1771 Analog I/O Modules

Number of Inputs/ Outputs/	Data Format	Voltage Range	Current Range	Catalog Number/ Modules [1]	Wiring Arm 1771-	Backplane Current Load	External Power Required	Channel Update/ Resolution
8 differential or 16 single-ended inputs — selectable	Natural Binary or BCD scaling to ±9999	0-5V dc 1-5 dc ±5V dc ±10V dc	4-20mA 0-20mA ±20mA	1771-IFE Analog Input	WG	750mA	None	18ms/8 channels 36ms/16 channels 12-bits + sign
8 differential or 16 single-ended inputs — selectable	Natural Binary or BCD scaling to ±9999	0-5V dc 1-5 dc ±5V dc ±10V dc	4-20mA 0-20mA ±20mA ±40mA	1771-IFF Analog Input	WG	750mA	None	5ms/8 channels 10ms/16 channels 12 bits + sign
8 differential inputs	±9999 BCD ±32,767 Binary	0-50mV	N/A	1771-IFM Fast Millivolt Input	WG	750mA	None	12.5ms/8 channels 12 bits
8 differential inputs thru intrinsically safe conn.	±9999 BCD ±32,767 Binary	0-50mV	N/A	1771-IFMS Fast Millivolt Input	WG	750mA	None	14.5ms/8 channels 12 bits
8 isolated (1000 V) differential inputs	Natural Binary or BCD scaling to ±9999	0-5V dc 1-5V dc ±5V dc 0-10V dc ±10V dc	4-20mA 0-20mA ±20mA	1771-IL Isolated Analog Input	WF	1.3A	None	500ms/8 channels 15 bits + sign
8 floating differential inputs	Natural Binary or BCD Actual temperature or mV readings	Type E, J, K, R, S, T ±99.99mV	N/A	1771-IXE Thermocouple Millivolt Input	WI	750 mA	None	50ms/8 channels 15 bits + sign (1.0˚ C / 1.0° F/ bit)
8 floating differential inputs	Natural Binary only	Type B, E, J, K, R, S, T ±99.99mV	N/A	1771-IXHR High-Res TC/mV Input	WI	750 mA	None	25ms/8 channels 15 bits + sign (0.1˚C/0.1° F/bit)
6 RTD inputs (three-wire)	Natural Binary or BCD Actual temperature or Ohm readings	100Ω platinum 10Ω copper or other	N/A	1771-IR RTD Input	WF	800 mA	None	50ms/8 channels 16 bits (0.1˚C/0.1° F/bit)
8 single-ended inputs	BCD 000 to 255	• 1-5V dc • 0-5V dc • ±10V dc • 0-10V dc	• 4-20mA • 0-20mA • ±20mA	Analog Input • 1771-IE01 • 1771-IE02 • 1771-IE03 • 1771-IE04 • 1771-IE05 • 1771-IE06 • 1771-IE07	WB	400 mA	+5V dc ±15V dc	8ms/ 8 channels 8 bits
4 isolated (1000 V) differential outputs	Natural Binary or BCD Scaled to ±9999	1-5V dc 0-10V dc ±10V dc (OFE1)	4-20mA (OFE2) 0-50mA (OFE3)	1771-OFE1, -OFE2, -OFE3 Analog Output	WC	1.5A (OFE1) 1.5A (OFE2) 2.5A (OFE3)	None	8.0ms/4 channels (BCD) 1.6ms/4 channels (Natural Binary) 12 bits

[1] Each module occupies one slot

For more information, see the 1771 Analog Input and Output Module product data, publication 1771-2.183.

1771 N-Series Analog I/O Modules

Inputs — Type — Resolution	Outputs	Catalog Number	RTP Choice 1771-	Backplane Current Load
2 — Current only — 4-20 mA (0.34 μA/bit) (module supplies loop power)	2 — Current — 0-25 mA (3.20 μA/bit)	1771-NB4S	RT44	1.4A
2 — mV/TC — ±100mV (3.3μV/bit) B, R, S, Thermocouple (0.3°C/bit, 0.6°F/bit) E, J, K, T Thermocouple (0.1°C/bit, 0.2°F/bit)	2 — Current — 0-25 mA (3.20μA/bit)	1771-NB4T	RT41	1.0A
6 — RTD — 1-650Ω (0.01Ω/bit) 100Ω Platinum, Eur (385) (0.03°C/bit, 0.06°F/bit) 100Ω Platinum, U.S. (3916) (0.03°C/bit, 0.06°F/bit) 120Ω Nickel 10Ω Copper	2 — Current — 0-25 mA (3.20μA/bit)	1771-NBRC	RTP4	1.7A
6 — Current only — 4-20 mA (0.34μA/bit) (module supplies loop power)	2 — Current — 0-25 mA (3.20μA/bit)	1771-NBSC	RTP4	2.6A
6 — mV/TC — ±100mV (3.3μV/bit) B, R, S, Thermocouple (0.3°C/bit, 0.6°F/bit) E, J, K, T Thermocouple (0.1°C/bit, 0.2°F/bit)	2 — Current — 0-25 mA (3.20μA/bit)	1771-NBTC	RTP1	1.5A
6 — Voltage/Current — ±10V dc (0.34mV/bit) ±20 mA (1.3μA/bit)	2 — Voltage — ±10V dc (1.32mV/bit)	1771-NBV1	RTP4 Voltage in, RTP3 Current in	1.6A
6 — Voltage/Current — ±5V dc (0.17mV/bit) ±20 mA (0.67μA/bit)	2 — Current — 0-25 mA (3.20μA/bit)	1771-NBVC	RTP4 Voltage in, RTP3 Current in	1.7A
8 — Current only — 4-20 mA (0.34μA/bit) (module supplies loop power)	0	1771-NIS	RTP4	2.4A
8 — Voltage/Current — ±5V dc (0.17mV/bit) ±20 mA (0.67μA/bit)	0	1771-NIV	RTP4 Voltage in, RTP3 Current in	1.2A
8 — Voltage/Current — ±10V dc (0.34mV/bit) ±20 mA (1.3μA/bit)	0	1771-NIV1	RTP4 Voltage in, RTP3 Current in	1.2A
4 — Voltage/Current — ±5V dc (0.17mV/bit) ±20 mA (0.67μA/bit) 4 — RTD — 1-650Ω (0.01Ω/bit) 100Ω Platinum, Eur (385) (0.03°C/bit, 0.06°F/bit) 100Ω Platinum, U.S. (3916) (0.03°C/bit, 0.06°F/bit) 120Ω Nickel 10Ω Copper	0	1771-NIVR	RTP4 — To use a voltage channel for current application, you must install a 250Ω resistor at the RTP.	1.2A
4 — Volt/Current — ±5V dc (0.17mV/bit) ±20 mA (0.67μA/bit) 4 — mV/TC — ±100mV (3.3μV/bit) B, R, S, Thermocouple (0.3°C/bit, 0.6°F/bit) E, J, K, T Thermocouple (0.1°C/bit, 0.2°F/bit)	0	1771-NIVT	RTP1 — To use a voltage channel for current application, you must install a 250Ω resistor at the RTP.	1.1A
0	8 — Current — 0-25 mA (3.20μA/bit)	1771-NOC	RTP4 unfused RTP3 fused	2.8A @ 20 mA 3.2A @ 25 mA
0	8 — Voltage — ±10V dc (1.32mV/bit)	1771-NOV	RTP4 unfused RTP3 fused	2.0A
8 — RTD — 1-650Ω (0.01Ω/bit) 100Ω Platinum, Eur (385) (0.03°C/bit, 0.06°F/bit) 100Ω Platinum, U.S. (3916) (0.03°C/bit, 0.06°F/bit) 120Ω Nickel 10Ω Copper	0	1771-NR	RTP4	1.2A
8 — mV/TC — ±100mV (3.3μV/bit) B, R, S, Thermocouple (0.3°C/bit, 0.6°F/bit) E, J, K, T Thermocouple (0.1°C/bit, 0.2°F/bit)	0	1771-NT1	RTP1	1.0A
8 — mV/TC — -5/+55mV (0.95μV/bit) B, R, S, Thermocouple (0.03°C/bit, 0.06°F/bit) E, J, K, T Thermocouple (0.1°C/bit, 0.2°F/bit) C Thermocouple (0.07°C/bit, 0.1°F/bit) N Thermocouple (0.03°C/bit, 0.5°F/bit)	0	1771-NT2	RTP1	1.0A

- All input channels have scaling, high/low alarms with dead band, rate alarm, and digital filtering
- Each 4-channel module requires **one** cable assembly for connection to its RTP
- Each 8-channel module requires **two** cable assemblies for connection to its RTP
- The available cable assemblies are: 1771-NC6 (6 ft) and 1771-NC15 (15 ft)
- Each modules has a channel update period of 25ms per module
- For each module, the data format is BCD or natural binary
- All output channels have scaling, user-defined last state, high/low clamp limits, and rate-of-change alarm
- For each module the step response @ 99.9% is 125ms
- Each module occupies one slot

For more information, see the High-Resolution Isolated Analog Module Product Data, pub. no. 1771-2.193.

Process Control and Positioning I/O Modules

1771 Process Control I/O Modules

Catalog Number/ Module	Number of Inputs/ Outputs	Resolution	Analog Inputs	Analog Outputs	Data Format	Slots	Backplane Current Load	External Power Required	Remote Termination Panel or Wiring Arm
1771-PD PID Control Module	2 temp. inputs 2 tieback inputs 2 outputs (for 2 PID loops)	12-bit resolution	1-5V dc 4-20 mA	1-5V dc 4-20 mA	Scaled BCD ±9999	2	1.2A	±15V dc	1771-WF
1771-TCM Temperature Control Module (See pg 3-44)	8 temp. inputs (for 8 PID heat/cool loops)	16-bit resolution or 15-bits plus sign bit	Thermo-couple	None	16-bit Integer (natural binary)	1	1.1A	None	1771-RTP1
1771-WS Weigh Scale Module (See pg 3-45)	10-V output Sense input Weigh signal C2-Cal input (for 1 weigh scale)	20-bit resolution	0-30mV dc (load cells)	None	16-bit integer (natural binary) or 32-bit floating-point	1	1.5A	None	1771-RT44

For more information, see the PID Control (2 Loop) Module Assembly Product Data, pub. no. 1771-2.34.

1746 Positioning I/O Modules

Catalog Number/ Module	Description	Inputs	Maximum Input Frequency	Outputs	Module Update Time	Slots	Backplane Current Load	Terminal Block 1746-
1746-HS [1] IMC 110 Servo Controller Module	Provides closed-loop servo control for one independent axis per module	+24V dc	300 kHz @ 0° quadrature	+24V dc	4.8ms	1	300mA @ +5V 104mA @ +24V (when using hand-held terminal)	N/A
1746-HSCE [1] High-Speed Counter EncoderM odule	Three modes of operation: • Range • Rate • Sequencer	1 count input (5V dc, 12V dc or 24V dc)	• 50 KHz for Range • 32 KHz for Rate • 50KHz for Sequencer	4 outputs (5V dc, 12V dc or 24V dc)	• Sequencer mode: 1.8ms • Range mode: 3.9ms • Rate mode: 70.0ms + rate period	1	32mA @ 5V dc	RT25G
1746-QV [1] Open-Loop Velocity Control Module	Open-loop velocity control of a hydraulic ram	1 linear displacement transducer	160 inches @ 0.01-inch resolution	1 analog out 0–10V dc or ±10V dc	2ms	1	215mA @ 5V dc	RT27 (input) RT26 (output)

[1] This module is not compatible with an SLC 500 or SLC 5/01 processors.

1771 Positioning I/O Modules

Catalog Number/Module	Description	Inputs	Maximum Input Frequency	Outputs	Module Update Time	Slots	Backplane Current Load	Wiring Arm
1771-QA	Stepper Motor Positioning Assembly, open loop stepper control, point-to-point positioning. Consists of one 1771-M1 and one thru three 1771-OJ modules.							
1771-QB Linear Positioning Module (See pg 3-47)	Hydraulic positioning of two independent axes using Temposonics Linear Position Transducer	Auxiliary digital: • 8 mA/input@12V dc • 16 mA/input@ 24V dc • Logic 0: 0 to 4V dc • Logic 1: 10 to 30V dc Transducer	N/A	Auxiliary • digital source Servo valve: • Analog-±10V dc, ±20 mA, ±50mA, ±100 mA	2ms/axis	1	1.6A (max) 1.1 (typ)	1771-WN
1771-QC	Servo Positioning Assembly, closed-loop servo control, point-to-point positioning. Consists of one 1771-M3 and one thru three 1771-ES modules.							
1771-M3 Servo Controller Module	Controls up to 3 independent axes	N/A	N/A	N/A	N/A	1	1.75A	None
1771-ES Servo Encoder Feedback Expander Module	Performs closed-loop algorithm. One module for each independent axis (3 max)	5-30V dc, Incremental encoder. Auxiliary digital inputs: Jog, Start-stop, Override	250 kHz differential input	±10V dc analog command	2.4ms to update analog output voltage	2 per ES	1.7A	1771-WB
1771-M1 Stepper Motor Controller Module	Controls up to 3 independent axes	N/A	N/A	N/A	N/A	1	1.75A	None
1771-QD Injection Control Module	For injection molding machine control system	3 analog inputs	N/A	2 analog outputs	2ms scan auto tune PID and Velocity	1	0.5A	1771-WF
1771-QDC Plastic Molding Module (See pg 3-48)	For plastic molding machines	4 analog inputs	N/A	4 analog outputs	2ms scan auto tune PID and Velocity	1	1.2A	1771-WF
1771-QI Co-injection Module (See pg 3-49)	For plastic molding machines with 2 injection heads	4 analog inputs	N/A	4 analog outputs	2ms scan	1 per QI	1.2A	1771-WF
1771-QH Force Control Module (See pg 3-50)	Hydraulic velocity and pressure control	4 analog inputs	N/A	4 analog outputs	2ms	1	1.2A	1771-WF
1771-OJ Pulse Output Expander Assembly	One module for each independent axis (3 max)	5-30V dc digital inputs for Jogging & E Stop	N/A	20 kHz output to translator Source/Sink Push-Pull	2.4-3.1ms to update output	1 per OJ	0.80A	1771-WB
1771-DE Absolute Encoder Module (See pg 3-51)	Programmable Limit Switch and CAM Limit Switch Replacement	5V dc, 12 Bit Absolute Encoder (BCD, Natural Binary, or Gray Code Format)	50 kHz	(8) 5-24V dc Current Sourcing 2.0A Continuous per Output (current sourcing)	200µs	2	0.80A	1771-WG
1771-DL Gray Encoder Input Module (See pg 3-51)	Programmable Limit Switch Replacement	12-24V dc 8 Bit Absolute Encoder (Gray Code Format Only)	1 kHz	(1) 120V ac 0.5A Continuous Zero Speed Switch	1ms	1	0.12A	1771-WB

For 1771-QA, -M1, and -OJ see the Stepper Positioning Assembly Product Data, pub. 1771-2.36; for 1771-QB, see the Linear Positioning Module Product Data, pub. 1771-2.137; for 1771-QC and -ES, see the Servo (Encoder Feedback) Positioning Assembly Product Data, pub. 1771-2.47; for 1771-DE, see the Encoder Module Product Data, pub. 1771-2.80; for 1771-DL, see the Gray Encoder Input Module Product Data, pub. 1771-2.29.

1771 Positioning Modules (continued)

Catalog Number/ Module	Description	Inputs	Maximum Input Frequency	Outputs	Module Update Time	Slots	Backplane Current Load	Wiring Arm
1771-IJ Encoder Counter Module	High-speed 3 digit BCD or binary 12 Bit Counter	5V TTL Single-ended or Differential Incremental Encoder or Single-Channel Device	50 kHz	(2) 5V dc Open-Collector 0.5A Per Output	1.3ms	2	1.2A	1771-WB
1771-IK Encoder Counter Module	High-speed BCD or Binary 12 Bit Counter	12-24V dc Single-ended Incremental Encoder or Single Channel Device	50 kHz	(2) 12-24V dc Open- Collector 0.5A Per Output	1.3ms	2	1.2A	1771-WB
1771-VHSC High-Speed Counter Module (See pg 3-52)	4 High-speed BCD or natural-binary 12-bit counters	12 digital inputs 3 per counter	250 kHz	8 digital outputs	100μs	1	0.65A	1771-WN
1771-HS Motion Controller Module (IMC-120,120AR)[1]	Provides closed-loop control for one independent axis	+24V dc	77 kHz	+24V dc	3.2ms servo sample 9.6ms command update	1	0.72A	N/A
1771-HS1 Motion Controller Module (IMC-121)[1]	Provides closed-loop control for one independent axis with analog output	+24V dc	1 MHz	+24V dc	User-selectable 800 μs to 3.2ms	2	1.06A	N/A
1771-HS3 Motion Controller Module (IMC-123)[1]	Provides closed-loop contouring control up to three axes with linear, circular and helical interpolation	+24V dc	1 MHz	+24V dc	User-selectable 800μs to 3.2ms	2	1.06A	N/A
1771-HRA Resolver Excitation Module	Interfaces resolver feed-back to up to 3 1771-HS,-HS1 or 1 1771-HS3 modules	None	2500 Hz	Sine and cosine resolver reference signals	N/A	1	0.065A	None

[1] For a complete description of IMC™ control systems, see publications 1746-ND001 (IMC 110); 1771-2.121 (IMC 120, 120AR), 1771-2.194 (IMC121), or 1771-2.144 (IMC 123)

For 1771-IJ, -IK: see the Encoder/Counter Module Product Data, pub. 1771-2.21; for 1771-VHSC: see the Very High Speed Counter Module Product Data, pub. 1771-2.207.

1771 Specialized I/O Modules

Catalog Number/ Module	Number of Inputs/Outputs	Voltage Range	Backplane Current Load	Slots	Wiring Arm	Miscellaneous
1771-CFM Configurable Flowmeter Module (See pg 3-53)	4 digital inputs 4 digital outputs	Inputs: • 50mV-200V ac peak — magnetic pickup • 4-40V dc (TTL compatible) • Bently 3300 5 & 8 mm — proximity pickups Outputs: 5-40V dc (supplied by user)	1A max	1	1771-WN	Module scan time: 1.3–5ms (depending on configuration and frequency)
1771-DR High Speed Logic Controller (See pg 3-52)	8 digital inputs 4 digital outputs	Inputs: 12-24V dc Outputs: 5-24V dc	1.1A	2	1771-WG	Module response time: < 1ms Pulse capture time: 50µs to 9.999ms
1771-DS Latching Input Module (See pg 3-54)	8 direct digital inputs	10-27V dc	0.375A	1	1771-WF	Pulse capture time: 0.1, 0.5, 1, 2.5 or 5ms
1771-IS Multiplexer Input Module (See pg 3-55)	72 direct digital inputs for: • up to four 4-digit BCD TW • up to six 3-digit BCD TW • up to 72 discrete switches	5V dc (supplied by module)	0.8A	1	1771-WF	Module scan: • 15.3ms (normal) • 5.1ms (fast)
1771-PM Clutch/Brake Control System	N/A	N/A	1.2A	2	1771-WB (2)	—
1771-SIM I/O Simulator Module (See pg 3-55)	8 input switches 8 output indicators	N/A	0.2A	1	N/A	—
1402-LS51 (See pg 3-56)	line voltage inputs 1 analog output	N/A	1.1A	2	1771-WC	Synchronization, load sharing, and high-speed power system monitoring.

For 1771-CFM, see the Configurable Flowmeter Module Product Data, pub. 1771-2.226; for 1771-DC, see the Real Time Clock Module Product Data, pub. 1771-2.45; for 1771-DR, see the I/O Logic Controller Module Product Data, pub. 1771-2.89; for 1771-DS, see the Latching Input Module Product Data, pub. 1771-2.68; for 1771-IS, see the DC Multiplexer Input Module Product Data, pub. 1771-2.35; for 1771-PM, see the Clutch/Brake Module Product Data, pub. 1771-2.67; for 1771-SIM, see the Input/Output Simulation Module Product Data, pub. 1771-2.106; for 1402-LS51, see the Line Synchronization Module Product Data, pub. 1402-2.0.

I/O Communication Products

6008 I/O Communication Modules

Catalog Number / Module	Function	Number of Remote I/O Ports	Communication Medium	Transmission Rate	Power Requirements
6008-SV1R VMEbus Remote I/O Scanner Module	Gives a VME master processor direct access to adapter devices on the universal remote I/O link	1	Twinax	• 57.6k bit/s @10k ft • 115.2k bit/s @ 5k ft • 230.4k bit/s @ 2.5k ft	2.5A @ 5V dc
6008-SV2R VMEbus Remote I/O Scanner Module	Gives a VME master processor direct access to adapter devices on the universal remote I/O link	2	Twinax	• 57.6k bit/s @10k ft • 115.2k bit/s @ 5k ft • 230.4k bit/s @ 2.5k ft	2.5A @ 5V dc

1784 Communication Interface Cards

Catalog Number / Card	Function	Number of Remote I/O Ports	Communication Medium (Remote I/O)	Transmission Rate (Remote I/O)	Power Requirements
1784-KTX Communication Interface Card [1]	Gives an ISA/IESA-bus PC direct access to adapter devices on the universal remote I/O link. Also provides for DH+, DH-485, PLC-3 direct or PLC-2 direct communication.	1	Twinax	• 57.6k bit/s @10k ft • 115.2k bit/s @ 5k ft • 230.4k bit/s @ 2.5k ft	• 1.75A @ 5V dc • 0.1A @ ±12V dc
1784-KTXD Communication Interface Card [1]	Gives an ISA/IESA-bus PC direct access to adapter devices on the universal remote I/O link. Also provides for DH+ or DH-485 communication.	2	Twinax	• 57.6k bit/s @10k ft • 115.2k bit/s @ 5k ft • 230.4k bit/s @ 2.5k ft	• 1.75A @ 5V dc • 0.1A @ ±12V dc
1784-KTS Communication Interface Card [1]	Gives an ISA/IESA-bus PC direct access to adapter devices on the universal remote I/O link.	1	Twinax	• 57.6k bit/s @10k ft • 115.2k bit/s @ 5k ft • 230.4k bit/s @ 2.5k ft	• 1.75A @ 5V dc • 0.1A @ ±12V dc

[1] For more information on 1784 communication interface cards, see page 5-13.

1794 FLEX I/O Adapter Modules

Catalog Number/ Module	Function	Communication Medium	Transmission Rate	Backplane Current Load
1794-ACN15, -ACNR15 ControlNet FLEX I/O Adapter Module with power supply	Interfaces 8 FLEX I/O modules to a ControlNet PLC processor across a ControlNet network	Quad-shield RG-6 Coax	5M bit/s	640mA
1794-ASB, -ASB2 Remote I/O Adapter Module with power supply	Interfaces FLEX I/O modules to a remote I/O scanner port across a remote I/O link (1794-ASB interfaces 8 modules max; 1794-ASB2 interfaces 2 modules max)	Twinax	• 57.6k bit/s @ 10k ft • 115.2k bit/s @ 5k ft • 230.4k bit/s @ 2.5k ft	640mA
1794-ADN DeviceNet I/O Adapter Module with power supply	Interfaces 8 FLEX I/O modules to a DeviceNet scanner across a DeviceNet network	Twisted Pair (DeviceNet network)	• 125k bit/s • 250k bit/s • 500k bit/s	640mA

For more information on FLEX I/O see publication 1794-2.1. For more information on 1794-ADN, see publication DN-2.5.

1747 (SLC 500) I/O Communication Modules

Catalog Number/ Module	Function	Communication Medium	Transmission Rate	Backplane Current Load	Chassis Location
1747-ASB Remote I/O Adapter Module	Interfaces I/O modules in an I/O chassis to a remote I/O scanner port across a remote I/O link	Twinax	• 57.6k bit/s @ 10k ft • 115.2k bit/s @ 5k ft • 230.4k bit/s @ 2.5k ft	375mA @ 5V dc	Slot 0
1747-DCM Direct Communication Module	Provides a remote I/O adapter port for a local SLC processor to communicate with a remote I/O scanner port of a supervisory PLC/SLC processor across a remote I/O link	Twinax	• 57.6k bit/s @ 10k ft • 115.2k bit/s @ 5k ft • 230.4k bit/s @ 2.5k ft	36mA @ 5V dc	Any slot of a local chassis except slot 0
1747-SN [1] Remote I/O Scanner Module	Provides communication between a local SLC 5/02, 5/03, or 5/04 processor and remote I/O adapters, A-B operator interfaces, drives, etc.	Twinax	• 57.6k bit/s @ 10k ft • 115.2k bit/s @ 5k ft • 230.4k bit/s @ 2.5k ft	90mA @ 5V dc	Any slot of a local chassis except slot 0
1747-SDN [1] SLC 500 DeviceNet Scanner	Interfaces a local or remote SLC processor to one DeviceNet networks	Twisted Pair (DeviceNet network)	• 125k bit/s • 250k bit/s • 500k bit/s	500mA @ 5V dc	Any slot of a local chassis except slot 0

[1] This module is not compatible with an SLC 500 or SLC 5/01 processors.

For more information on 1747-SN, see publication 1747-2.34. For more information on 1747-SDN, see publication DN-2.5.

1771 I/O Communication Modules

Catalog Number/ Module	Function	Communication Medium	Transmission Rate	Backplane Current Load	Chassis Location	Wiring Arm
1771-ALX Extended Local I/O Adapter Module	Interfaces I/O modules in an I/O chassis to the extended local I/O scanner port of a PLC processor across an extended local I/O link	• 1771-CX1 (1m) • 1771-CX2 (2m) • 1771-CX5 (5m)	2.5M bit/s	1.2A	Left-most (adapter) slot	None
1771-ACN15, -ACNR15 ControlNet I/O Adapter Module	Interfaces I/O modules in an I/O chassis to a ControlNet scanner port across a ControlNet network	Quad-shield RG-6 Coax	5M bit/s	1.0A	Left-most (adapter) slot	None
1771-ASB Remote I/O Adapter Module	Interfaces I/O modules in an I/O chassis to a remote I/O scanner port across a remote I/O link	Twinax	• 57.6k bit/s @ 10k ft • 115.2k bit/s @ 5k ft • 230.4k bit/s @ 2.5k ft	1.0A	Left-most (adapter) slot	None
1771-DCM PLC Direct Communication Module	Provides a remote I/O adapter port for a local PLC processor to communicate with a remote I/O scanner port of a supervisory processor across a remote I/O link	Twinax	• 57.6k bit/s @ 10k ft • 115.2k bit/s @ 5k ft	1.2A	1 I/O slot	None
1771-SDN PLC DeviceNet Scanner	Interfaces a local or remote PLC processor to a maximum of 2 DeviceNet networks	Twisted Pair (DeviceNet network)	• 125k bit/s • 250k bit/s • 500k bit/s	1.2A	1 I/O slot	None
1771-LI Loop Controller Interface Module	Provides interface for up to 15 1771-LC Loop Controllers	Twisted pair	4800 bit/s	1.3A	1 I/O slot	1771-WA
1771-SN Sub I/O Scanner Module	Provides communication between a local PLC processor and a maximum of 7 remote I/O racks (non-time-critical single-transfer digital I/O only)	Twinax	• 57.6k bit/s @ 10k ft • 115.2k bit/s @ 5k ft	1.2A	1 I/O slot	None

For more information on 1771-ASB, see publication 1771-2.48. For more information on 1771-DCM, see publication 1771-2.70. For more information on 1771-L1, see publication 1771-2.109.

Smart Transmitter (HART Protocol) Interface Products

Catalog Number / Module	Function	Communication Medium	Transmission Rate	Power Supply Current Load (separate 24V dc)
1770-HT1 Smart Transmitter (HART Protocol) Communication Controller	Interfaces terminal blocks to a remote I/O link for a total of 32 HART channels maximum	Twinax (remote I/O link)	Remote I/O link: • 57.6k bit/s @10k ft • 115.2k bit/s @ 5k ft • 230.4k bit/s @ 2.5k ft	600 mA
1770-HT8 Smart Transmitter (HART Protocol) 8-channel Terminal Block	Interfaces communication controller to up to 8 HART channels	N/A	N/A	200 mA
1770-HT16 Smart Transmitter (HART Protocol) 16-channel Terminal Block	Interfaces communication controller to up to 16 HART channels	N/A	N/A	400 mA

Temperature Control Module

(Cat. No. 1771-TCM)

The temperature control module is an intelligent I/O module that can accommodate 8 heat/cool PID loops for barrel temperature control or other injection molding temperature control applications. The module has 8 analog inputs, each of which functions as the controlled variable (C) input for a PID loop. The PID algorithm is performed on the module for each of the loops. The manipulated variable (M) output of each loop is sent from the module to the PLC processor's data table as both a numeric value and as a time-proportioned output (TPO) signal. Your ladder logic can send either the M numeric value to an analog output module, or the TPO signal to a digital output module to close the loop. For very fast cut-off, your ladder logic can use the TPO signal single-transferred to the input image.

With the 1771-TCM module, we provide configuration software that consists of easy-to-use faceplates.

Features

- 8 PID loops
- auto-tuning of PID loops (optimized for tuning barrel temperature control loops)
- a thermocouple input (±100mV) for each PID loop
- 16-bit analog-to-digital converter resolution (0.1°)
- writes a heat and cool M value (for each PID loop) to the data table as a numeric value and as the duty cycle of a TPO bit
- single-transfers the TPO signals to the input image for applications requiring very fast cut-off
- temperature values in °C or °F
- self-calibration (external reference required)
- software configuration
- user-selectable high and low alarms with dead band for hysteresis
- self-diagnostics
- input open-circuit detection

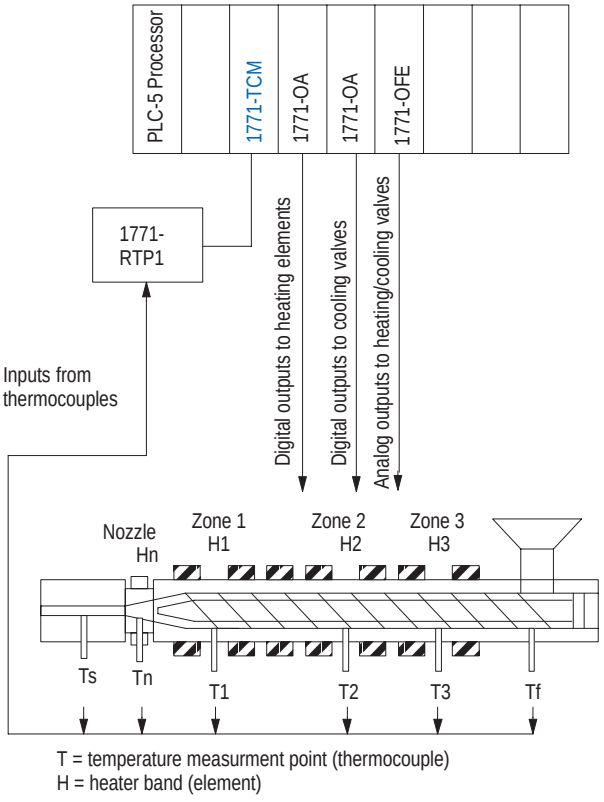
Specifications

Class I Div 2 Hazardous

Number of PID loops	8 individually isolated
I/O chassis location	any single I/O module slot
A/D resolution	16 bits or 15 bits plus sign bit
Input filtering	6-pole low-pass hardware filter
Calibration interval	• 6 months for first interval • 1 year for subsequent intervals
Isolation voltage	Designed to withstand 1000V dc continuous between input channels and between input and backplane connections. Modules are 100% tested at 1200V dc for 1 second between input channels and backplane connections.
Backplane current load	1.1A (1.5A surge at power turn on)
Environmental conditions: • Operating temperature • Rate of change • Storage temperature • Relative humidity	 • 0 to 60° C (32 to 140° F) • Ambient changes greater than 0.5°C/minute may temporarily degrade performance during periods of change. • –40 to 85° C (–40 to 185° F) • 5 to 95% (without condensation)
Connecting cable(s)	1771-NC6 = 1.8m (6 ft) 1771-NC15 = 4.6m (15 ft)
RTP choice	1771-RTP1
Weight	0.8 kg (1.8 lb)

For selection chart, see page 3-38.

Typical Configuration



T = temperature measurment point (thermocouple)
H = heater band (element)