

PCM Module Location

A PCM can be installed in any slot in the CPU baseplate only, except slot 1 (labeled CPU / 1), which must contain the CPU module. A PCM will not work in Expansion or Remote racks or in an Embedded CPU (CPU311, 313, or 323) rack.

Protocols Supported

Modbus RTU and GE Fanuc CCM.

LED Indicator Lights

- **OK** –Normally ON. Indicates the basic condition of the module.
- **US1 and US2** – By default, LED US1 flashes to indicate activity on Port 1, and LED US2 flashes to indicate activity on Port 2. Both LEDs stay OFF when there is no port activity. However, the function of these two LEDs can be custom configured by the user. Please see GFK-0255 for custom configuration details.

Restart Pushbutton

Used to place the module in either the RUN mode or the PROGRAM mode. Please see “PCM Operation Modes” in GFK-0255, Chapter 1.

Memory Backup Battery

The Lithium battery for backup of RAM memory is installed in a battery mounting clip on the inside of the PCM faceplate. This battery is disconnected for shipment from the factory and must be connected prior to installation of the module. When the PCM is stored for extended periods of time, the battery should be disconnected, unless you wish to retain the program in RAM memory. Order replacement batteries using catalog number IC693ACC301 (package of two).

Cables

IC693CBL304/305 – These Wye cables split out the two PCM port connections from the single connector on the front of the PCM modules. One of these cables is supplied with each PCM module. The IC693CBL304 is for the PCM300. The IC693CBL305 is for the PCM301 and PCM311. Please see Chapter 10 for details on these cables.

IC690CBL701/702/705 – These cables provides a direct RS-232 connection between the PCM and various programmers’ serial ports. These cables are not supplied with the PCM modules. Please see Chapter 10 for details on these cables.

Programmable Coprocessor Module Documentation

- GFK-0255, *Series 90 Programmable Coprocessor Module and Support Software User’s Manual*
- GFK-0256, *Megabasic Language Reference and Programmer’s Guide Reference Manual*
- GFK-0487, *Series 90 PCM Development Software (PCOP) User’s Manual*
- GFK-0771, *C Programmer’s Toolkit for Series 90 PCMs User’s Manual*

IC693CMM311 Communications Coprocessor Module (CMM)

The Communications Coprocessor Module (IC693CMM311) provides a high performance coprocessor for all Series 90-30 modular CPUs (cannot be used with embedded CPUs – models 311, 313, or 323). This module supports the GE Fanuc CCM communications protocol, the RTU (Modbus) slave communications protocol, and the SNP protocol. This module has two serial ports. Port 1 supports RS-232 applications and Port 2 supports either RS-232 or RS-485 applications. The module can be configured using Logicmaster or VersaPro or by using a default setup.

Since both serial ports are wired to the module's single connector, an IC693CBL305 Wye cable is supplied with this module to separate the two ports for ease of wiring. A system with a 331 or higher CPU can have up to four CMMs (in the CPU baseplate only).

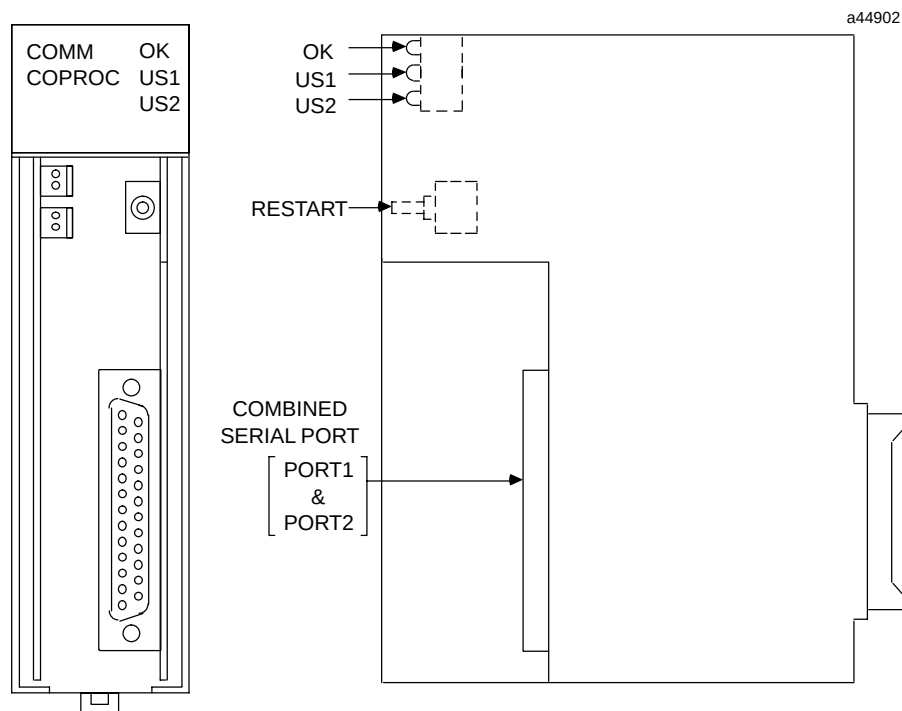


Figure 8-20. Communications Control Module

Communications Control Module Documentation

For more information, refer to GFK-0582, the *Series 90 PLC Serial Communications Driver User's Manual*.

module has a single connector which supports two serial ports, with each port being dedicated to a specific operation. Port 1 is most often used to connect to an RS-232 serial COM port of a computer running GE Fanuc PCM Development Software (PCOP). Alternately, port 1 may be connected to a serial RS-232 printer (see the “Cables” section below.). By default, Port 2 is configured as a 19.2 Kbaud RS-232 port. It can be used to interface to a terminal with keyboard input and screen output.

Serial port programming and configuration are done using a Workmaster II, Workmaster, or an IBM-compatible PC, XT, AT, or PS/2 computer with PCM Development Software (PCOP) installed. The programming computer connects to Port 1 (see the “Cables” section below). The default setting is 19,200 bps. The PCM Development Software is used to configure the serial port parameters and to install the CIMPLICITY 90-ADS software onto the ADC.

There are no DIP switches or jumpers on this board that need to be set for configuration. The ADC module must be configured with Logicismaster 90-30 or VersaPro software prior to use.

Cables

IC693CBL305 – This Wye cable is used to split out the two ADC port connections from the single connector on the front of the ADC module. This cable is supplied with the module. Please see Chapter 10 for details on this cable.

IC690CBL702 – This cable provides a direct RS-232 connection between the ADC and another serial device such as a Personal Computer. This cable is not supplied with the module. Please see Chapter 10 for details on this cable.

Alphanumeric Display Coprocessor Module Documentation:

See the following manuals for detailed information on Series 90-30 Alphanumeric Display Coprocessor Modules:

- GFK-0499 *CIMPLICITY 90-ADS Alphanumeric Display System User's Manual*
- GFK-0641 *CIMPLICITY 90-ADS Alphanumeric Display System Reference Manual*
- GFK-0487 *Series 90-30 PCM Development Software (PCOP) User's Manual*

Both ports support RS-232 standard. Only Port 2 supports the RS-485 standard. A special WYE cable, described below, is available from GE Fanuc to separate the two port connections on the connector.

Cable Information

Cable IC693CBL305 can be used in applications that require use of both SCM serial ports. This is a Wye-type cable that breaks out the Port 1 and Port 2 connections on the module's single connector to two individual connectors. A data sheet for this cable can be found in the "Cables" chapter of this manual. (Additional SCM cable information is found in the two documents referenced in the next section.) This cable wouldn't be required for applications that use only one SCM port. Also, this cable **should not be used** in a multidrop network (see Caution note below).

Caution

The IC693CBL305 Wye cable should not be used with an SCM connected to a multidrop network because it introduces signal reflections on the network. Multidrop networks should be cabled directly to the SCM serial connector.

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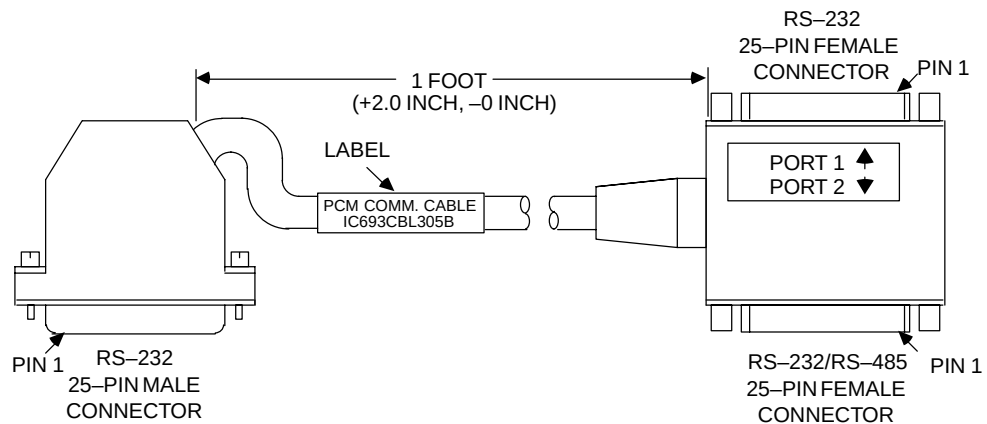


Figure 9-2. IC693CBL305 WYE Cable

State Logic SCM Documentation

- GFK-1661 (Data Sheet), *Serial Communications Module, Series 90-30 State Logic*
- GFK-1056, *Series 90-30 State Logic Control System User's Manual*

Battery

A lithium battery (IC697ACC301) is installed as shown in the previous figure. This battery maintains user memory when power is removed. Be sure to install a new battery before removing the old battery (two connectors are provided). Indication of a low battery is provided through the ECLiPS programming system software and Logicmaster 90-30 software.

Cable Information

Cable IC693CBL305 can be used in applications that require use of both SLP serial ports. This is a Wye-type cable that breaks out the Port 1 and Port 2 connections on the module's single connector to two individual connectors. A data sheet for this cable can be found in the "Cables" chapter of this manual. (Additional SLP cable information is found in publication GFK-0726 – see "Documentation" section.) This cable is not required for applications that use only one SLP port.

Hardware Specifications

Battery:	
Shelf Life	5 years at 20°C (68°F)
Memory Retention	6 months nominal without applied power
Internal Power Consumption	400 mA from 5V bus on backplane
Serial Ports:	Two RS-232 / 422 / 485 compatible

State Logic Processor (SLP) Documentation

Please refer to the following publications for more State Logic Processor information.

Title	GFK Number
<i>Series 90-30 PLC State Logic Processor User's Guide</i>	GFK-0726
<i>Series 90-30 PLC ECLiPS User's Manual</i>	GFK-0732
<i>Series 90-30 PLC OnTOP User's Guide</i>	GFK-0747
<i>OnTOP for Series 90-30 Online Troubleshooting and Operator Program User's Manual</i>	GFK-0750
<i>Series 90-30 State Logic Control System User's Manual</i>	GFK-1056

IC693CBL303	Programmer serial cable to connect Hand-Held Programmer (HHP) to serial connector on PLC Power Supply.	For Hand-Held Programmer: IC693PRG300
IC693CBL304	Wye cable for splitting out two serial port connections from one module connector.	For use with: IC693PCM300 module
IC693CBL305	Wye cable for splitting out two serial port connections from one module connector. (Use cable IC693CBL304 with the IC693PCM300 module.)	For use with the following modules: IC693PCM301 IC693PCM311 IC693CMM311 IC693ADC311 AD693CMM301 IC693SLP300
IC693CBL306	3' (1 meter) extension cable connects between the 50-pin connector on the module faceplate and the connector on the terminal block.	For High Density (32-point) I/O modules having a single 50-pin connector: IC693MDL652 IC693MDL653 IC693MDL750 IC693MDL751
IC693CBL307	6' (2 meter) extension cable connects between the 50-pin connector on the module faceplate and the connector on the terminal block.	For High Density (32-point) I/O modules having a single 50-pin connector: IC693MDL652 IC693MDL653 IC693MDL750 IC693MDL751
IC693CBL308	3' (1 meter) I/O cable connects to the 50-pin connector on the module faceplate. The other end has stripped, tinned, and labeled leads.	For High Density (32-point) I/O modules having a single 50-pin connector: IC693MDL652 IC693MDL653 IC693MDL750 IC693MDL751
IC693CBL309	6' (2 meter) I/O cable connects to the 50-pin connector on the module faceplate. The other end has stripped, tinned, and labeled leads.	For High Density (32-point) I/O modules having a single 50-pin connector: IC693MDL652 IC693MDL653 IC693MDL750 IC693MDL751
IC693CBL310 (Obsolete. Use IC693CBL327 and IC693CBL328)	10' (3 meter) I/O cable connects to one of the 24-pin connectors on the module. The other end has stripped, tinned, and labeled leads. This cable was obsoleted and replaced by IC693CBL315, until that cable also was obsoleted. Two cables are required per module.	For High Density (32-point) I/O modules having dual 24-pin connectors: IC693MDL654 IC693MDL655 IC693MDL752 IC693MDL753

PCM to Programmer Cable Installation

Caution

The Series 90-30 PLC baseplate that contains the PCM, ADC, or CMM and the programmer ground connections *must be at the same ground potential*. Incorrect wiring will result in damage to the programmer or the module.

- Select the WYE cable (IC693CBL305 or IC693CBL304).
- Connect the IC690CBL701 cable's 9-pin female connector to the male RS-232 connector (serial port) on the selected programming device.
- Connect the cable's 25-pin male connector to the Port 1 connector on the WYE cable.
- Connect the 25-pin male connector on the WYE cable to the female connector on the front of the PCM, ADC, or CMM module.

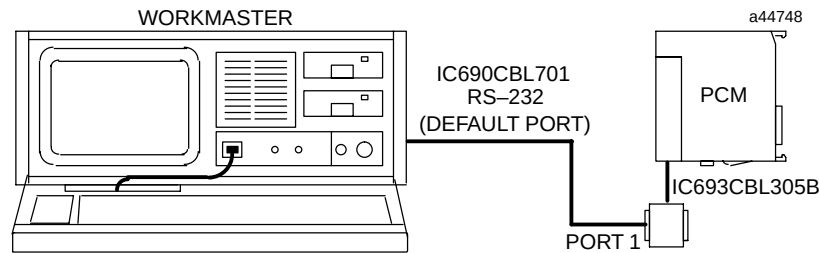


Figure 10-6. PCM to Workmaster Computer or PC-XT Personal Computer

PCM to Programmer Cable Installation

Caution

The Series 90-30 PLC baseplate that contains the PCM, ADC, or CMM and the programmer ground connections *must be at the same ground potential*. Incorrect wiring will result in damage to the programmer or the module.

- Select the WYE cable (IC693CBL305 or IC693CBL304).
- Connect the IC690CBL702 cable's 9-pin female connector to the male RS-232 connector (serial port) on the selected programming device.
- Connect the cable's 25-pin male connector to the Port 1 connector on the WYE cable.
- Connect the 25-pin male connector on the WYE cable to the female connector on the front of the PCM, ADC, or CMM module.

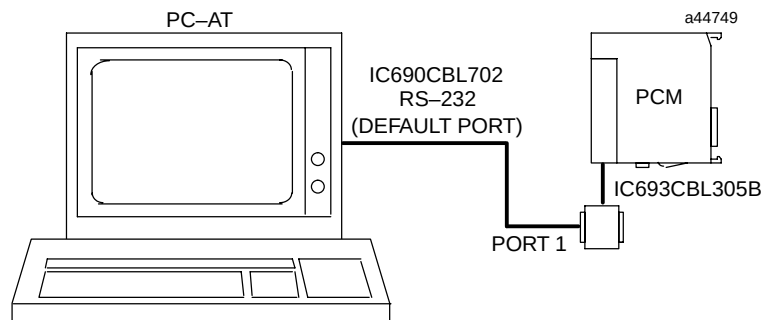


Figure 10-8. PCM to PC-AT Personal Computer

PCM to Programmer Cable Installation

Caution

The Series 90-30 PLC baseplate that contains the PCM, ADC, or CMM and the programmer ground connections *must be at the same ground potential*. Incorrect wiring will result in damage to the programmer or the module.

- Select the WYE cable (IC693CBL305 or IC693CBL304).
- Connect the IC690CBL705 cable's 25-pin female connector to the male RS-232 connector (serial port) on the selected programming device.
- Connect the cable's 25-pin male connector to the Port 1 connector on the WYE cable.
- Connect the 25-pin male connector on the WYE cable to the female connector on the front of the PCM, ADC, or CMM module.

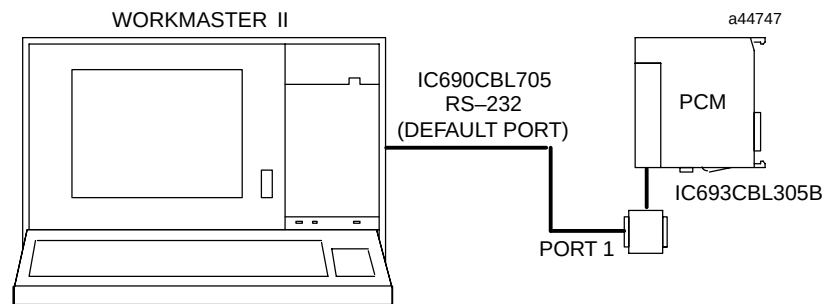


Figure 10-10. PCM to Workmaster II Computer or PS/2 Computer

IC693CBL304/305

Port Expansion (WYE) Cables for PCM, ADC, and CMM

Function of cable

A WYE cable (IC693CBL304 for PCM300; IC693CBL305 for PCM301/311, ADC311, CMM311, AD693CMM301, and SLP300) is supplied with each PCM, ADC, and CMM module. The WYE cable is used to separate two ports available on a single physical connector; the cable separates the RS-232 from the RS-485 signals. In addition, the WYE cable allows cables used with the Series 90-70 PCM to be fully compatible with the Series 90-30 PCM. The WYE cable and cable connections are shown below and on the following page.

Each WYE cable is 1 foot in length and has a right angle male connector on one end that connects to the PCM module. The other end has a dual female connector with one connector for port 1 and the other for port 2.

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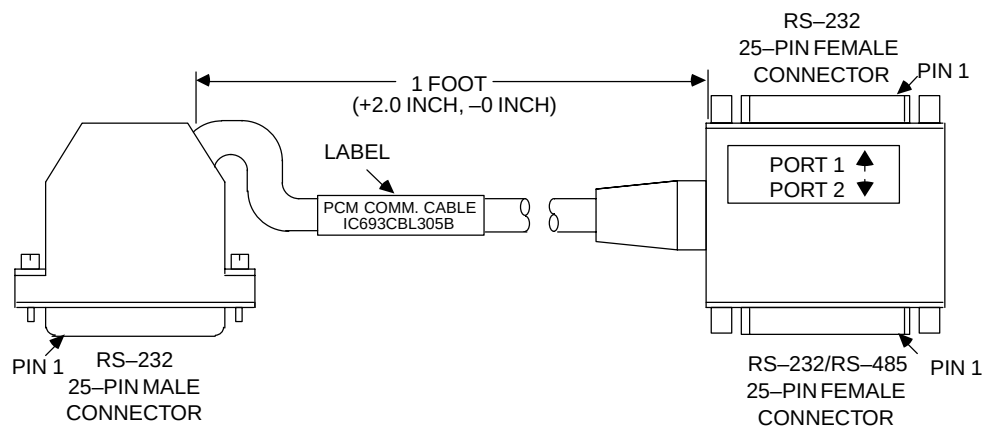


Figure 10-25. Wye Cable

Cable Specifications

CableLength	1 foot (0.3 meters)
25 Pin Male Connector:	Crimp Plug = Amp 207464-1; Pin = Amp 66506-9 Solder Plug = Amp 747912-2
25 Pin Female Connector:	Crimp Receptacle = Amp 207463-2; Pin = Amp 66504-9 Solder Receptacle = Amp 747913-2
ConnectorShell:	Kit - Amp 207908-7 Separate Shell = Amp 207345-1; Male Screw Retainer = Amp 205980-1
Cable Type	27 conductor cable, 28 AWG (.09 mm ²), with overall shield, extra flexible

Wiring Information

The following figure shows the pin configuration for each of the connectors on the WYE cable.

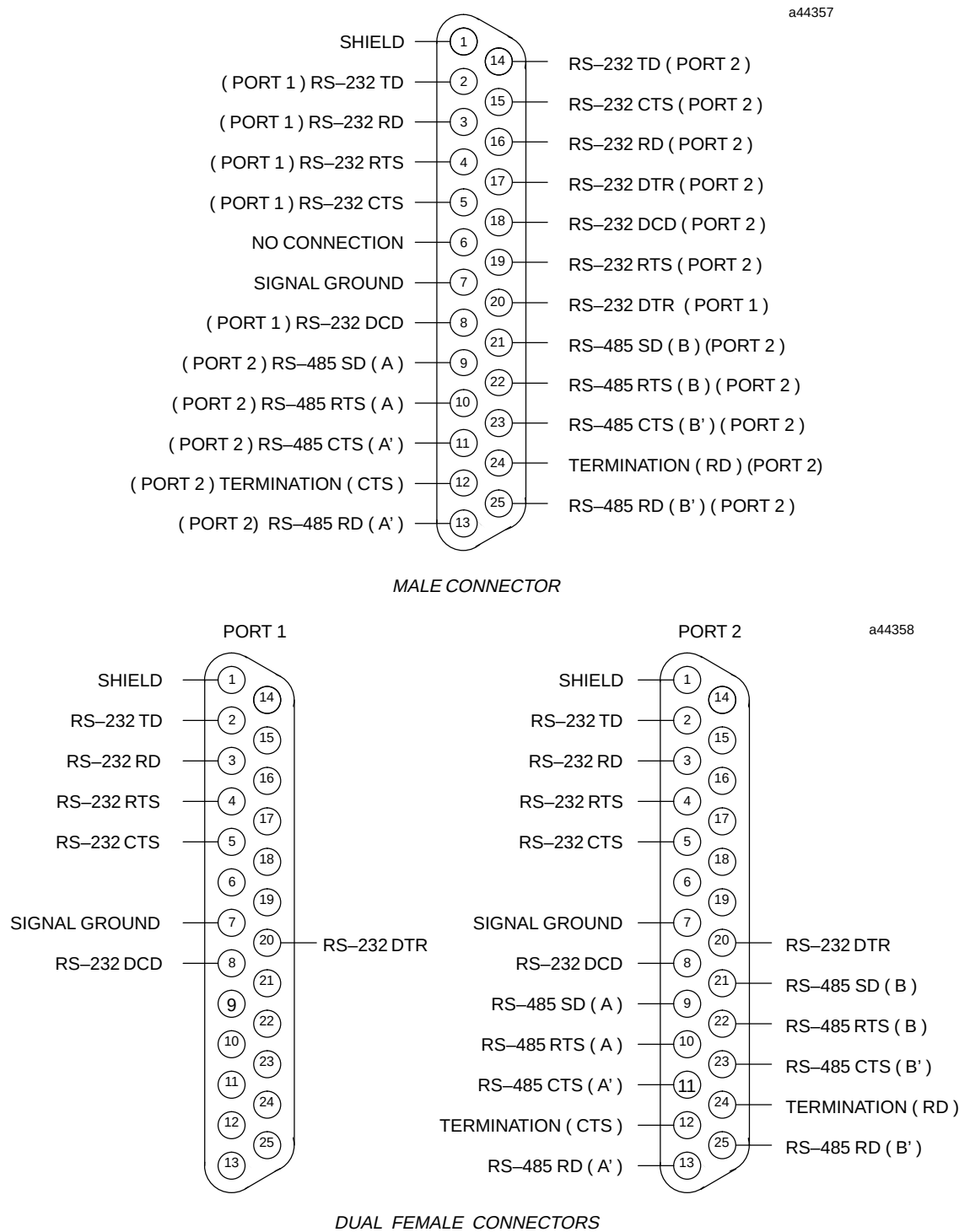


Figure 10-26. Wye Cable Connections

The WYE cable is 1 foot in length and has a right angle male connector on one end that connects to the PCM module. The other end has a dual female connector with one connector for port 1 and the other for port 2.

In order to use an RS-232 cable on port 2 of the Series 90-30 PLC, either a special cable must be made following the serial port pin assignments shown above or a WYE cable must be used. The WYE cable allows use of standard Series 90-70 cables (IC690CBL701 / 702 / 705) for the PCM or ADC. When installing the CMM module, use the WYE cable in conjunction with cables that you build for the CMM module according to directions in Chapter 8 of GFK-0582, the *Series 90 PLC Serial Communications Manual*.