ALLEN-BRADLEY

120/220V AC Power Supply with User Power

(Cat. No. 1771-PS7 Series C)

Installation Data

To the Installer

Use this publication to install a 1771-PS7 external power supply. You perform these tasks:

- prepare to mount the 1771-PS7
- mount the 1771-PS7 and connect backplane power
- connect user power to modules (optional)
- connect ac power source to the 1771-PS7

Prepare for Installation

The 1771-PS7 provides:

Power:	For:	Output Voltage:
backplane power	1771-I/O chassis	5V dc at 16A (max)
user power	IMC 120, 120AR, 121 and 123 motion controller modules non-IMC products	+5V dc at 8A (max) +15V dc at 2A (max) –15V dc at 2A (max) +24V dc at 2.5A (max)

ATTENTION: To avoid overloading the power supply:

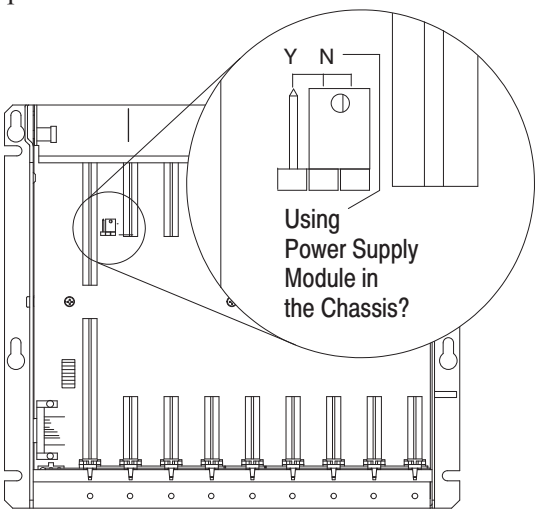
- limit backplane power to 80W, or
- limit user power to 65W, or
- limit total system power (backplane + user) to 100W

To Calculate the Power Requirements for:	See:	Pub. No.
IMC 120 Motion Control System	IMC 120 Motion Control System Installation Manual	1771-6.5.45
IMC 121 Motion Control System	IMC 121 Installation Manual	1771-6.2.4
IMC 123 Motion Control System	IMC 123 Motion Control System Installation Manual	1771-6.2.3

Mount the 1771-PS7 and Connect Backplane Power

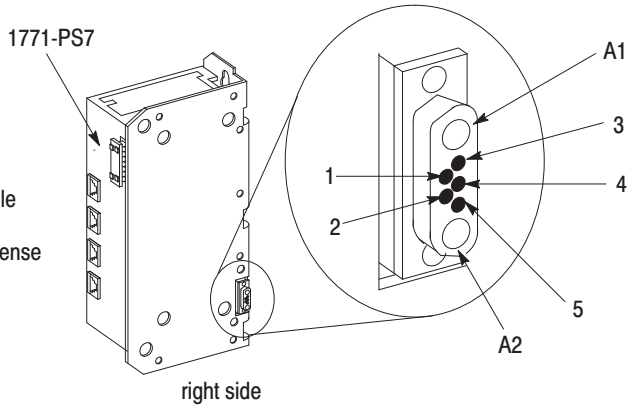
Before mounting the 1771-PS7, you should:

- mount the I/O chassis. See the Universal I/O Chassis Installation Data (1771-2.210) for information on mounting the I/O chassis.
- set the power supply configuration jumper. The 1771-PS7 is an external power supply. Set the configuration jumper on the I/O chassis to the N position.



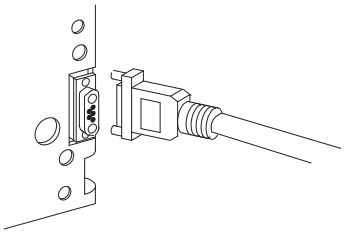
The 1771-PS7 has a D-sub power connector that provides power to the I/O chassis backplane.

A1	backplane common
A2	backplane +5V dc
1	no connection
2	backplane processor enable
3	backplane +5V dc sense
4	backplane signal ground sense
5	no connection

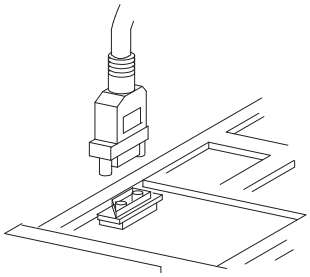


What to Do Next

To Attach the 1771-PS7 to this Chassis:	Go to:
1771-A1B, -A2B, -A3B1, -A4B panel mount	page 3
1771-A3B 19” rack mount	page 6



2. Connect one end of the power cable to the D-sub connector located on the side of the 1771-PS7 power supply and tighten the connector screws.



3. Connect the other end of the power cable to the D-sub connector located on the top of the chassis and tighten the connector screws.

Connect User Power to Modules

The 1771-PS7 has 4 connectors for distributing power through 1771-CAS cables to modules within an I/O chassis. The 1771-PS7 can distribute power to:

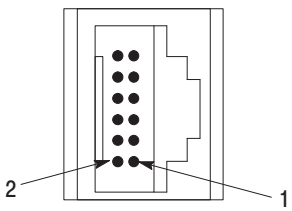
- IMC controller modules:
  - 3 IMC 120, 120AR motion-controller modules and 1 resolver-excitation module
  - 3 IMC 121 motion-controller modules and 1 resolver-excitation module
  - 3 IMC 123 motion-controller modules and 1 resolver-excitation module
- non-IMC products

Each connector is a 12-pin latch-and-lock shielded type. The pinout of the connector is shown below:

1771-PS7 side

1	+24V dc
2	24V dc Com.
3	+24V dc
4	24V dc Com.
5	+15V dc
6	Com.
7	–15V dc
8	Com.
9	+5V dc
10	Com.
11	+5V dc
12	Com.

Shield
Can



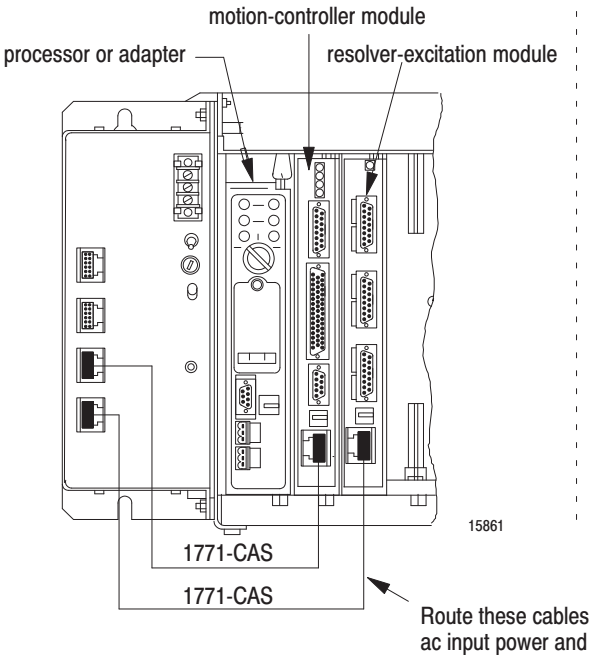
Power
Connector

Connecting User Power to IMC Controller Modules

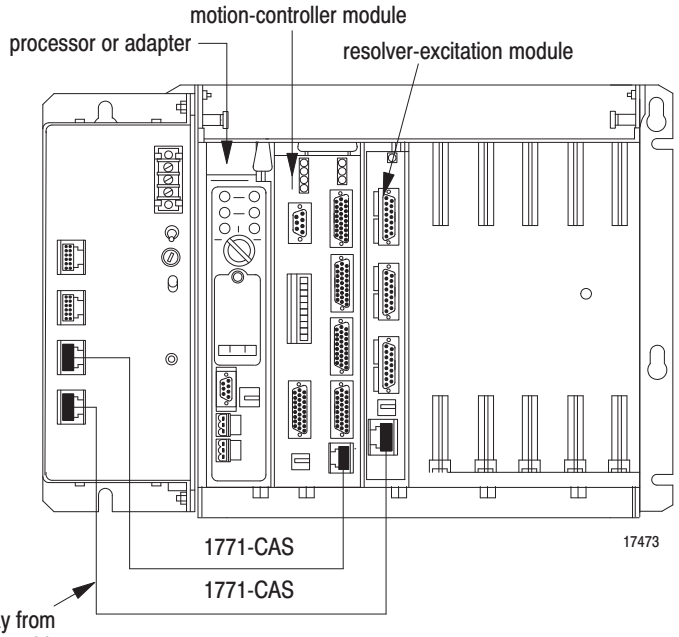
To connect the 1771-PS7 to an IMC 120, 120AR, 121 or 123 motion-controller module and a resolver-excitation module:

1. Make sure the power switch is set to OFF.
2. Connect one end of a 1771-CAS cable:
   a. to a user power connector on the 1771-PS7
   b. to the axis on the controller module

IMC 120 and IMC 120AR



IMC 121 and IMC 123



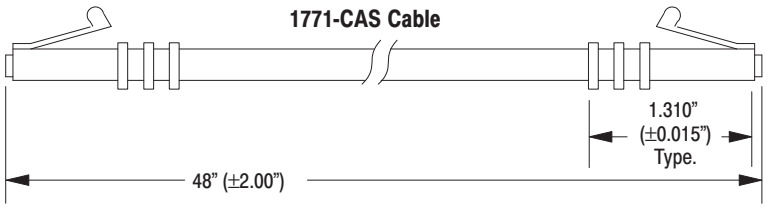
Route these cables away from ac input power and other cables.

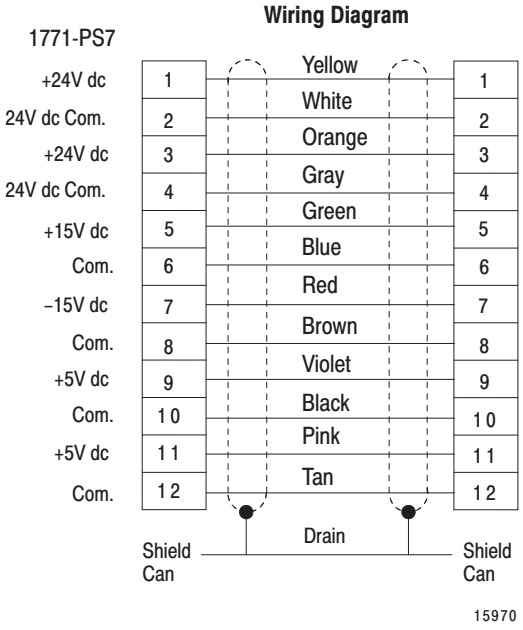
Repeat for the resolver-excitation module and each additional controller module.

For More Information On:	See this Documentation Set(s)	Cat. No.
IMC 120 motion control system IMC 120AR motion control system	IMC 120 Motion Control IMC 120AR Motion Control	1771-HCDOC 1771-HSARS
IMC 121 motion control system	IMC 121 Motion Control	1771-H1DOC
IMC 123 motion control system	IMC 123 Motion Control	1771-H3DOC

Connecting Power to Non-IMC Products

The following figure shows physical dimensions and wiring details for the 1771-CAS cable.

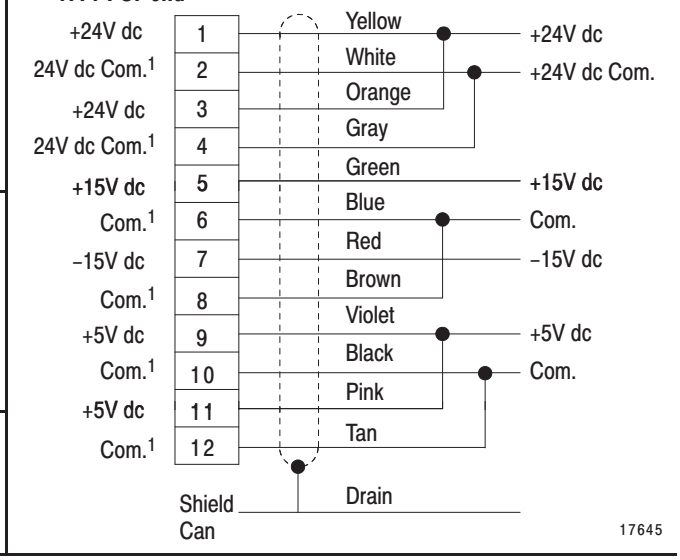




1. Material-housing: Polycarbonate 940: UL94V-0; color: G.E. 70455 silver gray.
   Insulator: Polyphenyiene oxide-based resin in accordance with MIL-P-46129 (MR). UL94V-1.
   Contacts: 1/4 hard copper nickel alloy with welded gold dot 1000µ" thick in contact area; heat treated beryllium copper spring.
   Shield: 1/2 hard 260 brass. 100-300µ" 9317 Tin-lead.
2. 12 conductor, 24AWG (7/32) tinned copper, color as shown.
3. Aluminized mylar shield, aluminized side in.
4. 26AWG (7/34) tinned copper drain.
5. 0.035" thick PVC outer jacket. Low gloss finish. Color to match G.E. 70455 silver gray, O.D. 0.259" ±0.009".

To connect the 1771-PS7 to non-IMC products, you must modify a 1771-CAS cable. Cut the cable as short as possible to minimize voltage losses. Double-up on +24V dc, +5V dc, +24V dc common, +5V dc common and 15V dc commons on each connector, as shown:

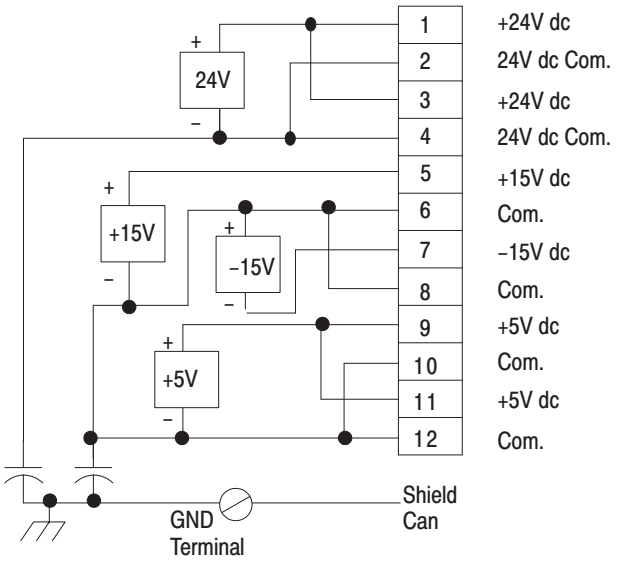
When Using:	Tie Pins Together As Shown:
+24V dc	1 to 3 and 2 to 4
+5V dc	9 to 11 and 10 to 12
+15 V dc and –15V dc	6 to 8



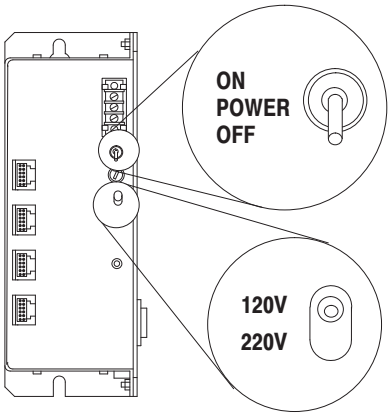
[1] See Figure 1 on page 10.

Figure 1
Signals Designated as COM

Signals designated as Com. (for +5V dc, +15V dc and –15V dc) are tied together in the 1771-PS7 and are isolated from the signal designated as 24V dc Com. so that the 24V supply can be used as a negative supply if required. All the commons are isolated from chassis ground and the backplane (+5V) ground.



Connect ac Power Source to the 1771-PS7



The 1771-PS7 requires input from a 120V ac or 220V ac source. As a safety precaution, the 1771-PS7 is shipped with the input voltage selector switch set to 220V.

To connect power to the 1771-PS7:

1. Make sure the power switch is set to OFF.
2. Use a 1/8” slotted screwdriver to set the input voltage selector switch for 120V ac or 220V ac as required for the input voltage available at installation.

ATTENTION: To avoid damaging the power supply, do not place the screwdriver blade more than 1/4” into the switch slot.

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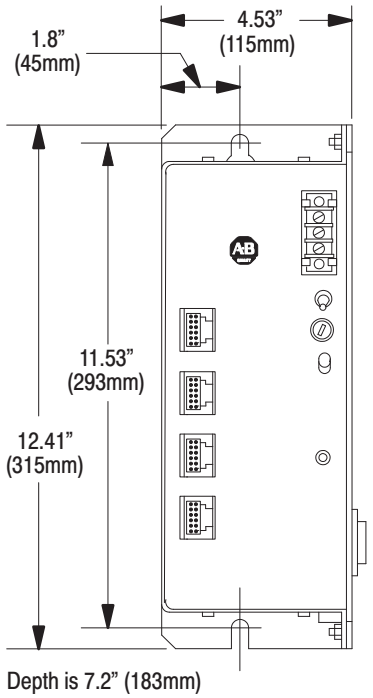
120/220V AC Power Supply with User Power
1771-PS7 Series C

Specifications



Depth is 7.2" (183mm)

Nominal Input Voltage/Current		120V ac @ 2.0A 220V ac @ 1.0A
Input Voltage Range		97-132V ac (120V ac) 195-264V ac (240V ac)
Frequency Range		47-63Hz
Isolation		Input line to all outputs is 1.5kV rms Input line to chassis is 1.5kV rms User power to backplane power is 1.5kV rms User power to chassis is 707V rms User 24V to User 5/15/-15V is 30V
Output Voltages/Currents		Backplane: +5V dc @ 16 A User Side: see table below
Output Power		100W System Total (max) 65W User Side (max) 80W Backplane (max)
Fuse		3A, 250V 3AG normal blow (Bussmann AGC 3 — Littelfuse 312003)
Weight		6.5 lbs. (with mounting bracket)
Operating Temperature Storage Temperature Relative Humidity		32 to 140° F (0 to 60° C) –40 to 185° F (–40 to 85° C) 5 to 95%, non-condensing
Cables	1771-PSCC 1771-CA3B 1771-CAS	5.5 ft (1.68m) — connects 1771-PS7 to I/O chassis 1 ft (.33m) — connects 1771-PS7 to I/O chassis 4 ft (1.2m) — connects 1771-PS7 to modules

Output	Setpoint[1]	Regulation Limits	Recommended Operating Current Levels	Current Limit Maximum[2]	Ripple[3] Peak–Peak
+5V dc	5.20	5.0V to 5.30V	0-8A	8A	100mV @ 5A
+15V dc	15.00	14.43V to 15.57V	0-2.0A	4.3A	100mV @ 1A
–15V dc	-15.01	-14.10V to -15.90V	0-2.0A	4.3A	100mV @ 1A
24V dc	24.01	21.12V to 26.88V	0-2.5A	2.7A	400mV @ 2A

[1] Setpoints for –15V and 24V user outputs will depend upon output loading.
[2] Current limits are shown for reference only and are maximum currents for the respective outputs based upon a maximum user-side power capability of 65W or a maximum +5V dc user-side capability of 40W.
[3] ac component measured at power supply output connector from 5 Hz to 20 MHz.

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