## Introduction

Multiplex refers to a primary VFD that controls secondary VFDs. These VFDs can be alternated after set time periods to evenly wear pumps or be used for Lead/Lag to cover a wide range of flow conditions.

DIP Switch Settings

On the control boards of all Alpha Drives that will be multiplexed together, locate the DIP switch array labeled "S1" and turn 2WEN- and 2WEN+ to the ON position. See image below for DIP switch array locations.

Communication Wiring

Connect wires between all systems intended for multiplex by wiring all RX- terminals together and all RX+ terminals together. Also short one of the COM terminals of the primary VFD to one of the COM terminals of each secondary VFD.
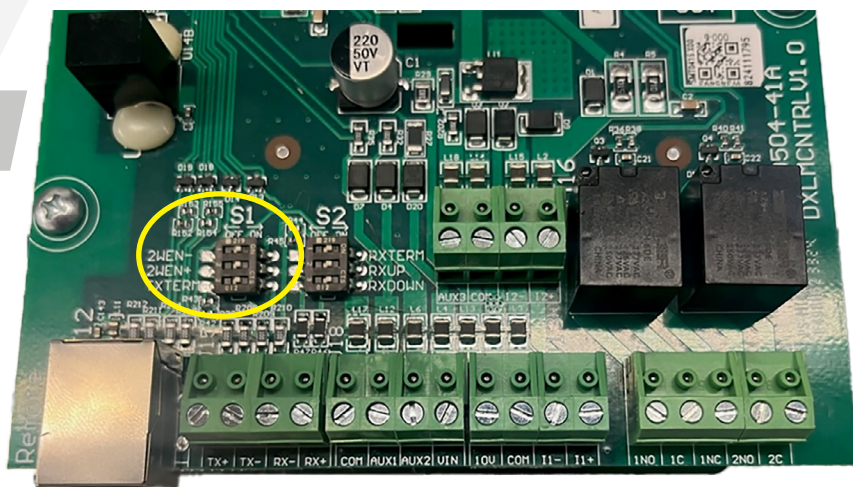
Primary VFD Setup

1. Determine which VFD will act as the primary and use it's keypad to walk through the Constant Pressure Wizard.

2. Next, navigate to 1.3.2 MENU COMPLEXITY and press ENTER. Change this setting to ADVANCED and press ENTER to save the parameter. This unhides all menu items.

3. Next, navigate to 1.6.1 MULTIPLEX SETUP and press ENTER.

4. Set MULTIPLEX TYPE to Modbus and press ENTER.

5. Set MULTIPLEX ID & DEFAULT ROLE to 1 – Primary and press ENTER.

6. Set the MULTIPLEX CYCLE TIME to the amount of time each pump should run before cycling to the next pump. This value represents clock time, not pump run time. Press ENTER.

7. The SHARE TRANSDUCER MEASUREMENT parameter can be set to YES or NO, depending on the needs of the system. If each VFD will have its own pressure transducer, select NO. If only one pressure transducer will be used, it can be installed in any of the VFDs and this parameter should be set to YES. Press ENTER.

8. After completing the previous step, the screen will display, "Multiplex Setup 1 – Setup all systems until the wait screen then press Enter." Now move on to programming the secondary VFDs.

Secondary VFD Setup

1. Move to the secondary VFD and use the keypad to walk through the Constant Pressure Wizard.

2. Next, navigate to 1.3.2 MENU COMPLEXITY and press ENTER. Change this setting to ADVANCED and press ENTER to save the parameter. This unhides all menu items.

3. Next, navigate to 1.6.1 MULTIPLEX SETUP and press ENTER.

4. Set MULTIPLEX TYPE to Modbus and press ENTER.

5. Set MULTIPLEX ID & DEFAULT ROLE to 2 - Secondary and press ENTER.

6. The screen will now say "Multiplex Setup 1 – Waiting for Primary System."

7. If multiple secondaries will be used, repeat the Setup Secondary VFD process for all, choosing the subsequent number for MULTIPLEX ID & DEFAULT ROLE for each. (ie. 3 – Secondary, then 4 – Secondary, etc)

Finish Setup

1. After completing these steps on all Multiplex VFDs, return to the primary VFD and press ENTER.

2. The primary screen will say "Found S2" with numbering matching the chosen Multiplex ID's for secondary units. Press ENTER to confirm or UP to retry.

3. If all VFDs are communicating properly, the primary will say Programming Complete. Press the HOME button on all VFDs to return HOME.

4. Press the RUN/AUTO button on all VFDs to begin pumping.

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