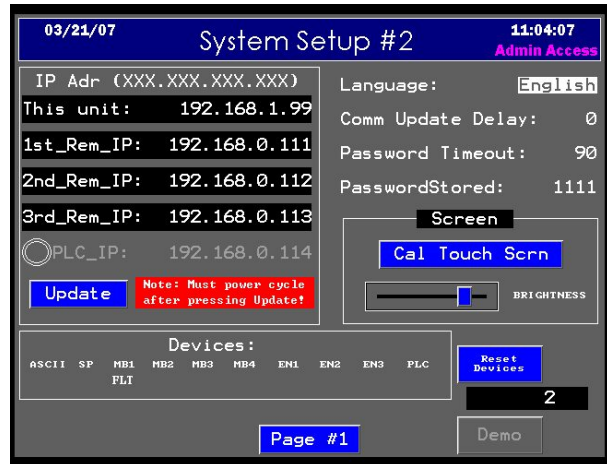


LP3 APPLICATION NOTES – Allen-Bradley DF1 over TCP (via Ethernet)

PLC-5 / SLC 5 Setup:

The appropriate Ethernet IP addresses must be set in both devices. Although the address of the LP3 unit itself can be set from the setup screen, there is no provision via the LP3 setup to reconfigure the subnet mask (which is by default 255.255.255.0).

The default address is set to 192.168.1.99. The IP address of the PLC and the LP3 is set in the PLC by others. It is basic Ethernet knowledge but it should probably be pointed out that in order for the two device to properly communicate, the first three numbers in the IP address must be the same.



DF1 over TCP (Ethernet)

The file/register addresses are predefined in the LP3. These default addresses may be usable in an installation if the area is available. If there is a memory conflict with this default code, then the block can be moved to another location with reconfiguration of the LP3 program by King Engineering. The LP3 drivers have a limitation that it can not read/write files above 243 so the block must be located below this boundary. (File block address range must be between 1 and 243.)

Default Memory Mapped Register Range

- F200:1 - 32-bit float; level value - Read
- N201:1 - 32-bit integer; unit applied [1,2,3] - Read
- N202:1 - 32-bit integer; specific gravity [divided by 1000] - Read
- N203:1 - 32-bit integer; specific gravity [divided by 1000] - Write
- N204:1 - 32-bit integer; unit apply [1,2,3] -Write
- B205:1 - 4-bit binary; set point 1 - Read
- B206:1 - 4-bit binary; set point 2 - Read
- F207:1 - 32-bit float; (reserved) - Read

DF1 is a data-link layer protocol. Once communications is established it is a simple matter for the PLC programmer to use the data from these registers. The register number (1 - 32) corresponds to the tank number in the LP3. Number 0 is not used. The units are indicated as an integer value 1, 2 or 3 meant to indicate which selection of three available units programmed into the LP3 correspond to the level value transmitted for that tank. The Specific Gravity is indicated as an integer number with an implied decimal. For example a SPG of 1.032 would be received in the register as 1032 which would simply be divided by 1000. Writing a value to either the Unit or SPG write registers will initiate the change for that tank and then the value will be set to zero when the change is completed.

LP3 APPLICATION NOTES – Allen-Bradley DF1 over TCP (via Ethernet)

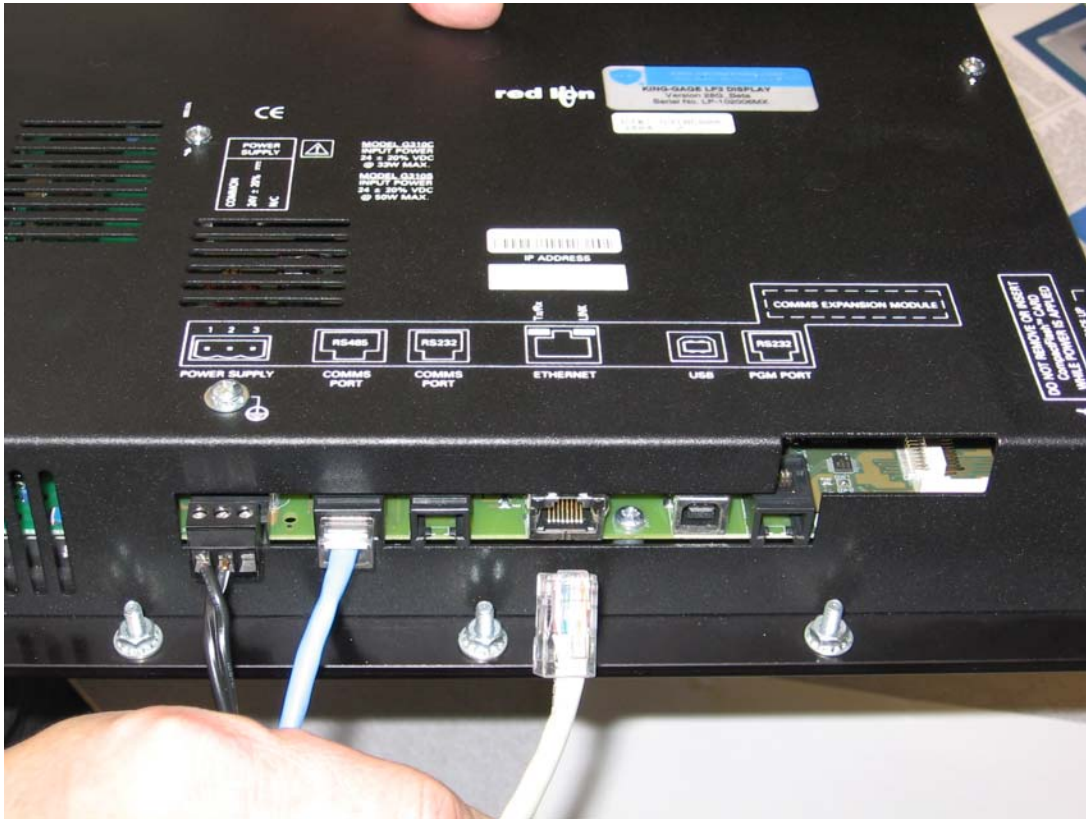
Type File# Register# (corresponds to Tank No. or input channel assignment)
N 200 : 1

F200:1 - Tank #1 level (Read)
 N201:1 - Tank #1 unit applied (Read)
 N202:1 – Tank #1 specific gravity (Read)
 N203:1 – Tank #1 specific gravity (Write)
 N204:1 – Tank #1 unit applied (Write)
 B205:1 – Tank #1 Setpoint #1 (Read)
 B206:1 – Tank #2 Setpoint #2 (Read)

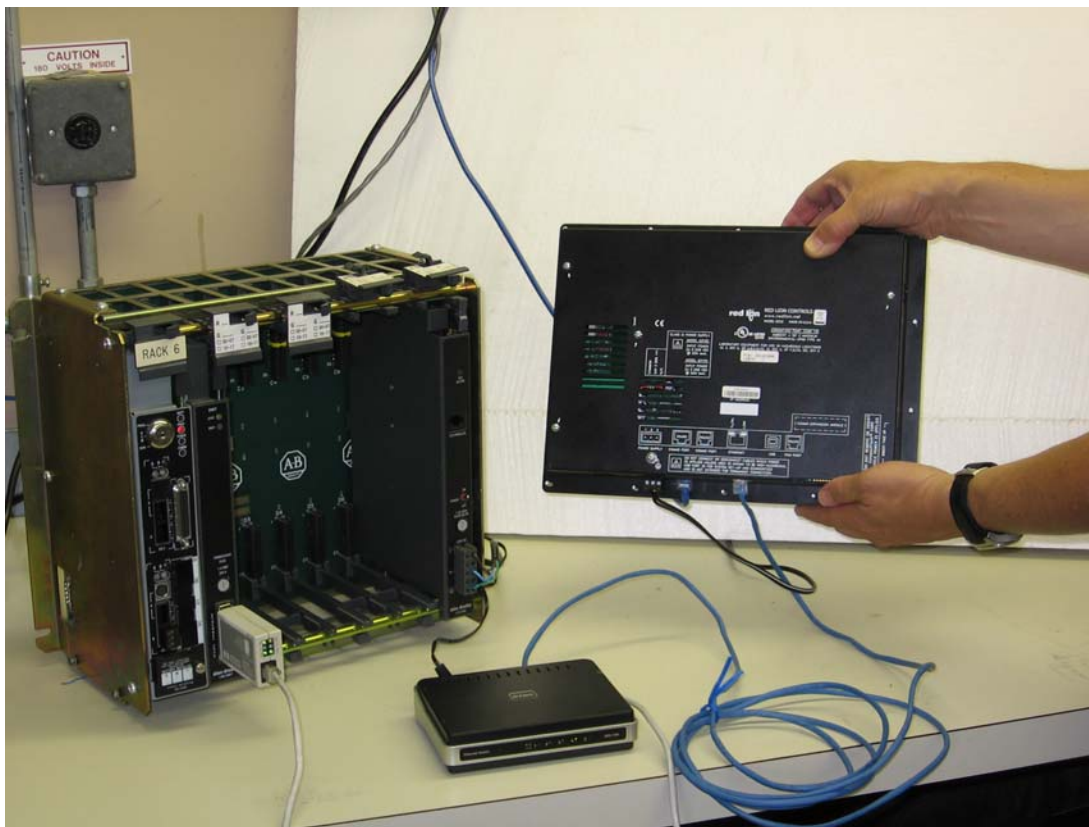
F200:2 - Tank #2 level (Read)
 N201:2 - Tank #2 unit applied (Read)
 N202:2 – Tank #2 specific gravity (Read)
 N203:2 – Tank #2 specific gravity (Write)
 N204:2 – Tank #2 unit applied (Write)
 B205:2 – Tank #2 Setpoint #1 (Read)
 B206:2 – Tank #2 Setpoint #2 (Read)

F200:3 - Tank #3 level (Read)
 N201:3 - Tank #3 unit applied (Read)
 N202:3 – Tank #3 specific gravity (Read)
 N203:3 – Tank #3 specific gravity (Write)
 N204:3 – Tank #3 unit applied (Write)
 B205:3 – Tank #3 Setpoint #1 (Read)
 B206:3 – Tank #3 Setpoint #2 (Read)





Ethernet port at LP3 System (DF1 serial communications)



*DF1 TCP via Ethernet
(shown using PLC Ethernet Module, network switch and KING-GAGE LP3 display module)*