MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Reference package for procurement and maintenance review

ALLEN-BRADLEY

1756-IB16

16-POINT 12/24 V DC INPUT MODULE

Used with the applicable ControlLogix 1756 I/O configuration.

REFERENCE PACKAGE

OFFICIAL DOCUMENT

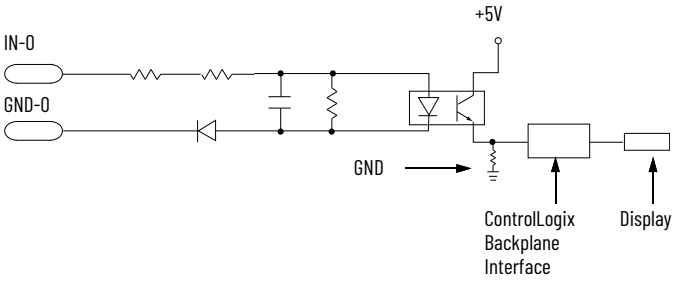
Selected official manufacturer pages follow this cover.

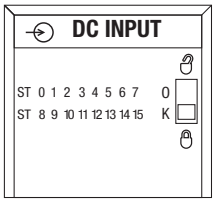
Source: Rockwell Automation 1756 ControlLogix I/O Specifications 1756-TD002

1756-IB16, 1756-IB16K, 1756-IB16XT

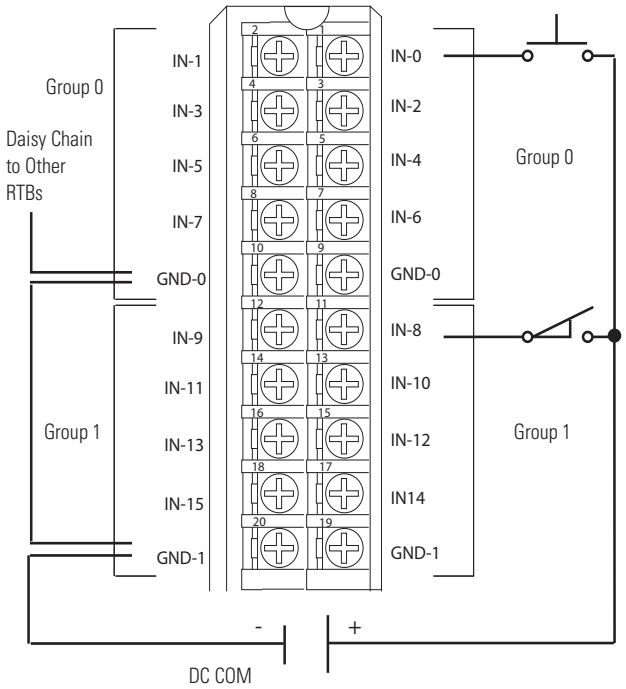
ControlLogix DC (10...31.2V) input module

Simplified Schematic





1756-IB16



Technical Specifications

Attribute	1756-IB16, 1756-IB16K,	1756-IB16XT
Inputs	16 (8 points/group)	
Voltage category	12/24V DC sink	
Operating voltage range	10...31.2V DC	
Input voltage, nom	24V DC	
Input delay time (screw to backplane) Off to On On to Off	Hardware delay: 290 µs nom/1 ms max + filter time User-selectable filter time: 0 ms, 1 ms, or 2 ms Hardware delay: 700 µs nom/2 ms max + filter time User-selectable filter time: 0, 1, 2, 9, or 18 ms	
Current draw @ 5.1V	100 mA	
Current draw @ 24V	2 mA	
Total backplane power	0.56 W	
Power dissipation, max	5.1 W @ 60 °C (140 °F)	
Thermal dissipation	17.39 BTU/hr	
Off-state voltage, max	5V	
Off-state current, max	1.5 mA	
On-state current, min	2 mA @ 10V DC	
On-state current, max	10 mA @ 31.2V DC	
Inrush current, max	250 mA peak (decaying to < 37% in 22 ms, without activation)	
Input impedance, max	3.12 kΩ @ 31.2V DC	
Cyclic update time	200 µs...750 ms	
Change of state	Software configurable	
Time stamp of inputs	±200 µs	
Isolation voltage	250V (continuous), reinforced insulation type, inputs-to-backplane 250V (continuous), basic insulation type, input group-to group No isolation between individual inputs	
Module keying	Electronic, software configurable	
Removable terminal block housing	1756-TBNH 1756-TBSH	1756-TBNHXT 1756-TBSHXT
RTB keying	User-defined mechanical	
Slot width	1	
Wire category	1[(1)]	
Wire size	1756-TBNH	1756-TBNHXT
	Single wire connection: 0.33...2.1 mm^2 (22...14 AWG) solid or stranded copper wire rated at 105 °C (221 °F), or greater, 1.2 mm (3/64 in.) insulation max. Do not wire more than one conductors on any terminal. Double wire connection: 0.33...1.3 mm^2 (22...16 AWG) solid or stranded copper wire rated at 105 °C (221 °F), or greater, 1.2 mm (3/64 in.) insulation max. Do not wire more than two conductors on any terminal.	
	1756-TBSH	1756-TBSHXT
	Single wire connection: 0.33...2.1 mm^2 (22...14 AWG) solid or stranded shielded copper wire rated at 105 °C (221 °F), or greater, 1.2 mm (3/64 in.) insulation max.	
Terminal block torque specs	1756-TBNH, 1756-TBNHXT 1.36 N•m (12 lb•in)	
Enclosure type	None (open-style)	
Temperature code	T3	
Reverse polarity protection	Yes	

(1) Use this conductor category information for planning conductor routing as described in the system-level installation manual. See the Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1.

Environmental Specifications

Attribute	1756-IB16, 1756-IB16K	1756-IB16XT
Temperature, operating IEC 60068-2-1 (Test Ae, Operating Cold), IEC 60068-2-2 (Test Be, Operating Dry Heat), IEC 60068-2-14 (Test Nb, Operating Thermal Shock)	0...60 °C (32...140 °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)	
Relative humidity IEC 60068-2-30 (Test dB, Unpackaged Damp Heat)	5...95% noncondensing	
Conformal Coated[1]	Yes	
Corrosive Atmosphere[1] • ASTM B845-97 Method H Accelerated Test (20-Day Exposure)	Severity Level G3[2] per ANSI/ISA 71.04-2013, Airborne Contaminants—Gases Severity Level CX[2][3] per IEC 60721-3-3:2019, Chemically Active Substances	–
• ASTM B845-97 Method K Accelerated Test (30-Day Exposure) • Plus additional Rockwell Automation proprietary accelerated corrosive environment test protocol for specific industries with sources of gaseous sulfur compounds.	–	Severity Level GX[4][5] per ANSI/ISA 71.04-2013, Airborne Contaminants—Gases Severity Level CX[4] per IEC 60721-3-3:2019, Chemically Active Substances
Vibration IEC 60068-2-6 (Test Fc, Operating)	2 g @ 10...500 Hz	
Shock, operating IEC 60068-2-27 (Test Ea, Unpackaged Shock)	30 g	
Shock, nonoperating IEC 60068-2-27 (Test Ea, Unpackaged Shock)	50 g	
Emissions	IEC 61000-6-4	
ESD immunity IEC 61000-4-2	6 kV contact discharges 8 kV air discharges	
Radiated RF immunity IEC 61000-4-3	10V/m with 1 kHz sine wave 80% AM from 80...2000 MHz 10V/m with 200 Hz 50% Pulse 100% AM @ 900 MHz 10V/m with 200 Hz 50% Pulse 100% AM @ 1890 MHz 3V/m with 1 kHz sine wave 80% AM from 2000...2700 MHz	
EFT/B immunity IEC 61000-4-4	±4 kV at 5 kHz on signal ports	
Surge transient immunity IEC 61000-4-5	±1 kV line-line (DM) and ±2 kV line-earth (CM) on signal ports	
Conducted RF immunity IEC 61000-4-6	10V rms with 1 kHz sine wave 80% AM from 150 kHz...80 MHz	

(1) Only applicable to modules that end with a 'K or 'XT'.
(2) The module and the corresponding RTB must remain installed at all times and the RTB door must remain closed, for the product to maintain its corrosive atmosphere rating.
(3) Up to 9.6 microns per year, corrosion rate of copper.
(4) The module and the corresponding RTB must remain installed at all times and the RTB door must remain closed, once the factory packaging seal is broken, for the product to maintain its corrosive atmosphere rating.
(5) Up to 2100 angstroms of film growth per 30 days of copper and/or silver reactivity.