

## Application Note #1180: GP-Pro EX to Allen Bradley DH+ via SLC504 PassThru

### No Additional Hardware Needed

GP-Pro EX projects can access Allen-Bradley Data Highway Plus without a gateway or adapter! If there is a SLC504 on the DH+ network, no additional hardware is needed. An HMI can be connected via the standard GP-Pro EX Rockwell Automation DF1 serial driver through a SLC504 processor that resides on the DH+ network. By enabling the SLC504 DF1 to DH+ PassThru feature the HMI can access multiple PLC5 and SLC504 nodes on DH+. Enable the GP-Pro EX multilink capability and multiple HMIs can access the PLCs on the DH+ network.

In addition to configuring the PLCs in GP-Pro EX, the communications configuration is modified in the serially connected SLC5/04 processor, and a minor change may be needed in the communications setup of the other SLC5/04 processors that will also be accessed by the HMI. PLC5s require no change.

### Allen Bradley SLC504 Configuration:

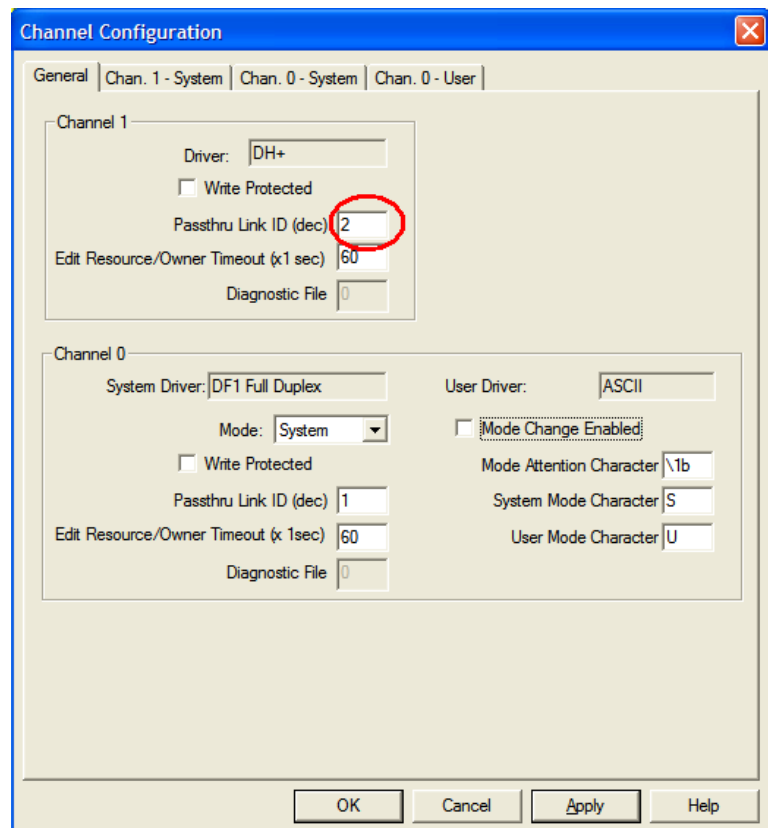
SLC 5/04 processors (OS401 and greater) support DF1 to DH+ Passthru. With this feature, you can connect to a 5/04 processor through the Channel 0 using the DF1 protocol and access any node on the DH+ network, regardless of the baud rate of the DH+ network.

Three Steps:

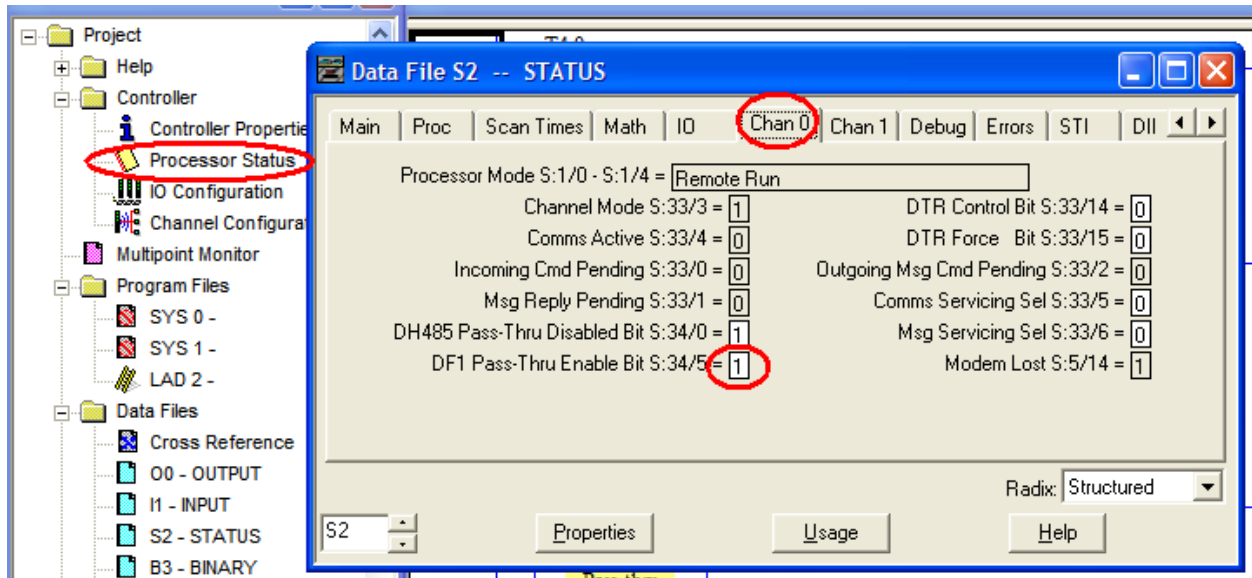
**1)** All SLC5/04 processors that will be accessed by the Proface HMI. Need to have the same "Passthru Link ID". In RSLogix 500 go to Channel Configuration under the General tab. Verify the "Passthru Link ID" established for each processor is the same. (See figure to right).

**2)** Configure Channel 0 of the SLC5/04 processor that will be connected serially to the Proface HMI on the "Chan. 0 - System" tab for driver "DF1 Full-Duplex."

**3)** Enable the DF1 to DH+ Pass-Thru feature of the SLC5/04 processor that will be connected serially to the Proface HMI. This can be accomplished using one of these two solutions:



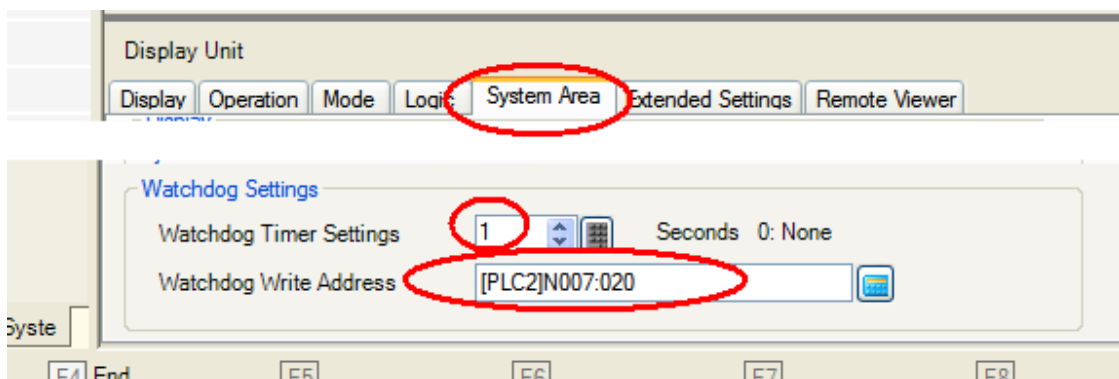
- a. Allen Bradley recommends you access the Processor Status Screen and enable the DF1 to DH+ Passthru bit (S:34/5). (They also recommend setting S:34/0 to disable DH485 Pass-Thru and setting the DH+ Active Node Table Bit (S:34/1). However none of these bits are required for Proface HMI access.)

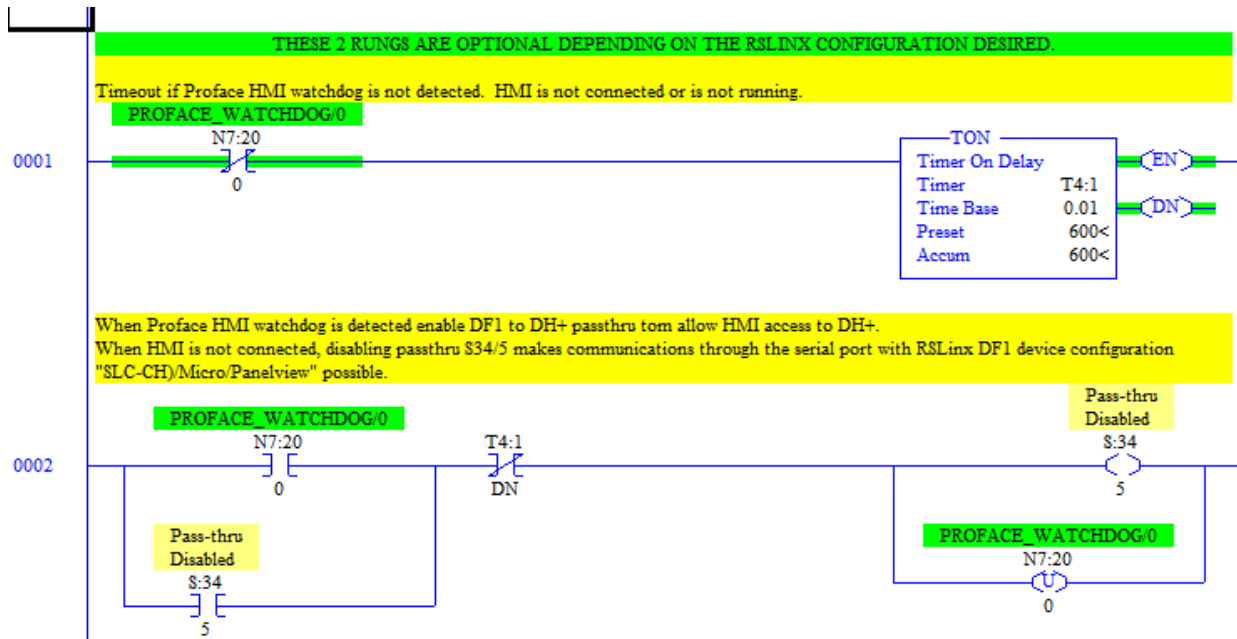


**Pro:** Simple solution.

**Con:** The Allen Bradley recommended settings change the RSLinx and RSLogix DF1 access. So when the bit S:34/5 is set, on-line communication to RSLogix will be lost. To reconnect the DF1 Device configuration in RSLinx needs to be changed to 1770-KF2 serial communication. (not SLC-CH0). RSLinx Auto-configure does not work and RSWho capability is lost.

- b. There is another way to activate the DF1 to DH+ Passthru bit (S:34/5). Using 2 rungs of logic in the SLC5/04 processor and a watchdog bit from the Proface HMI the PLC can sense the HMI connection and activate the DF1 to DH+ Pass-Thru feature. (see the figures below)





**Pro:** No need to reconfigure RSlinx when accessing the SLC5/04 processor. This solution allows a RSlogix connection with the standard "SLC-CH0/Micro/PanelView" device. Also, Auto-configure and RSWho function normally.

**Con:** Requires setting up the watchdog feature in the HMI and two rungs of ladder in the SLC5/04. Also a communication error momentarily appears on the HMI when powering up.

## GP-Pro EX Communication Set Up

The HMI display COM1 connects to the PLC CH0 using the standard DF1 cable solution for a SLC504. Refer to APNT1183 for cabling diagrams for the SLC504. AGP/LT3000 and GP4000 displays use Proface America Part # HMI-CAB-ST52.

Configure a Device/PLC for each processor on the DH+ network that will be accessed by the GP-Pro EX project. For each, in the GP-Pro Ex PLC/device "Individual Device Settings" dialog box select SLC500 series or PLC-5 series. Also in the "Destination ID (Remote)" enter the decimal PLC DH+ Node Number. Note that RSLogix uses the octal form. (*Destination ID (Local) is not used.*)

The screenshot displays the configuration window for a Rockwell Automation PLC. Key settings include:

- Manufacturer:** Rockwell Automation, Inc.
- Series:** DF1
- Port:** COM1
- Text Data Mode:** 1
- Communication Settings:**
  - SIO Type:** RS232C (circled in red)
  - Speed:** 19200
  - Data Length:** 8
  - Parity:** NONE
  - Stop Bit:** 1
  - Flow Control:** NONE
  - Timeout:** 3 (sec)
  - Retry:** 2
  - Wait To Send:** 0 (ms)
- DF1 Protocol:**
  - DF1 Mode:** Full Duplex (circled in red)
  - Error Detection:** CRC
  - Source ID:** 0
- RI / VCC:** RI

The **Individual Device Settings** dialog box for PLC1 is open, showing:

- Series:** PLC-5 Series
- Destination ID (Remote):** 5 (circled in red and labeled **DH+ Node Address**)
- Destination ID (Local):** 1

At the bottom, the **Device-Specific Settings** table lists 5 devices:

Number	Device Name	Settings
1	PLC1	Series=PLC-5 Series,Compatible Settings=Standard Mode,Destination ID (Remot
2	PLC2	Series=SLC500 Series,Compatible Settings=Standard Mode,Destination ID (Rem
3	PLC3	Series=PLC-5 Series,Compatible Settings=Standard Mode,Destination ID (Remot
4	PLC4	Series=SLC500 Series,Compatible Settings=Standard Mode,Destination ID (Rem
5	PLC5	Series=SLC500 Series,Compatible Settings=Standard Mode,Destination ID (Rem

## Additional Notes

**About GP-Pro EX Pass-Through:** GP-Pro EX includes a pass-through utility that allows RSLogix access to Allen Bradley PLCs by connecting to the AGP/LT3000 GP/LT4000 via Ethernet or USB.

*Note: The RSLinx "Auto configure" feature is not functional because the serial connection is virtual. "RSWho" capability is lost when PLC DF1 to DH+ pass-thru is enabled.*

**More information:** For more information about the SLC4/04 pass-thru feature refer to Allen Bradley documentation including FAQ answers 6131 and 17436. For more information about configuring GP-Pro EX to communicate with a SLC500 refer to the Proface Device/PLC Manual for the Rockwell Automation DF1 driver.

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For technical support email: [support@profaceamerica.com](mailto:support@profaceamerica.com) or call: 800.289.9266.  
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