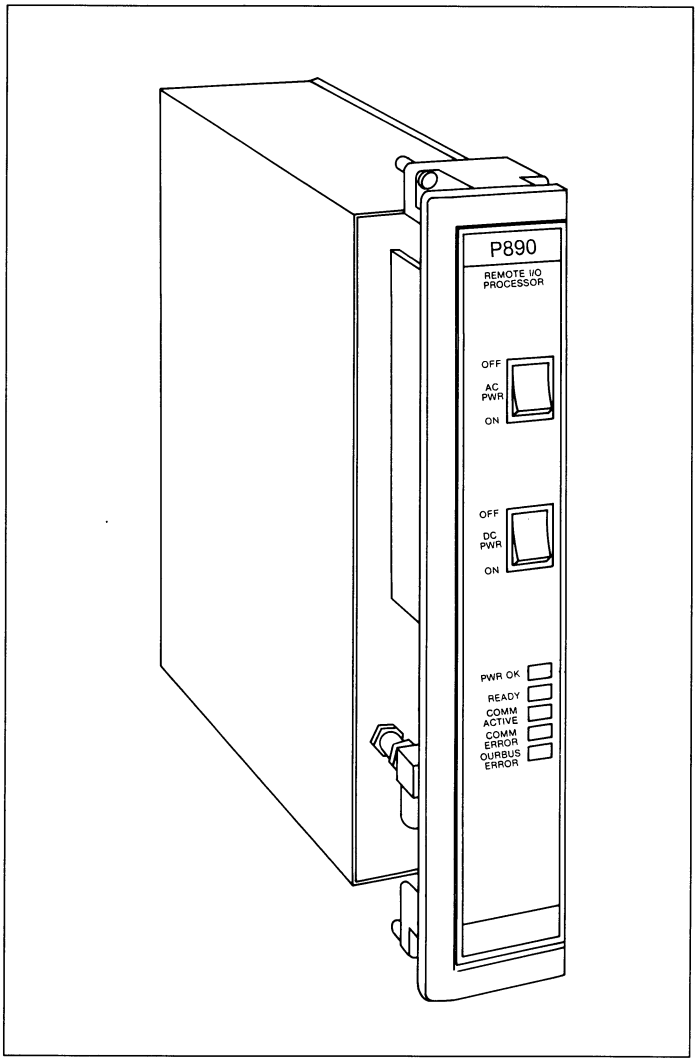
Modicon P890/P892 Remote I/O Processor Installation Instructions

GI-P890-001 Rev C



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General Description

The MODICON P890/P892 Remote I/O Processors provide a direct interface between 984 PC and 800 Series I/O. Both modules include an integrated power supply that supplies 3 amps of power to adjacent 800 series I/O modules. In addition, the P892 Processor provides two half duplex ASCII ports.

The P890/P892 processor is mounted directly into a primary 19- or 27-inch 800 Series I/O housing (H819/H827-209). The connection between the processor and the I/O modules is made through the housing backplane. The remote I/O system coaxial cabling provides the communications path between the P890/P892 processor and the 984 PC.

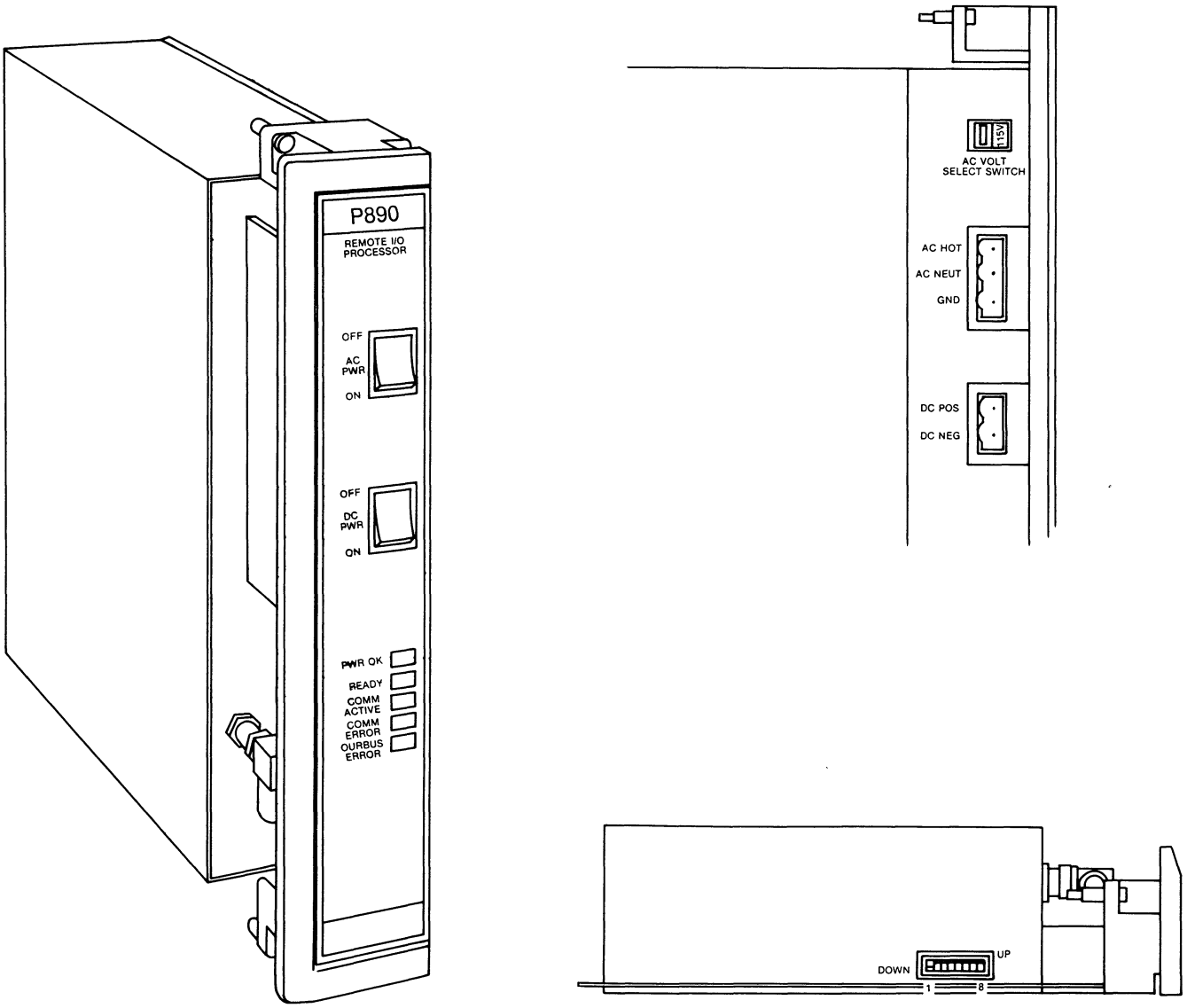
The P890/P892 processors are compatible with all 984 family programmable controllers that support the S908 remote I/O system: 984-480, 984-680, 98X, 984A and 984B. The P890/P892 Processors are compatible with all 800 Series I/O modules: discrete, analog, register, and intelligent. The actual number of remote I/O drops and I/O points per drop supported depends on the controller size.

The P890/P892 Processors support a single remote I/O cable configuration. Cable runs from the 984 Controller through taps that have drop cables to the P89X remote interfaces.

The P890/P892 processor power supply supports two separate power sources, 115/230VAC and 24VDC. The AC power source is switch selectable between 115v and 230v settings. The top ON/OFF switch controls the AC power, and the bottom ON/OFF switch controls the 24VDC source. Either source can be used to power the P890/P892. The 24VDC can be used as a backup power source to the 115/230VAC. The single slot P890/P892 can provide a maximum of 3 amps to power 800 series I/O modules. For systems needing more power, expander power supplies should be inserted in the next I/O housing.

Figure 1

Front, Bottom, and Side View



Indicators

Table 1 shows P890/P892 Processor indicator lights, and provides the name, color, and indication when on. The I/O Processor lights are on both processors. The ASCII error indicator is on the P892 Processor only.

Table 1

Indicator Lights

	Name	Color	Indication (When On)
I/O Processor (P890 and P892)	Power OK	Green	All Voltages are OK.
	Ready	Amber	I/O processor board successfully passed power-up tests.
	Comm Active	Green	I/O comm active between P89X and 984.
	Comm Error	Red	A communications error has been detected between the processor and the controller.
	Ourbus Error	Red	A communications error has been detected between the processor and the I/O modules.
ASCII (P892 only)	ASCII Error	Red	An ASCII communications error has been detected at the processor.

Power Available

Power Supplied for I/O Use

+5VIO @ 3Amp max*
+4.3V @ 3Amp max*
−5V @ .25Amp

*The +5VIO and +4.3V combined total load current should not exceed 3 Amps

The P890/P892 Processors provide a fast drop scan rate, less than 5 milliseconds for 256 I/O points. The communication link time to the 984 is less than 1 millisecond with up to five immediate retries.

Figure 2

Typical Configurations

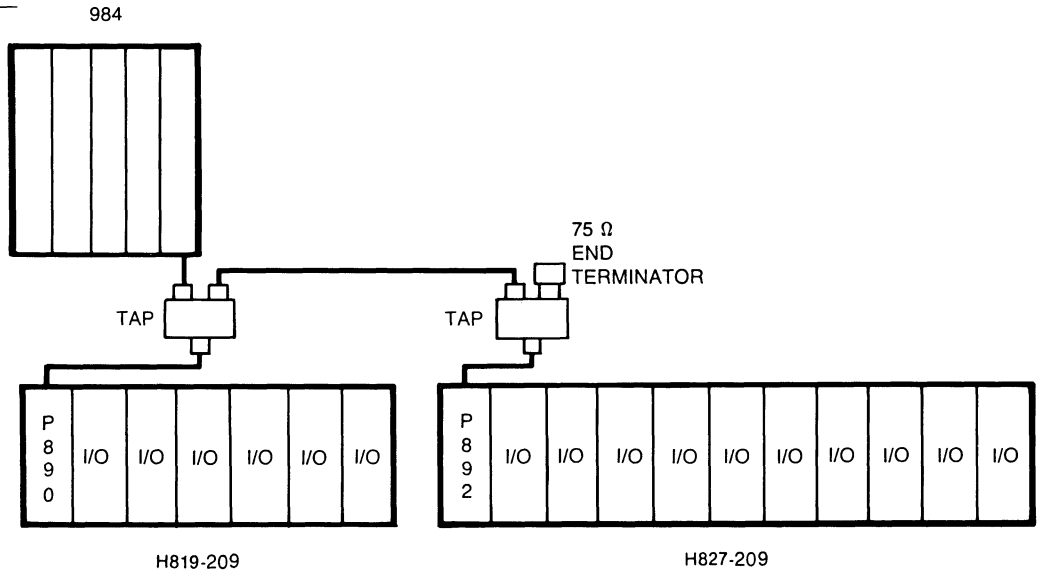


Table 2

P890/P892 Capability Chart

PC	No. of Drops	ASCII Port	Max. I/O Bits/Drop	Max. No. of Racks/Drop	Max. No. of Modules/Drop
984-480	6	10*	512in/512out	5	32
984-680	6	10*	512in/512out	5	32
	31	30*	512in/512out	5	32
984X	6	10*	512in/512out	5	32
984A w/S908	32	32	1024in/1024out	5	32
984B w/S908	32	32	1024in/1024out	5	32

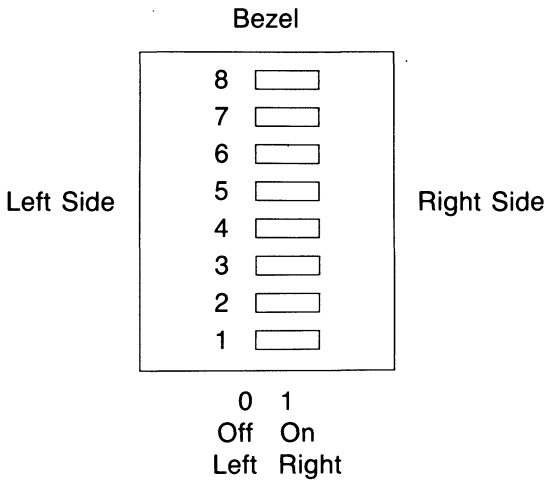
► **NOTE** Drop 1 is local, and thus Ports 1 and 2 are not available (see Table 3).

Switch Settings

Before installing the P890 or P892 Processor, you must set the switches located on the bottom of the unit. The P890/P892 Processor has one set of eight switches used to select drop/port address and ASCII communications handshake method.

Figure 3

P890/P892 Drop Address Switch Settings



Switches	Functions
For P890 & P892	
1-6	drop/port address 1-32 binary form (see Table 3).
For P890 ONLY	
7-8	not used, set to left
For P892 ONLY	
7	hand shaking for port 1
8	hand shaking for port 2 L = Data Terminal Ready/Data Set Ready R = Xon/Xoff

► **NOTE** You MUST go into the Traffic Cop software and set the ASCII port number to match your switch selection, noting the drop.

► **NOTE** Drop and port addresses are related. Switch settings for Drop #3 correspond to ASCII ports 5 and 6.

Drop Address The drop address is set by the setting switches one through six in the top switchpack as shown in Table 3.

Table 3

Drop Address Switch Settings

Switches						Drop address	For P892 ONLY Port Number
1	2	3	4	5	6		
L	L	L	L	L	L	1	1,2
R	L	L	L	L	L	2	3,4
L	R	L	L	L	L	3	5,6
R	R	L	L	L	L	4	7,8
L	L	R	L	L	L	5	9,10
R	L	R	L	L	L	6	11,12
L	R	R	L	L	L	7	13,14
R	R	R	L	L	L	8	15,16
L	L	L	R	L	L	9	17,18
R	L	L	R	L	L	10	19,20
L	R	L	R	L	L	11	21,22
R	R	L	R	L	L	12	23,24
L	L	R	R	L	L	13	25,26
R	L	R	R	L	L	14	27,28
L	R	R	R	L	L	15	29,30
R	R	R	R	L	L	16	31,32
L	L	L	L	R	L	17	N/A
R	L	L	L	R	L	18	N/A
L	R	L	L	R	L	19	N/A
R	R	L	L	R	L	20	N/A
L	L	R	L	R	L	21	N/A
R	L	R	L	R	L	22	N/A
L	R	R	L	R	L	23	N/A
R	R	R	L	R	L	24	N/A
L	L	L	R	R	L	25	N/A
R	L	L	R	R	L	26	N/A
L	R	L	R	R	L	27	N/A
R	R	L	R	R	L	28	N/A
L	L	R	R	R	L	29	N/A
R	L	R	R	R	L	30	N/A
L	R	R	R	R	L	31	N/A
R	R	R	R	R	L	32	N/A

► **NOTE** Drop addresses 1 to 16 can be used as RI/O and ASCII. However, drop addresses 17 to 32 can ONLY be used as RI/O.

► **NOTE** When used with 984X/680/480 drop address starts at 2. Address 1 is the local I/O.

ASCII Ports Correct cable configuration is dependent upon the requirements of the unit attached to the ASCII port, as shown in Table 4.

Table 4

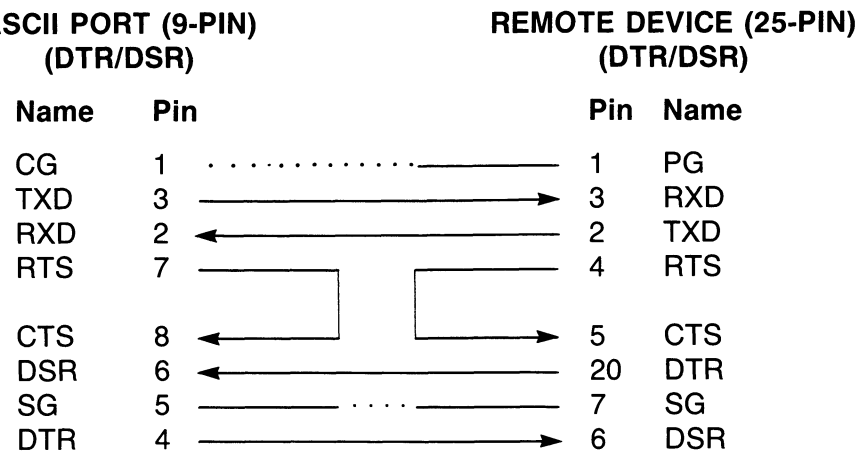
9-Pin ASCII Ports

Pin Number	Designation
1	Chassis Ground (CG)
2	Receive (RXD)
3	Transmit (TXD)
4	Data Terminal Ready (DTR)
5	Signal Ground (SG)
6	Data Set Ready (DSR)
7	Request to Send (RTS)
8	Clear to Send (CTS)
9	No Connection (N.C.)

Sample Pin Layout Table 5 depicts one possible pin layout for a cable connecting a P892 ASCII port and another device using hardwired flow control. Actual pin numbers may vary from device to device.

Table 5

Sample Layout for a 9-Pin ASCII Port



The following procedure describes how to install a P890 or P892 Processor. The processor is installed in an H819/H827-209 800 Series I/O Housing in the left-most slot.

► **NOTE** To ensure proper operation of this module, you must have one of the following revisions (or higher) of MODICON Traffic Cop software:

P190	AS-T984-302	Version 2.01	Rev. J
IBM	AS-DIBM-902	Version 3.01	Rev. X

If you do not have a tape or diskette with one of the above software levels, call MODICON Customer Service at 1-800-468-5342 and obtain the proper software.

Procedure How to Install a P890 or P892 Processor

Step 1 Set the address/handshake switch as shown in Figure 3 and Table 3.

Step 2 Ensure that the power supply switches are OFF and power to the housing is OFF. Also, set the 115/230 VAC switch based upon your power requirement. Do not insert the P890 or P892 Processor if power is supplied to the unit.

Step 3 Remove the plastic cover to connect the power cables, once they are in place replace the plastic cover.

Step 4 Wire up the power cable for either AC (three pin plug) or DC (two pin plug) depending upon the application.

Step 5 Connect remote I/O cable to the P890 or P892 F-connector.

Step 6 Remove the ASCII port connector covers. Connect the ASCII device cable(s). For the P892 only.

Step 7 Insert the P890/P892 into the H819/H827-209 housing in the left most slot. Press firmly to ensure that the processor is seated properly in the housing.

Step 8 Tighten the two captive screws located at the top and bottom of the processor.

Step 9 Turn the power supply on. The I/O drop is ready for checkout.

Specifications

Topology	
Cabling	Single coaxial cable 75 ohm RG-6 type
Connector	F-Type
Communications	
Rate	1.544 MHZ
Drop scan time	less than 5 msec for 256 I/O points
Comm link time	less than 1 msec for 256 I/O points
Drop hold up time	Programmable from 300msec to 6553.6sec (in 100 msec increments)
Power Supplied to I/O	+5VIO @3Amp* +4.3V @3Amp* −5V @.25Amp

*The +5VIO and +4.3V combined can not exceed 3 Amps

Power Requirements	115/230VAC ± 15% @ .75Amps, 47-63Hz 24VDC ± 15% @ 2Amps Max.
AC Power Loss Hold up time	1 cycle AC loss
RFI	Meets applicable FCC requirements for industrial equipment
EMI	
Radiated Susceptibility	MS 461B RS03
Conducted Susceptibility	MS 461N CS02
Surge Withstand	IEEE 472-1974, ANSI C37.90a
Static Discharge	15kv to all exterior surfaces, connectors covered or terminated properly, mounted on grounded panel.

Specifications (continued)

Environmental Operating Conditions

Humidity	0 – 95% non-condensing
Temperature	0 – 60°C
Temperature Storage	– 40/ + 80 degrees C
Shock	± 10G's, 11ms. 3 pulses per axis
Vibration	
Sine	5Hz to 50Hz @ .0005 in D.A. 30min/axis 50Hz to 500Hz @ .625G^2 30min/axis
Random	10Hz to 50Hz @ .029G^2/Hz 60Hz to 300Hz @ .29G^2/Hz – 8db/octave
Altitude	10,000 ft max

Physical

Dimensions (W × H × D)	3.53in. × 10.46in. × 8.25in. (8.97cm × 26.59cm × 20.95cm)
Diagnostics	Power-up confidence tests Run time confidence tests

World Headquarters:

AEG Schneider Automation International S.A.S.
Steinheimer Strasse 117, D-63500 Seligenstadt, Germany
Tel: (49) 6182 81-2401, Fax: (49) 6182 81-2800

AEG SCHNEIDER AUTOMATION
Modicon • Square D • Telemecanique

North America

● *Sales and Service Network*

● Square D
Executive Plaza
Palatine, IL 60067
Tel: (1) 708-397-2600
Fax: (1) 708-397-8814

■ *R&D/Manufacturing Companies*

■ AEG Schneider Automation, Inc.
One High Street
North Andover, MA 01845
Tel: (1) 508-794-0800
Fax: (1) 508-975-9010

Germany

● AEG Schneider Automation
Steinheimer Strasse 117
D-63500 Seligenstadt
Tel: (49) 6182 81-2584
Fax: (49) 6182 81-2860

■ AEG Schneider Automation GmbH
Steinheimer Strasse 117
D-63500 Seligenstadt
Tel: (49) 6182 81-2584
FAX: (49) 6182 81-2860

France

● Telemecanique
Direction Commerciale France
5 Rue Nadar
F-92566 Rueil Malmaison Cedex
Tel: (33.1) 41 29 82 00
Fax: (33.1) 47 51 73 84

■ AEG Schneider Automation S.A.
245, Route des Lucioles-BP147
F-06903 Sophia-Antipolis Cedex
Tel: (33) 92 96 20 00
Fax: (33) 93 65 37 15

Other Countries

● Schneider
European and International Division
43 Boulevard Franklin Roosevelt
F-92504 Rueil Malmaison
Tel: (33.1) 41 29 80 00
Fax: (33.1) 47 32 99 09

● AEG Schneider Automation
Steinheimer Strasse 117
D63500 Seligenstadt
Tel: (49) 6182 81-2584
Fax: (49) 6182 81-2860

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