Technical Data

Original Instructions

ControlLogix I/O Modules Specifications

Bulletin 1756

The ControlLogix® Architecture provides a wide range of input and output modules to span many applications, from high-speed digital to process control. The ControlLogix architecture uses Producer/Consumer technology, which allows input information and output status to be shared among multiple ControlLogix controllers.

Summary of Changes

This publication contains new and updated information as indicated in the following table.

Topic	Page
Updated Technical Specifications for Series C 1756-OF4 and 1756-OF4K modules	176
Updated Technical Specifications for Series C 1756-OF8 and 1756-OF8K modules	180

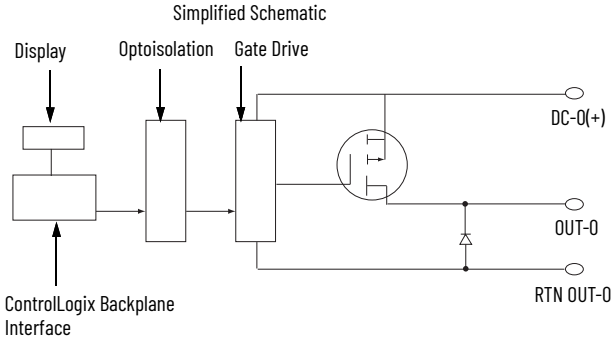
Rockwell Automation recognizes that some of the terms that are currently used in our industry and in this publication are not in alignment with the movement toward inclusive language in technology. We are proactively collaborating with industry peers to find alternatives to such terms and making changes to our products and content. Please excuse the use of such terms in our content while we implement these changes.

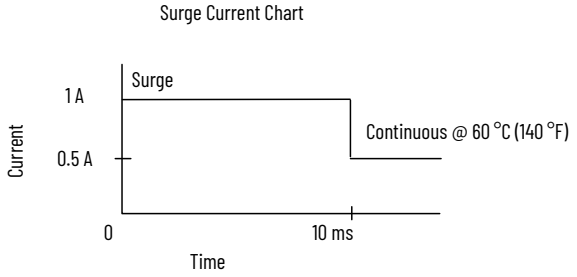
Available 1756 I/O Modules

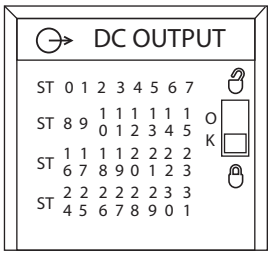
Module Type	Input Module Catalog Number	Page	Output Module Catalog Number	Page
AC Digital I/O Modules	1756-IA8D	5	1756-OA8	23
	1756-IA16, 1756-IA16K	8	1756-OA8D	26
	1756-IA16I, 1756-IA16IK	11	1756-OA8E	29
	1756-IA32, 1756-IA32K	14	1756-OA16, 1756-OA16K	32
	1756-IM16I, 1756-IM16IK	17	1756-OA16I, 1756-OA16IK	35
	1756-IN16	20	1756-ON8	38
DC Digital I/O Modules	1756-IB16, 1756-IB16K	41	1756-OB8	77
	1756-IB16D, 1756-IB16DK	44	1756-OB8EI	80
	1756-IB16I, 1756-IB16IK	47	1756-OB16D, 1756-OB16DK	83
	1756-IB16IF, 1756-IB16IFK	50	1756-OB16E, 1756-OB16EK	86
	1756-IB16ISOE, 1756-IB16ISOEK	53	1756-OB16I	90
	1756-IB32, 1756-IB32K	56	1756-OB16IEF, 1756-OB16IEFK	93
	1756-IC16	59	1756-OB16IEFS	96
	1756-IG16	62	1756-OB16IS	99
	1756-IH16I	65	1756-OB32, 1756-OB32K	102
	1756-IH16ISOE	68	1756-OC8	105
	1756-IV16, 1756-IV16K	71	1756-OG16	108
	1756-IV32, 1756-IV32K	74	1756-OH8I	111
			1756-OV16E	114
			1756-OV32E	117
Safety I/O Modules	1756-IB16S, 1756-IB16SK	121	1756-OBV8S, 1756-OBV8SK	128
Contact I/O Modules			1756-OX8I	137
			1756-OW16I	140
Analog I/O Modules	1756-IF4FXOF2F, 1756-IF4FXOF2FK	143	1756-OF4, 1756-OF4K	176
	1756-IF8, 1756-IF8K	147	1756-OF8, 1756-OF8K	180
	1756-IF8I, 1756-IF8IK	152	1756-OF8I, 1756-OF8IK	184
	1756-IF16, 1756-IF16K	157		
	1756-IRT8I, 1756-IRT8IK	162		
	1756-IR12, 1756-IR12K	168		
	1756-IT16, 1756-IT16K	172		
HART I/O Modules	1756-IF8H, 1756-IF8HK	189	1756-OF8H, 1756-OF8HK	201
	1756-IF8IH, 1756-IF8IHK	192	1756-OF8IH, 1756-OF8IHK	204
	1756-IF16H, 1756-IF16HK	195		
	1756-IF16IH, 1756-IF16IHK	198		
Compute Modules	1756-CMEE1Y1	207		
	1756-CMS1B1, 1756-CMS1C1, 1756-CMS1D1, 1756-CMS1H1, 1756-CMS1B4	209		
Specialty I/O Modules	1756-CFM	211	1756-LSC8XIB8I, 1756-LSC8XIB8IK	225
	1756-CMS1B4, 1756-HIST2G	217	1756-PLS	229
	1756-HSC	219		

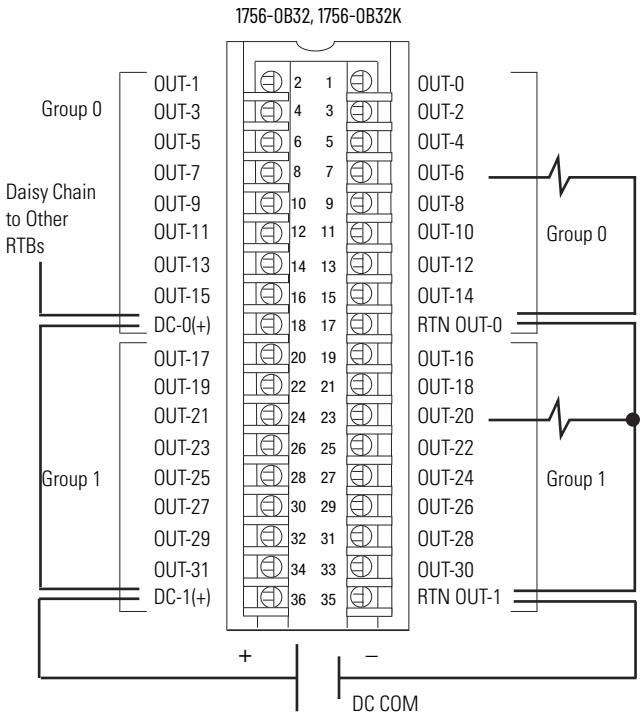
1756-OB32, 1756-OB32K

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









Technical Specifications

Attribute	1756-OB32, 1756-OB32K
Outputs	32 (16 points/group)
Voltage category	12/24V DC source
Operating voltage range	10...31.2V DC
Output delay time Off to On On to Off	 60 µs nom/1 ms max 200 µs nom/1 ms max
Current draw @ 5.1V	300 mA
Current draw @ 24V	2 mA
Total backplane power	1.58 W
Power dissipation, max	4.8 W @ 60 °C (140 °F)
Thermal dissipation	16.37 BTU/hr
Off-state leakage current per point, max	0.5 mA per point
On-state voltage drop, max	200 mV DC @ 0.5 A
Current per point, max	0.5 A @ 50 °C (122 °F) linear derating 0.35 A @ 60 °C (140 °F)
Current per module, max	16 A @ 50 °C (122 °F) linear derating 10 A @ 60 °C (140 °F)
Surge current per point, max	1 A for 10 ms per point, repeatable every 2 s @ 60 °C (140 °F)
Load current, min	3 mA per point

Technical Specifications (Continued)

Attribute	1756-OB32, 1756-OB32K
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(1) insulation type, outputs to backplane. 125V (continuous), basic insulation type, outputs group to group. No isolation between individual outputs.
Module keying	Electronic, software configurable
Fusing	Not protected. A fused IFM can be used to help protect outputs. See publication 1492-TD008. However, the ControlLogix system has been agency certified using only the ControlLogix RTBs, that is, 1756-TBCH, 1756-TBNH, 1756-TBSH, and 1756-TBS6H. Any application that requires agency certification of the ControlLogix system that uses other wiring termination methods can require application-specific approval by the certifying agency.
Removable terminal block	1756-TBCH 1756-TBS6H
RTB keying	User-defined mechanical
Slot width	1
Wire category	1(2)
Enclosure type	None (open-style)
Temperature code	T4

(1) Per IEC 61010-1 terminology, the insulation type is basic. Per older UL508 terminology, the insulation type is reinforced.
(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.

Environmental Specifications

Attribute	1756-OB32, 1756-OB32K
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, 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	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

Certifications

Certification (when product is marked)[1]	1756-OB32, 1756-OB32K
cULus	UL Listed Industrial Control Equipment, certified for US and Canada. See UL File E65584. UL Listed for Class I, Division 2 Group A,B,C,D Hazardous Locations, certified for U.S. and Canada. See UL File E194810.
CE	European Union 2014/30/EU 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) European Union 2014/35/EU LVD, compliant with: EN 61131-2; Programmable Controllers (Clause 11)
RCM	Australian Radiocommunications Act, compliant with: EN 61000-6-4; Industrial Emissions
Ex	European Union 2014/34/EU ATEX Directive, compliant with: • EN IEC 60079-0: Explosive atmospheres - Part 0: Equipment - General requirements • EN IEC 60079-7: Explosive atmospheres – Part 7: Equipment protection by increased safety "e" • II 3 G Ex ec IIC T4 Gc • UL22ATEX2820X
IECEx	IECEx System, compliant with: • IEC 60079-0: Explosive atmospheres - Part 0: Equipment - General requirements • IEC 60079-7: Explosive atmospheres – Part 7: Equipment protection by increased safety "e" • II 3 G Ex ec IIC T4 Gc • IECEx UL 22.0065X
UKex	In conformity with the following UKex Statutory Instruments and their amendments: • Schedule 1 of the UKEX Regulation 2016 No. 1107 • Equipment protection by increased safety "e", reference certificate number UL22UKEX2602X Zone 2 classification according to UKEX Regulation 2016 No. 1107
FM	FM Approved Equipment for use in Class I Division 2 Group A,B,C,D Hazardous Locations
KC	Korean Registration of Broadcasting and Communications Equipment, compliant with: Article 58-2 of Radio Waves Act, Clause 3
UKCA	In conformity with the following UK Statutory Instruments and their amendments: • 2016 No. 1091, Electromagnetic Compatibility Regulations • 2016 No. 1101, Electrical Equipment (Safety) Regulations • 2016 No. 1107, Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations • 2012 No. 3032, Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment
Morocco	In conformity with the following regulations: • Arrêté ministériel n° 6404-15 du 1 er muharram 1437 (15 octobre 2015) Équipements électriques destinés à être utilisés sous certaines limites de tension • Arrêté ministériel n° 6404-15 du 29 ramadan 1436 (16 juillet 2015) Compatibilité électromagnétique des équipements
CCC	CCC 2020122309111830, 2020122309111998, 2020122309113868 CNCA-C23-01 强制性产品认证实施规则 防爆电气 CNCA-C23-01 CCC Implementation Rule Explosion-Proof Electrical Products

(1) See the Product Certification link at rok.auto/certifications for Declarations of Conformity, Certificates, and other certification details.