

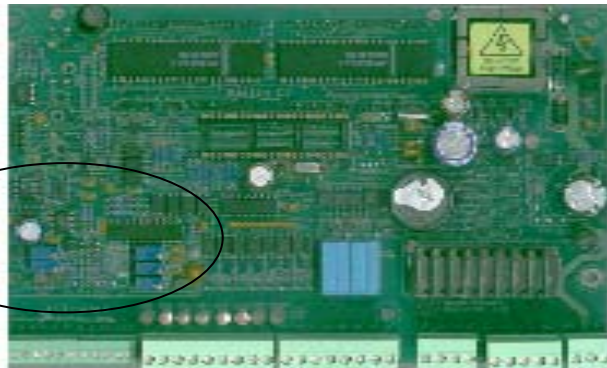


TUNING MARLIN/GW / GREAT WHITE SYSTEMS

The MARLIN/GW and Great White control system require tuning of some of the inputs and outputs in order to adjust the PCB to the specific VFD. This is due to component tolerance between the specific components in both the VFD and the MARLIN/GW/Great White PCB. All electrical components operate within a tolerance normally $\pm 5\%$. This means that the possible tolerance from electrical components can be up to 10% on the full range of operation.

The tuning of these pots is a site related operation and can be done by qualified personnel only. If you are at all unsure contact your Southern Cross agent and get expert assistance.

Tuning
Pots



There are 3 pots that require checking:

Reference Frequency – This sets the SET POINT pressure. A 0-10 VDC signal is sent to the VFD to provide a reference setting for the pressure. This generally does not require adjustment.

System Pressure – This tunes the pressure transducer to read actual system pressure

VFD speed – Reads the speed output from the VFD

All of these parameters are essential for the operation of the system.

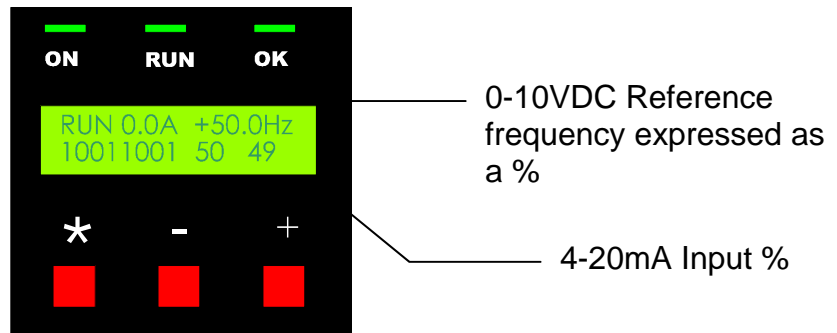
1. REFERENCE FREQUENCY OUTPUT

The reference frequency is the output, which governs the set point pressure that is being sent to the VFD. This pot should not be adjusted, as any variation of this item will cause a dual adjustment potential for the pressure setting.

Should this pot require adjustment the following procedure should be used: With a multi-meter measure the voltage between pins 5 & 6 on the MARLIN/GW PCB - (Volts DC). Change the set point pressure on the MARLIN/GW to 50% of the transducer full scale and measure the voltage. If the adjustment is correct the voltage should be 5 VDC. Adjust to suit if the voltage is incorrect.

If you do not have a multi-meter the reference can be read directly off the VFD.

UD3 - Go to the first display screen. Hold down the “-“ key until it will go no more.



The display shows the reference frequency as a percentage and the pot can be adjusted from this reading. Eg if the reference is 300kPa and the pressure transducer full scale was 2500kPa then the reference on the VFD would read:

$$(300 \div 2500) \times 100 = 12\%$$

XTRAVERT

The reference voltage can be read from screen Z3

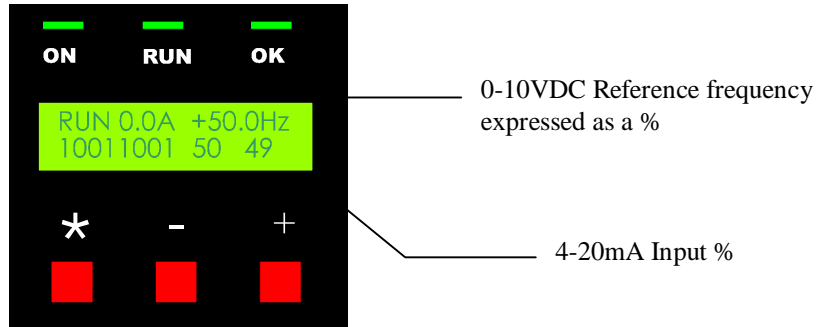
ELITE

The reference voltage can be read from screen Z3

2. TRANSDUCER READING

The 4 – 20 mA reading from the pressure transducer can be read from all VFD's as per the reference frequency.

UD3 - Go to the first display screen. Hold down the “-“ key until it will go no more.



The display shows the system pressure as a percentage

Eg if the system pressure is 320kPa and the pressure transducer full scale was 2500kPa then the reference on the VFD would read:

$$(320 \div 2500) \times 100 = 12.8\%$$

As the scale is only in whole numbers this reading would be 13%

XTRAVERT

The reference voltage can be read from screen Z4 in mA

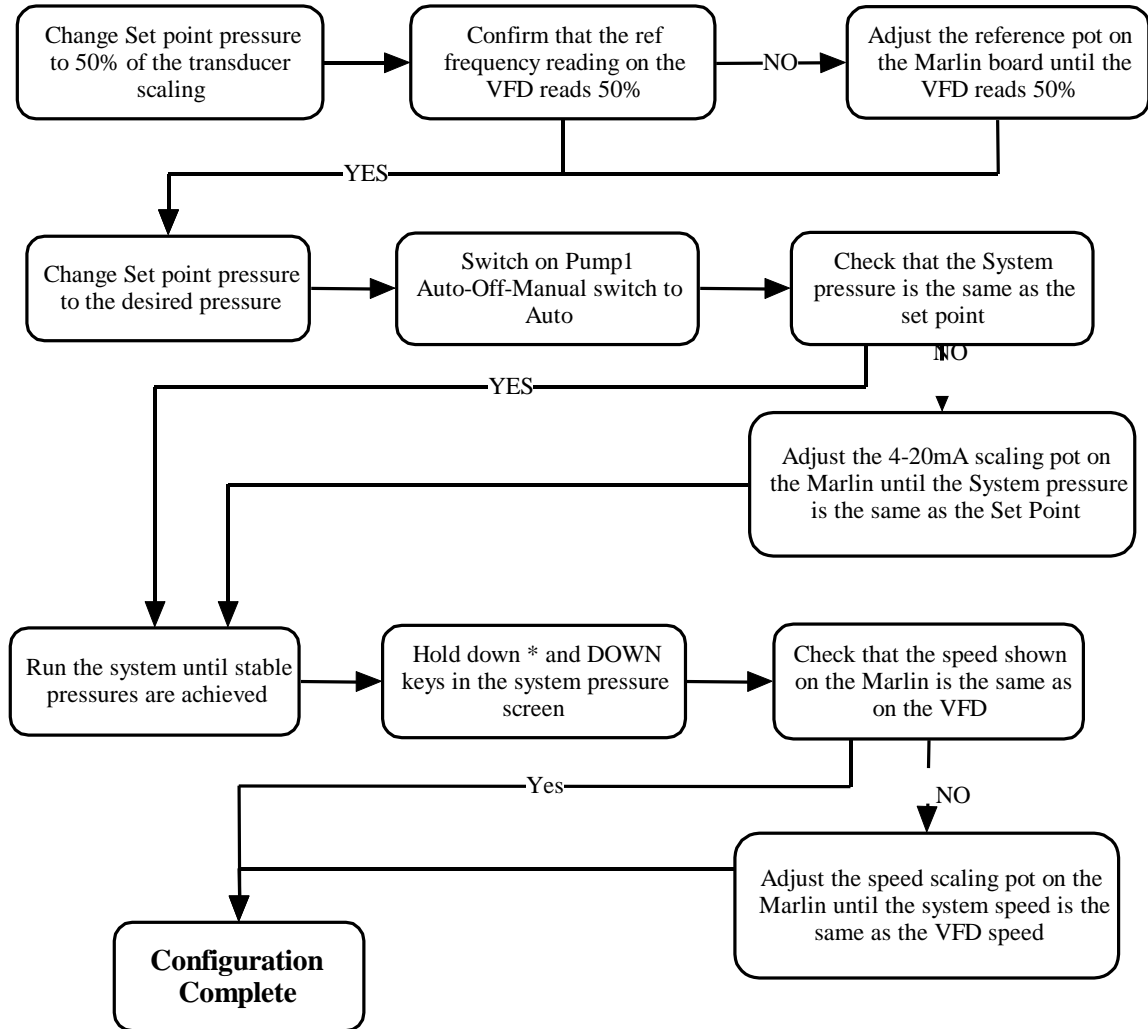
ELITE

The reference voltage can be read from screen Z4 in mA

3. VFD SPEED INPUT

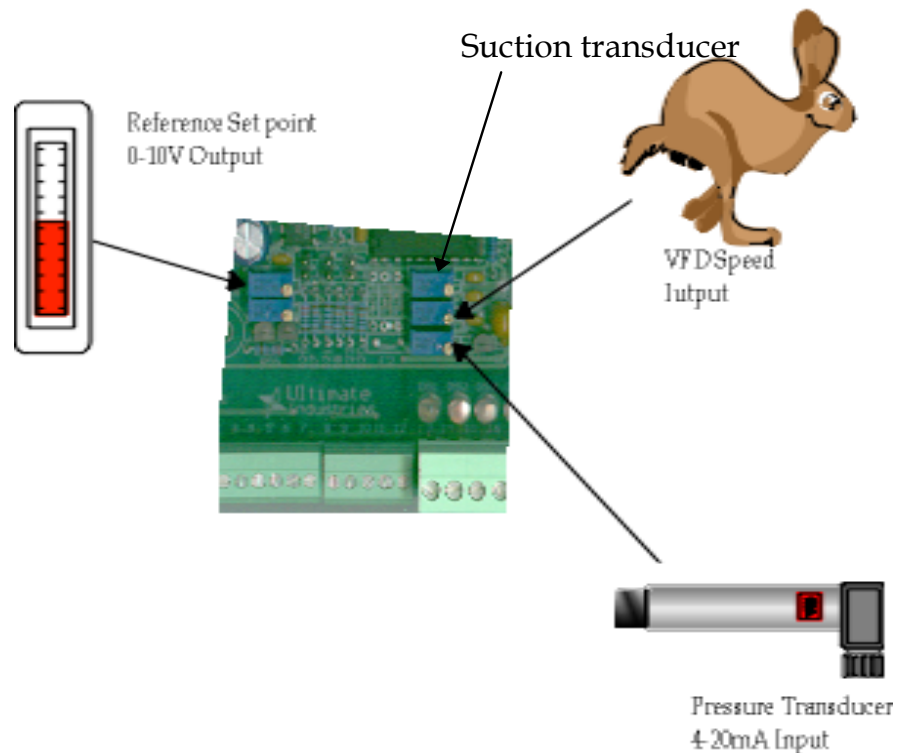
This is a 0-10V signal from the VFD which tells the MARLIN/GW PCB what speed the VFD is running at. This setting is very critical, as the pumps will not change up unless the MARLIN/GW sees the speed reach maximum- typically 2 Hz above the nominal power frequency. To adjust this pot run the system up to full speed. Once you are certain that the system is at full speed as defined on the VFD menu then adjust the pot shown until the frequency reading on the MARLIN/GW is approximately 0.1 HZ above that shown on the VFD display screen. The speed can be seen by pressing the * and DOWN key simultaneously on the Marlin/Great White.

FLOW CHART FOR TUNING THE MARLIN/GW INPUTS/ OUTPUTS



ADJUSTMENT POTS

These pots adjust the variable analogue inputs and output that control the system and incorrect tuning will make the system **crash** !



ANTI CYCLE TUNING

The pumps in a Marlin System will cycle Up when more pumps are required and Down when less pumps are required. In some systems this cycling can become unstable if the minimum frequency is set too high. This allows the pumps to think that they are not required and consequently the pump will drop out. Once the system pressure drops and the lead pump accelerates to full speed than the lag pump is called again.

To stop this cycling, increase the Shutoff Head reading. This effectively reduces the minimum frequency figure. Continue to increase this reading until the system becomes stable over all flow ranges.

Once this is done it is necessary to reconfigure the Shutdown setting via the STOP ADJUST Input.-See operations manual.