1756 ControlLogix Power Supplies Specifications

Standard Power Supplies Catalog Numbers

1756-PA72, 1756-PB72, 1756-PA75, 1756-PB75, 1756-PC75, 1756-PH75

ControlLogix-XT Power Supplies Catalog Numbers

1756-PBXT

Redundant Power Supplies Catalog Numbers

1756-PA75R, 1756-PB75R

ControlLogix power supplies are used with the 1756 chassis to provide 1.2V, 3.3V, 5V, and 24V DC power directly to the chassis backplane. Standard and redundant power supplies are available.

Environmental Specifications - 1756 Power Supplies

Attribute	1756-PA72, 1756-PB72, 1756-PA75, 1756-PB75, 1756-PC75, 1756-PH75, 1756-PA75R, 1756-PB75R
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, storage 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 Nonoperating 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

Standard Power Supplies

You mount a standard power supply directly on the left end of the chassis, where it plugs directly into the backplane.

Technical Specifications - 1756 Standard Power Supplies

Attribute	1756-PA72/C	1756-PB72/C	1756-PA75/B	1756-PB75/B	1756-PC75/B	1756-PH75/B
Input voltage range	85…265V AC	18…32V DC	85…265V AC	18...32V DC	30…60V DC	90…143V DC
Input voltage, nom	120V/220V AC	24V DC	120V/220V AC	24V DC	48V DC	125V DC
Input frequency range	47…63 Hz	DC	47…63 Hz	DC	DC	DC
Input power, max	100VA/ 100 W	95 W	100VA/ 100 W	97 W	95 W	95 W
Output power, max	75 W @ 0…60 °C[1]					
Power dissipation	25 W @ 0…60 °C	20 W @ 0…60 °C	25 W @ 0…60 °C	20 W @ 0…60 °C		
Power consumption	85.3 BTU/hr	68.2 BTU/hr	85.3 BTU/hr	68.2 BTU/hr	68.24 BTU/hr	68.24 BTU/hr max
Hold up time[2]	5 cycles @ 85V AC, 50/60 Hz 6 cycles @ 120V AC, 50/60 Hz 6 cycles @ 200V AC, 50/60 Hz 6 cycles @ 240V AC, 50/60 Hz	35 ms @ 18V DC 40 ms @ 24V DC 40 ms @ 32V DC	2 cycles @ 85V AC, 60 Hz 6 cycles @ 120V AC, 60 Hz 20 cycles @ 220V AC, 60 Hz	20 ms @ 19 V DC 70 ms @ 24 V DC	50 ms @ 30…60V DC nom	50 ms @ 90…143V DC nom
Inrush current, max	20 A	30 A	20 A	30 A	20 A	20 A
Current capacity at 1.2V	1.5 A					
Current capacity at 3.3V	4 A					
Current capacity at 5.1V	10 A		13 A			
Current capacity at 24V	2.8 A					
Isolation voltage	250V continuous					

Attribute	1756-PA72/C	1756-PB72/C	1756-PA75/B	1756-PB75/B	1756-PC75/B	1756-PH75/B
Weight, approx.	1.12 kg (2.10 lb)		1.1 kg (2.5 lb)			
Dimensions	140 x 112 x 145 mm (5.51 x 4.41 x 5.71 in.)					
Module location	Left side of 1756 chassis		Left side of 1756 chassis (series B only)			
Chassis	1756-A4, 1756-A7, 1756-A10, 1756-A13, 1756-A17					
Chassis compatibility	Series A Series B		Series B			
Wire category	1 - on power ports[3]					
Wire type	Copper					
Conductor screw torque	0.8 N•m (7 lb•in)					
Enclosure type rating	None (open-style)					

(1) The combination of all output power (5.1V backplane, 24V backplane, 3.3V backplane, and 1.2V backplane) cannot exceed 75 W.

(2) The hold up time is the time between input voltage removal and DC power failure.

(3) 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.

Certifications - 1756 Standard Power Supplies

Certification[1]	1756-PA72, 1756-PB72, 1756-PA75, 1756-PB75, 1756-PC75, 1756-PH75
c-UL-us	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.
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.
ATEX	European Union 94/9/EC ATEX Directive (**1756-PB72, 1756-PB75 only**), compliant with: • EN 60079-15; Potentially Explosive Atmospheres, Protection "n" (II 3 G Ex nA IIC T4 X) • EN 60079-0; General Requirements (Zone 2)
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) European Union 2006/95/EC LVD Directive, compliant with: • EN 61131-2; Programmable Controllers (Clause11)
C-Tick	Australian Radiocommunications Act, compliant with: AS/NZS CISPR 11; Industrial Emissions
FM	FM Approved Equipment for use in Class I Division 2 Group A,B,C,D Hazardous Locations
TÜV	TÜV Certified for Functional Safety: up to and including SIL 2 (**1756-P*x*75 only**)

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

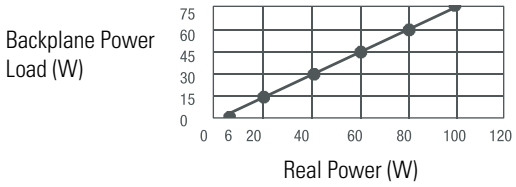
Standard Power Load and Transformer Sizing

Use these graphs to determine the input power requirements for the supplies, given the power they are providing to the modules in the chassis. The vertical axis of each graph shows the backplane power consumed by all of the modules in the chassis; the horizontal axis shows input power requirements of the power supply. Follow these steps to use the graphs.

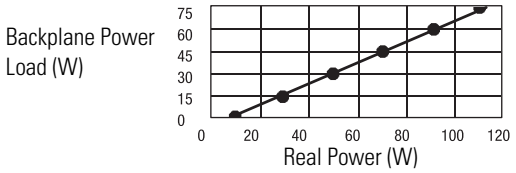
1. Add all of the backplane power (watts) for all of the modules in the chassis.
2. Find the number from step 1 on the vertical axis.
3. Follow that value to the right until it intersects the line on the graph.
4. Find the associated input power rating consumed by the power supply on the horizontal axis.

   For example, if the power consumption of all of the modules in the chassis is 30 watts, a 1756-PB75/B consumes approximately 40 watts of Real Power.

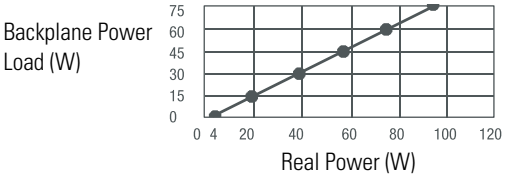
1756-PA72/C
1756-PA75/B
AC



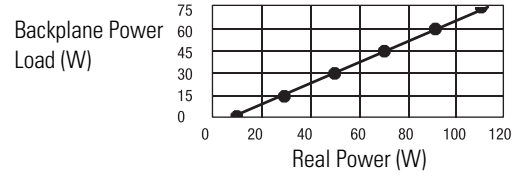
1756-PA75R
AC



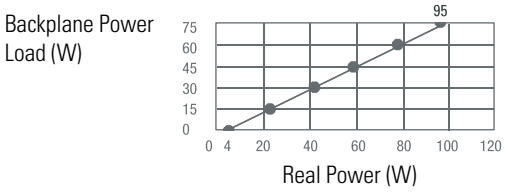
1756-PB72/C
1756-PB75/B
DC



1756-PB75R
DC



1756-PC75
1756-PH75
DC



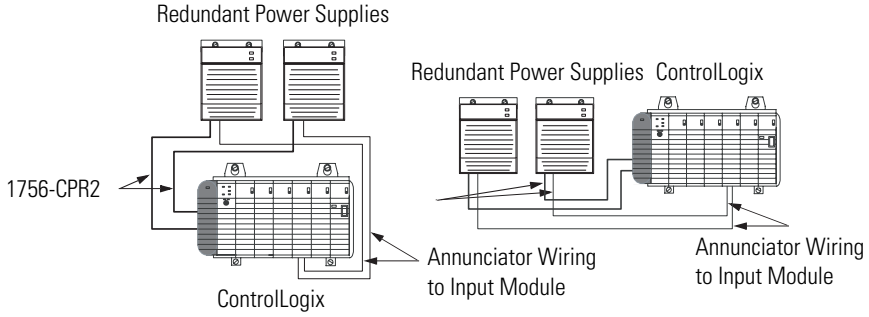
Redundant Power Supplies

To build a redundant power supply system, you need:

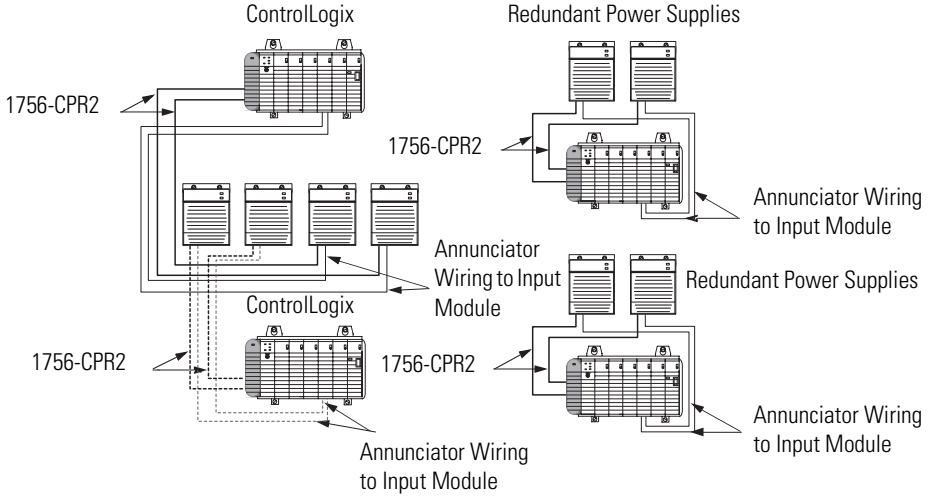
- two redundant power supplies (both 1756-PA75R or 1756-PB75R).
- one 1756-PSCA2 chassis adapter module.
- two 1756-CPR2 cables to connect the power supplies to the 1756-PSCA2 chassis adapter module (0.91 m (3 ft) length).
- user-supplied annunciator wiring to connect the power supplies to the input modules, as needed.

The 1756-PSCA2 chassis adapter module is a passive device that funnels power from the redundant power supplies to the single power connector on the ControlLogix series B chassis backplane.

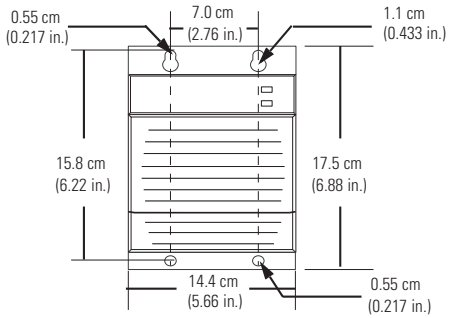
Recommended Configuration for One Chassis



Recommended Configuration for Two Chassis



1756-PA75R and 1756-PB75R Mounting Dimensions



Redundant Power Supply Features

The redundant power supplies offer the same features as the standard power supplies, in addition to:

- automatic chassis load sharing between the redundant power supplies.
- LED indicators for visual operating status of the pair.
- solid state relay for system recognition of supply status when wired to an input module.

Technical Specifications - 1756 Redundant Power Supplies

Attribute	1756-PA75R	1756-PB75R
Input voltage range	85…265V AC	19.2…32V DC
Input voltage, nom	120V/220V AC	24V DC
Input frequency range	47…63 Hz	DC
Input power, max	115 W	110 W
Output power, max	75 W @ 60 °C	
Hold up time‡	2 cycles @ 60 Hz 2 cycles @ 50 Hz	20 ms
Inrush current, max	20 A	30 A
Current capacity at 1.2V	1.5 A	
Current capacity at 3.3V	4 A	
Current capacity at 5.1V	13 A	
Current capacity at 5.1V	2.8 A	
Isolation voltage	250V continuous	
Dimensions (HxWxD), approx.	175 x 145 x 137 mm (6.9 x 5.7 x 5.4 in.)	
Weight, approx.	1.45 kg (3.2 lb)	
Chassis	1756-A4, 1756-A7, 1756-A10, 1756-A13, 1756-A17	
Chassis compatibility	Series B	

Attribute	1756-PA75R	1756-PB75R
Annunciator wire size	0.324 …2.08 mm^2 (22…14 AWG) stranded 75 °C Copper	
Annunciator wire category	1[1]	3[1]
Conductor wire size	2.08 mm^2 (14 AWG) stranded	
Conductor wire category	1[1]	
Wire type	Copper	
Conductor screw torque	0.79 N•m (7 lb•in)	
Solid state relay contact	265V AC/DC[2]	240V AC/DC[2]
Enclosure type rating	None (open-style)	

[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.

[2] Do not exceed 50 mA; resistive only.‡ The hold up time is the time between input voltage removal and DC power failure.

Certifications - 1756 Redundant Power Supplies

Certification[1]	1756-PA75R, 1756-PB75R
c-UL-us	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.
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.
ATEX	European Union 94/9/EC ATEX Directive (**1756-PB75R only**), compliant with: • EN 60079-15; Potentially Explosive Atmospheres, Protection "n" (II 3 G Ex nA IIC T4 X) • EN 60079-0; General Requirements (Zone 2)
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) European Union 2006/95/EC LVD Directive, compliant with: • EN 61131-2; Programmable Controllers (Clause11)
C-Tick	Australian Radiocommunications Act, compliant with: AS/NZS CISPR 11; Industrial Emissions
FM	FM Approved Equipment for use in Class I Division 2 Group A,B,C,D Hazardous Locations

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

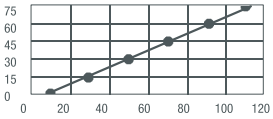
Accessories - 1756 Redundant Power Supplies

Cat. No.	Description	Specifications
1756-PSCA2	Chassis adapter module. Funnels power from the redundant power supplies to the single power connector on the ControlLogix series B chassis backplane.	Mounts directly to left side of 1756 chassis
1756-CPR2	Chassis adapter cable. Connects redundant power supply to 1756-PCSA2 chassis adapter.	Length: 0.91 m (3 ft)

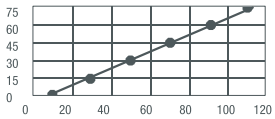
Redundant Power Load and Transformer Sizing

1756-PA75R/A
AC

Backplane Power Load (W)



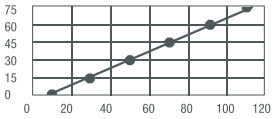
Real Power (W)



Real Power (W)

1756-PB75R/A
DC

Backplane Power Load (W)



Real Power (W)

1756 ControlLogix-XT Power Supply

The ControlLogix-XT products include control and communication system components that, when used with FLEX I/O-XT products, provide a complete control system solution that can be used in environments where temperatures range from -20...70 °C (-4...158 °F).

When used independently, the ControlLogix-XT system can withstand environments where the temperature ranges from -25...70 °C (-13...158 °F).

Environmental Specifications - 1756-PBXT Power Supply

Attribute	1756-PBXT
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)	-25…70 °C (-13…158 °F)
Temperature, storage 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 Nonoperating Damp Heat)	5...95% noncondensing
Vibration IEC 60068-2-6 (Test Fc, Operating)	2 g at 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

Technical Specifications - 1756-PBXT Power Supply

Attribute	1756-PBXT
Input voltage range	18…32V DC
Input voltage, nom	24V DC
Input frequency range	DC
Input power, max	54 W
Output power, max	42 W @ -25…70 °C (-13…158 °F)
Power dissipation	12 W
Power consumption	40.9 BTU/hr
Hold up time(1)	35 ms @ 18V DC 40 ms @ 24V DC 40 ms @ 32V DC
Inrush current, max	30 A
Current capacity at 1.2V	1.5 A
Current capacity at 3.3V	4 A
Current capacity at 5.1V	8 A
Current capacity at 24V	1.75 A

Attribute	1756-PBXT
Isolation voltage	250V (continuous), reinforced insulation type Type tested at 3500V DC for 60 s, power input to backplane
Weight, approx.	1.12 kg (2.10 lb)
Dimensions	140 x 112 x 145 mm (5.51 x 4.41 x 5.71 in.)
Module location	Left side of 1756 chassis
Chassis	1756-A5XT, 1756-A7XLT
Wire category	1 - on power ports[2]
Wire type	Copper
Wire size	2.5 mm2 (14 AWG) solid or stranded copper wire rated at 75 °C (167 °F), or greater, 1.2 mm (3/64 in.) insulation max
Conductor screw torque	0.8 N•m (7 lb•in)
Fusing	Non-replaceable fuse is soldered in place[3]
Enclosure type rating	None (open-style)

(1) The hold up time is the time between input voltage removal and DC power failure.

(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.

(3) Use time-delay type overcurrent protection in all ungrounded conductors.

Certifications - 1756-PBXT Power Supply

Certification[1]	1756-PBXT
c-UL-us	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.
ATEX	European Union 94/9/EC ATEX Directive (**1756-PB72, 1756-PB75 only**), compliant with: • EN 60079-15; Potentially Explosive Atmospheres, Protection "n" (II 3 G Ex nA IIC T4 X) • EN 60079-0; General Requirements (Zone 2)
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) European Union 2006/95/EC LVD Directive, compliant with: • EN 61131-2; Programmable Controllers (Clause11)
C-Tick	Australian Radiocommunications Act, compliant with: AS/NZS CISPR 11; Industrial Emissions
TÜV	TÜV Certified for Functional Safety: up to and including SIL 2 (**1756-P*x*75 only**)

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

Rockwell Automation Support

Rockwell Automation provides technical information on the Web to assist you in using its products. At http://support.rockwellautomation.com, you can find technical manuals, a knowledge base of FAQs, technical and application notes, sample code and links to software service packs, and a MySupport feature that you can customize to make the best use of these tools.

For an additional level of technical phone support for installation, configuration, and troubleshooting, we offer TechConnect support programs. For more information, contact your local distributor or Rockwell Automation representative, or visit http://support.rockwellautomation.com.

Installation Assistance

If you experience a problem within the first 24 hours of installation, please review the information that's contained in this manual. You can also contact a special Customer Support number for initial help in getting your product up and running.

United States	1.440.646.3434 Monday – Friday, 8am – 5pm EST
Outside United States	Please contact your local Rockwell Automation representative for any technical support issues.

New Product Satisfaction Return

Rockwell Automation tests all of its products to ensure that they are fully operational when shipped from the manufacturing facility. However, if your product is not functioning and needs to be returned, follow these procedures.

United States	Contact your distributor. You must provide a Customer Support case number (call the phone number above to obtain one) to your distributor in order to complete the return process.
Outside United States	Please contact your local Rockwell Automation representative for the return procedure.

www.rockwellautomation.com

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