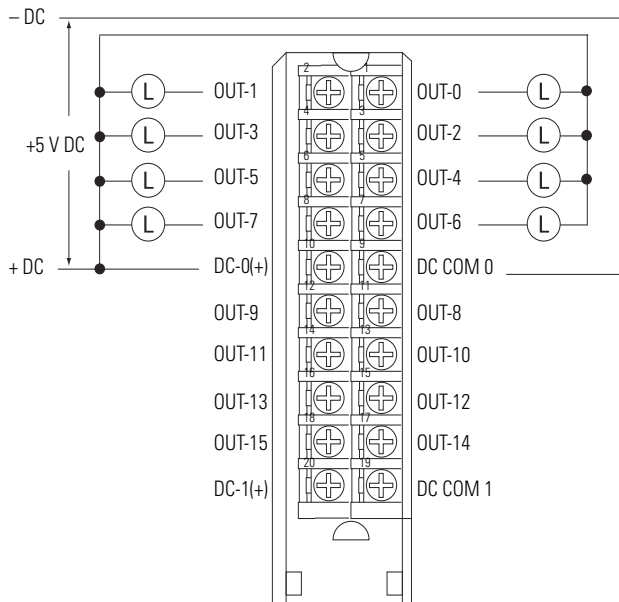


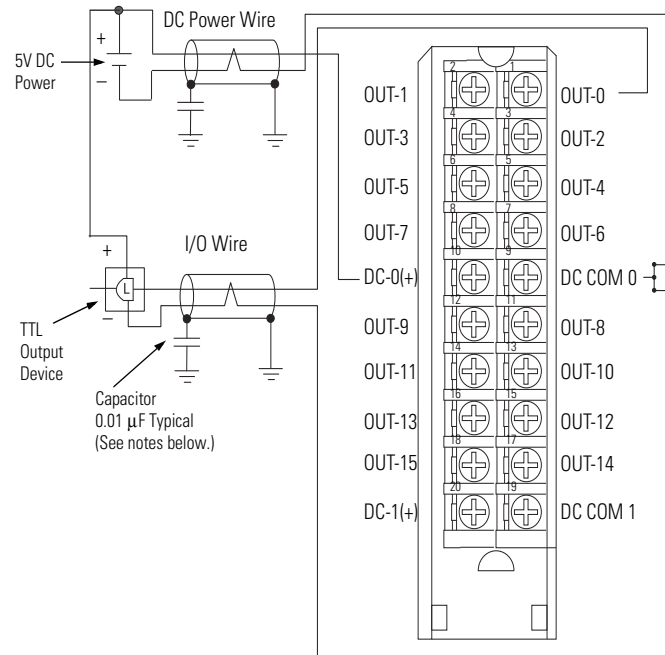
1756-0G16

ControlLogix TTL output module

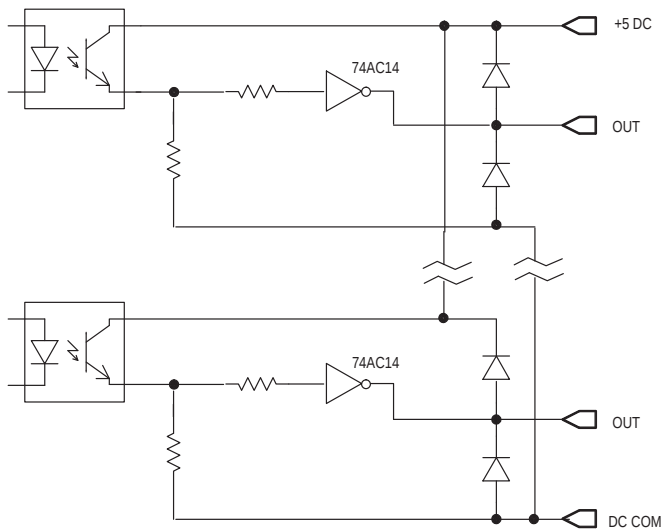
1756-0G16 Standard Wiring



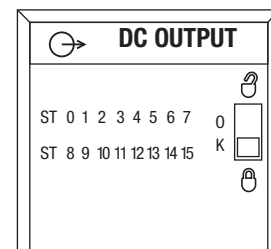
1756-0G16 CE Compliant Wiring



Simplified Schematic



IMPORTANT: I/O cables must be shielded type and cable length must be <10 m (32.8 ft) for maximum EMI noise immunity.



Low to True Format - 1756-0G16

- 0...0.4V DC = Output guaranteed to be in on-state
- 0.4...4.5V DC = Output state not guaranteed
- 4.5...5.5V DC = Output guaranteed to be in off-state

Table 191 - Technical Specifications - 1756-0G16

Attribute	1756-0G16
Outputs	16 (8 points/group)
Voltage category	5V DC TTL (Low=True ⁽¹⁾)
Operating voltage range	4.5...5.5V DC source, 50 mV P-P ripple max
Output delay time (resistive load)	
Off to On (5V-to-0V DC transition)	45 µs nom/450 µs max
On to Off (0V-to-5V DC transition)	145 µs nom/700 µs max
Current draw @ 5.1V	210 mA
Current draw @ 24V	2 mA
Total backplane power	1.12 W
Power dissipation, max	1.5 W @ 60 °C (140 °F)
Thermal dissipation	5.2 BTU/hr @ 60 °C (140 °F)
Off-state leakage current per point, max	0.1 mA per point
On-state voltage drop, max	0.4V DC
Continuous current, max	24 mA
Load current per point, max	24 mA
Load current per module, max	384 mA
Load current	0.15 mA
Scheduled outputs	Synchronization within 16.7 s max, reference to the Coordinated System Time
States in Fault mode per point	Hold last state, On or Off (Off is default)
States in Program mode per point	Hold last state, On or Off (Off is default)
Isolation voltage	250V (continuous), basic insulation type, outputs-to-backplane, and output group-to-group No isolation between individual group outputs Routine tested @ 1350V AC for 2 s
Module keying	Electronic, software configurable
Fusing	Not protected. A fused IFM is recommended to protect outputs
Removable terminal block	1756-TBNH 1756-TBSH
RTB keying	User-defined mechanical
Slot width	1
Wire category	2 ⁽²⁾
North American temperature code	T5
IEC temperature code	T5
Enclosure type	None (open-style)

(1) TTL outputs are inverted (0 to +0.4V dc = low voltage = True = On.) Use a NOT instruction in your program to convert to traditional True - High logic.

(2) 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](#).

Table 192 - Environmental Specifications - 1756-0G16

Attribute	1756-0G16
Temperature, operating IEC 60068-2-1 (Test Ad, Operating Cold), IEC 60068-2-2 (Test Bd, Operating Dry Heat), IEC 60068-2-14 (Test Nb, Operating Thermal Shock)	0...60 °C (32...140 °F)
Temperature, surrounding air, max	60 °C (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
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	CISPR 11, Class A
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
Conducted RF immunity IEC 61000-4-6	10V rms with 1 kHz sine-wave 80% AM from 150 kHz...80 MHz

Table 193 - Certifications - 1756-0G16

Certification ⁽¹⁾	1756-0G16
UL	UL Listed Industrial Control Equipment. See UL File E65584.
CSA	CSA Certified Process Control Equipment. See CSA File LR54689C. CSA Certified Process Control Equipment for Class I, Division 2 Group A,B,C,D Hazardous Locations. See CSA File LR69960C.
CE	European Union 2004/108/IEC EMC Directive, compliant with: • EN 61326-1; Meas./Control/Lab., Industrial Requirements • EN 61000-6-2; Industrial Immunity • EN 61000-6-4; Industrial Emissions • EN 61131-2; Programmable Controllers (Clause 8, Zone A & B)
C-Tick	Australian Radiocommunications Act, compliant with: AS/NZS CISPR 11; Industrial Emissions
Ex	European Union 94/9/EC ATEX Directive, compliant with: • EN 60079-15; Potentially Explosive Atmospheres, Protection "n" • EN 60079-0; General Requirements II 3 G Ex nA IIC T5 X Gc
KC	Korean Registration of Broadcasting and Communications Equipment, compliant with: Article 58-2 of Radio Waves Act, Clause 3

(1) When marked. See the Product Certification link at <http://www.ab.com> for Declarations of Conformity, Certificates, and other certification details.