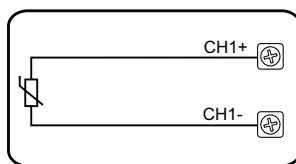
**To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific component part number web page.

Diagnostics	
Module Diagnostics Failure	1 bit per module
Module Not Ready	1 bit per module
Channel Burn-out (Thermistor only)	1 bit per channel
Channel Under-range (Thermistor only)	1 bit per channel
Channel Over-range	1 bit per channel

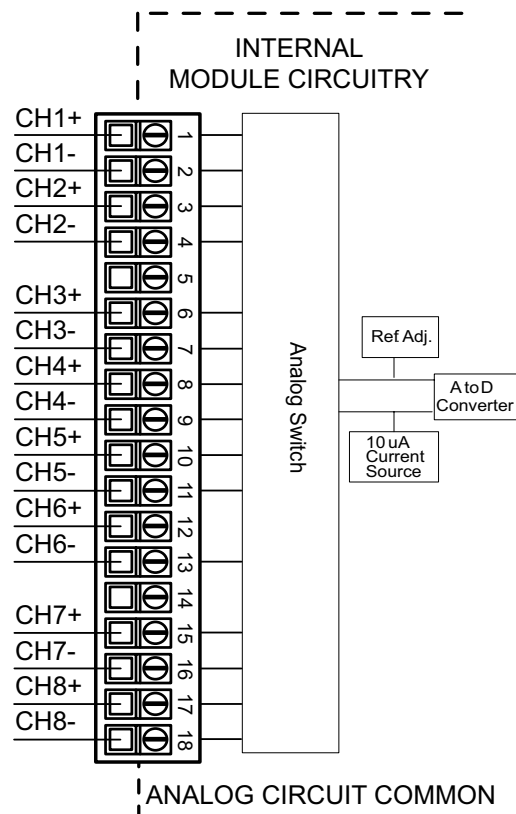
NOTE: At module power-up Channel 1 must have a functional Thermistor connected so internal automatic calibration is performed.

Wiring Diagrams

Thermistor Input



NOTE: Install jumper wire on each unused input. CH1+ to CH1-



I/O Modules

A variety of discrete, analog and specialty I/O modules are available for use in a Productivity2000 system. Specifications for each module are on the following pages.

A filler module is available for unused I/O module slots (part number [P2-FILL](#)).

Discrete Input Modules

Productivity2000 Discrete Input Modules			
Part Number	Number of Inputs	Description	Price
P2-08SIM	8	Input Simulator Module	\$0?uc:
P2-08ND3-1	8	Sinking/Sourcing 12-24 VDC	\$1o98:
P2-16ND-TTL	16	Sinking/Sourcing	\$,-067!i:
P2-16ND3-1	16	Sinking/Sourcing 24V AC/DC	\$01o99:
P2-32ND3-1	32	Sinking/Sourcing 12-24 VDC	\$01o9a:
P2-08NE3	8	Sinking/Sourcing 24V AC/DC	\$0?v3:
P2-16NE3	16	Sinking/Sourcing 12-24 VDC	\$00?v4:
P2-32NE3	32	Sinking/Sourcing 24V AC/DC	\$,00,96:
P2-08NAS	8	AC Isolated 100-120 VAC	\$,012d[:
P2-16NA	16	AC 100-240 VAC	\$00?v5:

Specialty Modules

Productivity2000 Specialty Modules			
Part Number	Number of Channels	Description	Price
P2-HSI	2	High-Speed Input	\$00?vg:
P2-HSO**	2	High-Speed Output	\$00?vh:
P2-02HSC	2	High-Speed Counter	\$04n54:
P2-04PWM	4	Pulse-Width Modulation	\$04n55:
P2-SCM	4 ports	Serial Communications Module	\$00?uy:

** ZIPLink required.

Analog Output Modules

Productivity2000 Analog Output Modules			
Part Number	Number of Channels	Description	Price
P2-04DA	4	Analog Output (Voltage/Current)	\$00?u?:
P2-04DA-1	4	Analog Output (Current)	\$04n56:
P2-04DA-2	4	Analog Output (Voltage)	\$04n57:
P2-04DAL-1*	4	Analog Output (Current)	\$012e1:
P2-04DAL-2*	4	Analog Output (Voltage)	\$012e2:
P2-08DA-1	8	Analog Output (Current)	\$,00?u,:
P2-08DA-2	8	Analog Output (Voltage)	\$00?v0:
P2-08DAL-1*	8	Analog Output (Current)	\$,00,ep:
P2-08DAL-2*	8	Analog Output (Voltage)	\$,00,eq:
P2-16DA-1	16	Analog Output (Current)	\$00?v1:
P2-16DA-2	16	Analog Output (Voltage)	\$00?v2:
P2-16DAL-1*	16	Analog Output (Current)	\$,00,es:
P2-16DAL-2*	16	Analog Output (Voltage)	\$,00,et:

* Low resolution analog modules without OLED display.

Discrete Output Modules

Productivity2000 Discrete Output Modules			
Part Number	Number of Outputs	Description	Price
P2-08TD1S	8	Isolated Sinking	\$12ga:
P2-08TD2S	8	Isolated Sourcing	\$12gb:
P2-15TD1	15	Sinking	\$12d#:
P2-15TD2	15	Sourcing	\$,12d!:
P2-08TD1P	8	Sinking Protected	\$0?v8:
P2-08TD2P	8	Sourcing Protected	\$0?v9:
P2-16TD-TTL	16	Sourcing	\$,067!h:
P2-16TD1P	16	Sinking Protected	\$00?va:
P2-16TD2P	16	Sourcing Protected	\$00?vb:
P2-32TD1P	32	Sinking Protected	\$012d?:
P2-32TD2P	32	Sourcing Protected	\$,012d,:
P2-08TAS	8	Isolated AC	\$012g9:
P2-16TA	16	100-240 VAC Output	\$00?vc:
P2-06TRS	6	Isolated Relay	\$,067!e:
P2-08TRS	8	Isolated Relay	\$0?vd:
P2-16TR	16	Relay	\$,00?vf:

Analog Input Modules

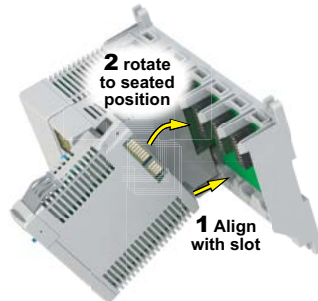
Productivity2000 Analog Input Modules			
Part Number	Number of Channels	Description	Price
P2-04AD	4	Analog Input (Voltage/Current)	\$00?uv:
P2-04AD-1	4	Analog Input (Current)	\$04n52:
P2-04AD-2	4	Analog Input (Voltage)	\$04n53:
P2-08AD-1	8	Analog Input (Current)	\$,00?u[:
P2-08AD-2	8	Analog Input (Voltage)	\$00?u,:
P2-08ADL-1*	8	Analog Input (Current)	\$,00,ek:
P2-08ADL-2*	8	Analog Input (Voltage)	\$,-00,el:
P2-16AD-1	16	Analog Input (Current)	\$00?u#:
P2-16AD-2	16	Analog Input (Voltage)	\$,00?u!:
P2-16ADL-1*	16	Analog Input (Current)	\$,00,en:
P2-16ADL-2*	16	Analog Input (Voltage)	\$,00,eo:
P2-06RTD	6	Analog RTD Input	\$00?v7:
P2-08NTC	8	Analog Thermocouple Input	\$,0118,:
P2-08THM	8	Analog Thermistor Input	\$00?v6:

Productivity2000 Analog Input/Output Modules			
Part Number	Number of Channels	Description	Price
P2-8AD4DA-1	8/4	Analog Input/Output (Current)	\$00?uz:
P2-8AD4DA-2	8/4	Analog Input/Output (Voltage)	\$,00?uj:

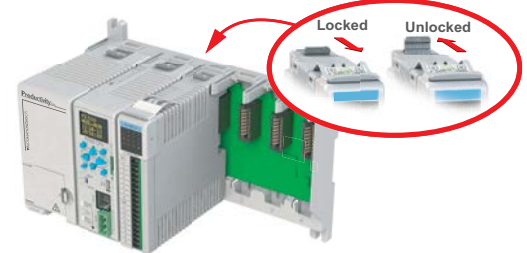
I/O Module Installation Procedure

WARNING: DO NOT APPLY FIELD POWER UNTIL THE FOLLOWING STEPS ARE COMPLETED. SEE HOT-SWAP PROCEDURE FOR EXCEPTIONS.

Step One: Align module catch with base slot and module into connector.



Step Two: Pull top locking tab toward module face. Click indicates lock is engaged.



Step Three: Attach field wiring using removable terminal block or ZIPLink wiring system.



WARNING: EXPLOSION HAZARD – DO NOT CONNECT OR DISCONNECT CONNECTORS OR OPERATE SWITCHES WHILE CIRCUIT IS LIVE UNLESS THE AREA IS KNOWN TO BE NON-HAZARDOUS. DO NOT HOT-SWAP MODULES UNLESS THE AREA IS KNOWN TO BE NON-HAZARDOUS.