Receiver Example:

P16 Drive Receive Indirect 1 –   Any VP/CP Parameter
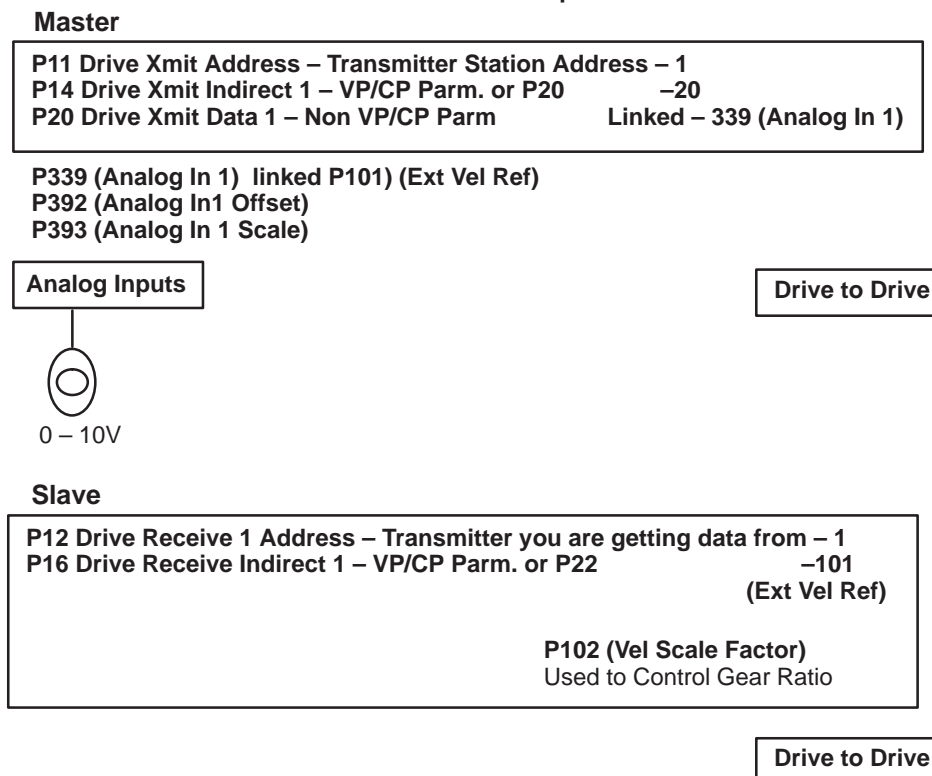   or – P22 (Receive 1, Data 1)

P22 would then have a value or a non VP/CP parm linked to it.

Data – The D2D TX and RX data exists as non VP parameters in the parameter table. This allows data outside the Motor Control Board to get access to the D2D. Data parameter examples were shown in the previous transmitter and receiver examples.

Master/ Slave Drive to Drive Communication – Figure 4.5 illustrates an example of D2D applied to a master/slave drive set up. The master drive receives its speed reference from a speed pot wired to analog input 1 on a PLC Comm board. P339 (Analog In1) is linked to P101 (Ext Vel Ref) on the master drive. P392 (Analog In 1 Offset) and P393 (analog In1 Scale) are set accordingly. Analog Input 1 must be passed from the master drive to the slave drive and connected to the P101 (Ext Vel Ref) using the D2D protocol.

Setting up the Master drive requires that a transmit address be chosen. An address 1 is chosen in this example. P14 (Drive Xmit Indirect 1) will have a value of 20 entered into it (which means look to P20 (Drive Xmit Data 1)). P20 (Drive Xmit Data 1) must be **linked** to P339 (Analog In1). This is where the data comes from that will be transmitted.

Figure 4.5
Master/Slave Communication Example

Master

P11 Drive Xmit Address – Transmitter Station Address – 1
P14 Drive Xmit Indirect 1 – VP/CP Parm. or P20   –20
P20 Drive Xmit Data 1 – Non VP/CP Parm   Linked – 339 (Analog In 1)

P339 (Analog In 1) linked P101) (Ext Vel Ref)
P392 (Analog In1 Offset)
P393 (Analog In 1 Scale)

Analog Inputs

0 – 10V

Drive to Drive

Slave

P12 Drive Receive 1 Address – Transmitter you are getting data from – 1
P16 Drive Receive Indirect 1 – VP/CP Parm. or P22   –101
                                                                    (Ext Vel Ref)

P102 (Vel Scale Factor)
Used to Control Gear Ratio

Drive to Drive

The slave drive is set up by first setting P12 (Drive Receive 1 Address). P12 contains the address of the tranmitter that you wish to receive data from. In this example, a value of 1 is entered, indicating that data should be read from transmitter 1. P16 (Drive Receive Indirect 1) should be set to P101 (Ext Vel Ref). It should be noted that the typical transmission **time** from the master to the slave is between **4ms to 6ms** using links, otherwise using indirects it is only 2ms to 4ms.

I/O Communication Configuration:

The Standard I/O of the 1336 FORCE Drive must be checked to verify proper operation. The Standard I/O is used to interface control circuits into the drive. It is very important that this interface is functioning properly.

Standard Adapter Board Equipped Drives:

If a Control Interface option is installed, verify that the Stop, Enable and Ext Fault interlock inputs are present. Voltage level is dependent upon the Control Interface option installed. (Refer to Page 2.27 for Input Mode (Param 385) setting.

IMPORTANT: The Stop, Enable, and Ext Fault inputs must be present before the drive will start. Refer to LEDs D1 and D2 shown in Figure 2.13 to determine Drive Status.

If this option is not installed, verify that two jumpers are installed, one at pins 3& 4 and the other at pins 17 & 18 of J10. If an Ext Fault occurs, check the Fault Mask Programming In parameters 88 and 89, Bit 6 needs to be defined to mask the soft fault and warning indication.

PLC Comm Adapter Board Equipped Drives:

1. The DRIVE ENABLE (TB20 terminal 1) on the PLC Comm Board input allows the drive to honor a START command. D11 on the PLC Comm board, a green LED, reflects the present state of the DRIVE ENABLE. If D11 is illuminated, then the drive is enabled and the transistors will be allowed to turn on. Parameter 54 bit 1 also reflects the status of the DRIVE ENABLE input.

2. The EXTERNAL FAULT (TB20 terminal 4) PLC Comm input allows you to tie a signal into the 1336 FORCE that will be monitored by the Velocity Processor (VP). If the input voltage is removed, the VP will issue a fault or warning based on the configuration of that fault and the red LED D5 on the PLC Comm board will be illuminated. When Input voltage is applied, D5 will not be illuminated.

3. The MOTOR THERMOGUARD (TB20 terminal 2) input allows you to tie a signal from the thermo–switch in the motor into the 1336 FORCE that will be monitored by the Velocity Processor (VP). The red LED D9 will illuminate if an overtemp condition occurs.

4. The NORMAL STOP (TB20 terminal 3) input is stop command that will stop the drive according to the specified Stop Mode. The drive responds the same way it would if the STOP bit were set in any Logic Command. The red LED D7 reflects the present state of the STOP input. When a Stop is in effect the LED is illuminated and the Drive is not allowed to run.

5. The FAULT OUT (TB20 terminals 8,9,10) input is a Form C relay contact. Red LED D4 reflects the status of relay contact. If the LED is illuminated the contact is not energized.

External Control Link Configuration:

The 1336 FORCE AC Drive has been designed to accept control input through the use of Adapter Boards. A portion of the Drive Control has been designed to act as an interface from the point of view of external devices. In order to perform the control functions required by the specific application, it is necessary to configure various control and reference information such as logic commands, speed reference, and torque reference. Additionally, for the external control equipment to monitor operation conditions in the drive, (such as logic status, actual speed, actual torque) configuration provides a way for this information to be transferred to the external device.

Configuration links must be made between sink and source parameters to allow this information to transfer. The source parameter provides the data to be sent to the receiving sink parameter.
For Example: To send the information from Analog Input #1 (Parameter #355) to External Velocity Reference #1 (Parameter #101) of the drive, then P101 must be linked to P355. All sink and source parameters in the 1336 FORCE AC Drive are available to provide information, and sink parameters can receive information from source parameters. The drive is shipped with pre–configured links between the Standard Adapter board or PLC Comm board and the Main Control board. The user has the flexibility to reconfigure the drive for a particular application. For more information on how to use a particular programming device to configure the 1336 FORCE AC Drive, refer to the instruction manual for that particular device.

Figure 4.6 shows the as shipped pre–configuration links for a 1336 FORCE AC Drive equipped with a Standard Adapter board. Refer to the PLC Communications Adapter User Manual (1336 FORCE 5.13) for information on pre–configured links for PLC Comm equipped drives.

PLC COMM Adapter Board Equipped Drives:

For PLC Comm Adapter Board Equipped Drives refer to the 1336 FORCE PLC Communication Adapter User Manual (1336 FORCE 5.13) for configuration information.

Figure 4.7.
Standard Adapter Links