

**1746-NR8 Resistance Input Specifications**

Resistance	0.5 mA Excitation			0.25 mA Excitation			Resolution	Repeatability
	Resistance Range	Accuracy <sup>(1)</sup>	Temperature Drift	Resistance Range	Accuracy <sup>(1)</sup>	Temperature Drift		
150 Ω	0 Ω...150 Ω	±0.2 Ω	±0.004 Ω/°C ±0.002 Ω/°F	0 Ω...150 Ω	±0.15 Ω	±0.003 Ω/°C ±0.002 Ω/°F	0.01 Ω	±0.04 Ω
500 Ω	0 Ω...500 Ω	±0.5 Ω	±0.012 Ω/°C ±0.007 Ω/°F	0 Ω...500 Ω	±0.5 Ω	±0.012 Ω/°C ±0.007 Ω/°F	0.1 Ω	±0.2 Ω
1000 Ω	0 Ω...1000 Ω	±1.0 Ω	±0.025 Ω/°C ±0.014 Ω/°F	0 Ω...1000 Ω	±1.0 Ω	±0.025 Ω/°C ±0.014 Ω/°F	0.1 Ω	±0.2 Ω
3000 Ω	0 Ω...1200 Ω	±1.5 Ω	±0.040 Ω/°C ±0.023 Ω/°F	0 Ω...1200 Ω	±1.5 Ω	±0.040 Ω/°C ±0.023 Ω/°F	0.1 Ω	±0.2 Ω

(1) The accuracy values assume that the module was calibrated within the specified temperature range of 0...60 °C (32...140 °F).

**Counter I/O Modules****1746-HSCE High Speed Counter**

This module offers a single bidirectional counting channel, which supports quadrature, pulse/direction, or up/down counter input. Four on-board open collector outputs allow module control independent of the SLC processor scan. The module features three modes of operation: Range, Rate, and Sequencer.

**TIP** The 1747-ASB module is not compatible with the 1746-HSCE module.

**1746-HSCE2 Multi-Channel High Speed Counter**

The Multi-Channel High Speed Counter provides two sets of  $\pm A$ ,  $\pm B$ , and  $\pm Z$  input channels, allowing up to two quadrature, differential line driver, or incremental encoders to be monitored. A and B input channels can also be configured to count single-ended pulse inputs from up to four input devices.

The module supports three operating modes that provide two, three, or four-channel operation. System performance is enhanced with the module's ability to accept control adjustments while it is actively counting pulses. The Z/gate input channel can be used for storing, holding, and resetting counter data.

### High Speed Counter Specifications

Attribute	1746-HSCE	1746-HSCE2
Number of inputs	1 set $\pm A$ , $\pm B$ , $\pm Z$ differential or single-ended inputs, 5V DC, 12V DC, or 24V DC	2 sets $\pm A$ , $\pm B$ , $\pm Z$ , 2 quadrature encoders, or 4 pulse differential or single-ended inputs
Input voltage range	Differential: 0...5V DC Single-ended: $\pm 5$ V DC 5V DC: 3.8...5.5V DC 12V DC: 9.4...16.5V DC 24V DC: 16.5...30V DC	5V DC: 4.2...12V DC 24V DC: 10...30V DC
Frequency	50 kHz for range 32 kHz for rate 50 kHz for sequencer	250 kHz @ X4 500 kHz @ X2 1 MHz for all other
Maximum Counts	16-bit, $\pm 32,768$	24-bit, $\pm 8,388,607$ in Class 4 16-bit, $\pm 32,768$ in Class 1
Throughput	Sequencer mode: 1.8 ms Range mode: 3.9 ms	700 $\mu$ s (typical)
Number of outputs	4 open-collector outputs: 5, 12, or 24V DC	4 outputs: 5...30V DC sourcing with electronic protection
Maximum output current	16 mA @ 4.5V DC 40 mA @ 10V DC 125 mA @ 30V DC	1 A
Backplane current (mA) @ 5V	320 mA	250 mA
Backplane current (mA) @ 24V	0 mA	0 mA
Isolation voltage	Tested @ 1500V	Tested @ 1000V

## Process Control Modules

### Blow Molding Module

This module features four independent axes of PID control plus one discrete I/O pair per channel for channel synchronization. The 1746-BLM module provides 256 points of resolution for each parison channel with interpolation, and has loop update times of 100 microseconds. Configurations include accumulator push-out control and three parison axis, and two accumulator push-outs and two parison axis.

The module is designed to work in a variety of applications, including accumulator machines, continuous extrusion machines, and reciprocating screw machines. The module performs its servo control task independently from the processor, but receives its configuration and run-time information from the processor.

### Blow Molding Module Specifications

Attributes	1746-BLM
<b>Common Specifications</b>	
Backplane current (mA) @ 5V	110 mA
Resolution	14 bits
Isolation voltage	Tested @ 500V DC for 60 s

### Specialty Modules

Catalog Number	Backplane Current (mA) @ 5V	Backplane Current (mA) @ 24V	Watts per point	Thermal dissipation, min.	Thermal dissipation, max.
1746-BAS-T	150 mA	40 mA <sup>(1)</sup>	N/A	3.75 W	3.80 W
1746-BLM	110 mA	85 mA	N/A	5.00 W	5.00 W
1746-BTM	110 mA	85 mA	N/A	2.59 W	2.59 W
1746-HSCE	320 mA	0 mA	N/A	1.60 W	1.60 W
1746-HSCE2	250 mA	0 mA	N/A	1.25 W	1.25 W
1746-HSRV	300 mA	0 mA	N/A	1.50 W	1.50 W
1746-HSTP1	200 mA	90 mA	N/A	1.50 W	1.50 W
1746-INT4	110 mA	85 mA	N/A	1.26 W	1.26 W
1746-NR4	50 mA	50 mA	N/A	1.50 W	1.50 W
1746-NR8	100 mA	55 mA	N/A	1.82 W	1.82 W
1746-NT4	60 mA	40 mA	N/A	0.80 W	0.80 W
1746-NT8	120 mA	70 mA	N/A	2.28 W	2.28 W
1746-QS	1000 mA	200 mA	N/A	9.80 W	9.80 W
1746-QV	250 mA	0 mA	N/A	1.075 W	1.075 W

(1) When using the 1747-BAS or 1747-KE modules to supply power to an AIC, add 0.085 A (the current loading for the AIC) to the 1747-BAS or 1747-KE module's power supply loading value at 24V DC.

### Communication Modules

Catalog Number	Backplane Current (mA) @ 5V	Backplane Current (mA) @ 24V	Watts per point	Thermal dissipation, min.	Thermal dissipation, max.
1747-ACN15	900 mA	0 mA	N/A	4.50 W	4.50 W
1747-ACNR15	900 mA	0 mA	N/A	4.50 W	4.50 W
1747-ASB	375 mA	0 mA	N/A	1.875 W	1.875 W
1747-BSN	800 mA	0 mA	N/A	4.00 W	4.00 W
1747-DCM	360 mA	0 mA	N/A	1.80 W	1.80 W
1747-KE	150 mA	40 mA <sup>(1)</sup>	N/A	3.75 W	3.80 W
1747-KFC15	640 mA	0 mA	N/A	3.20 W	3.20 W
1747-SCNR	900 mA	0 mA	N/A	4.50 W	4.50 W
1747-SDN	500 mA	-- mA	N/A	2.50 W	2.50 W
1747-SN	600 mA	0 mA	N/A	4.50 W	4.50 W

(1) When using the 1747-BAS or 1747-KE modules to supply power to an AIC, add 0.085 A (the current loading for the AIC) to the 1747-BAS or 1747-KE module's power supply loading value @ 24V DC.