

DATALINK DL3500-Bridging PRODUCT CONFIGURATIONS

OVERVIEW

When the DataLink is configured for Mode 1 DH+ Bridging mode, the protocol is enhanced to enable point-to-point or multi-drop DH+ network bridging. This DataLink enables communication between multiple stations on separate DH+ networks and can be used "back-to-back" in RS232 (or RS422) mode for network bandwidth expansion by bridging local DH+ networks at speeds up to 57.6 Kbaud, or via modems for bridging remote DH+ networks. DataLinks may be used alone for SCADA applications, in pairs for point-to-point, or in multiples (via controlled carrier modems) for multi-drop remote network bridging applications.

The DataLink product is similar to A-B's 1785-KE when using local message commands only and is not designed for applications requiring the remote DH+ message command format. The DataLink can be paired with A-B products such as the 1770-KF2 or the 1785-KE in applications using local DH+ message commands only, however, pairing with A-B will result in the loss of network connectivity safety features built-in to the DataLink's firmware.

A major difference between this DataLink and A-B network bridging products lies in its unique ability to bridge DH+ networks using local DH+ message commands. The Mode 1 protocol uses a flexible range addressing approach to allow DataLinks to be used in many custom bridging applications where A-B solutions are unsuitable or just too expensive.

A DataLink in bridging mode accepts and responds to all DH+ messages falling within a pre-configured contiguous range of station numbers. The DataLink can be configured to "own" a range of station addresses falling between a configurable lower (Base) address, and an upper (High) address, and will respond to messages and tokens directed at any addresses falling in that range.

CONFIGURATION:

To configure or test the DataLink it is necessary to use the DL3500 User's Guide, DL2 Configuration and Diagnostic disk, a PC and serial connecting cable together with the following additional application information.

The DH+ bridge protocol requires the entry of a "Base Address" and also a "High Address" parameter selection during configuration. The High Address parameter enables the DataLink to accept or "own" a contiguous range of DH+ station addresses on another DH+ network. The START-UP MODE parameter selection must be configured to "1" to enable the DH+ Network Bridging protocol.

This DataLink's ability to accept a range of addresses allows it to address and gain access to DH+ stations on other DH+ network(s) i.e. to bridge multiple DH+ networks. This capability can also be used to effectively double the bandwidth a busy DH+ network by splitting it into two networks with as much interconnectivity between them as is required.

DL3500 BASE ADDRESS: This is a hexadecimal station address parameter entry from 00 to 3F (00 to 77 octal) and is set to the first (lowest) station address required to be accessed on a second (remote) DH+ network.

DL3500 HIGH ADDRESS: This is a hexadecimal station address parameter entry from 00 to 3F (00 to 77 octal) and is set to the last (highest) station address required to be accessed on the second (remote) DH+ network.

DL3500 START-UP MODE: This is a numerical entry that determines which protocol inside the DataLink will be the operational protocol. Entering a "1" selects Mode 1 the DH+ Network Bridging mode.

ADDRESS CONFIGURATION EXAMPLES

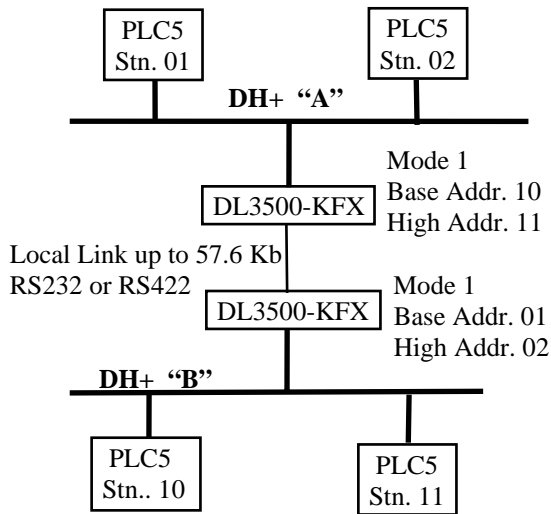
1. If: Base Station Address = 01; High Address = 01; Only Station 01 can be accessed on another DH+ network
2. If: Base Station Address = 10; High Address = 20; Stations 10 to 20 hex are accessible on another DH+ network. Addresses 10 to 20 hex are equal to 20 to 40 octal (see conversion table in the DL3500 User's Guide section 3.5).

NOTES:

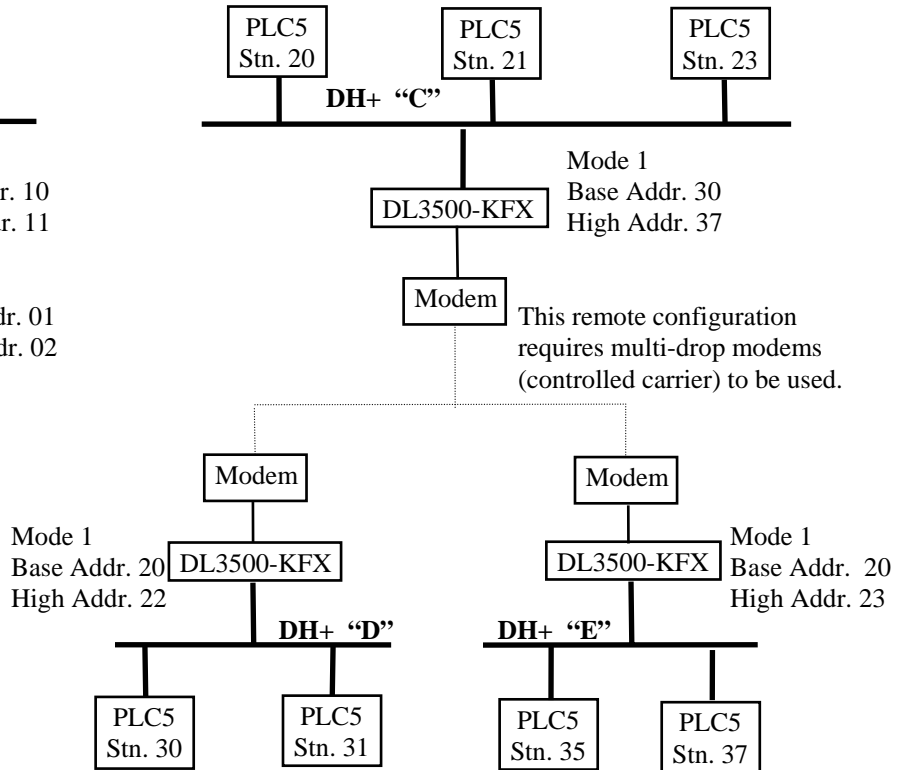
1. Station addresses of other devices on the same DH+ as the DL3500 must not fall within the range of those "owned" by the DataLink or Duplicate Node errors will occur and the DL3500 "ERR" LED indicator will flash.
2. If the High address parameter is set to a lower value than that of the Base address, the address range will wrap-around from station address 77 through station address 0 and up to the High Address value of the DataLink.
3. Ensure station numbers are not duplicated between those "owned" by the DL3500 and other devices on the DH+.
4. To program a remote PLC over the bridge ensure that the programming terminal's local DH+ address is within the range of addresses configured and "owned" by the -KXE connected to the remote PLC's DH+.

DH+ NETWORK BRIDGING PROTOCOL

LOCAL DH+ NETWORK BRIDGE



REMOTE DH+ NETWORK BRIDGE



NOTES ON NETWORK BRIDGING:

1. In the Local Bridge example stations 1 & 2 on DH+ "A" can communicate with stations 10 & 11 on DH+ "B".
2. In the Remote Bridge example stations 20 & 21 on DH+ "C" can communicate with stations 30 & 31 on DH+ "D", and stations 20, 21 & 23 on DH+ "C" can communicate with stations 35 & 37 on DH+ "E".
3. Ensure there is no duplication of station numbers between those "owned" by the -KXE and other devices on the same DH+.
4. To program PLCs over the bridge the programming terminal's station address must fall within the range of addresses "owned" by the remote -KXE and configure the DataLinks for "Pass Diagnostics". Ie. in the Remote Bridge example set the programming terminal's DH+ "C" address to 22. If any other terminal address is used then the terminal could send a command out to a PLC on a remote DH+ but there would be no return address which could crash the remote DH+.

DL3500-KFX MODE 0, SERIAL INTERFACE TO DH+ NETWORKS