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Z-DRIVE ISOLATION AMPLIFIER
ONE CHANNEL (part #20350006)
TWO CHANNEL (part #20350007)

INSTALLATION and OPERATION
MANUAL (REV. 1.2)

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Z-DRIVE ISOLATION AMPLIFIER (part #20350006 & 20350007)



Z-Drive Isolation Amplifier Description

Each Z-Drive Isolation Amplifier module (one or two channel), will provide total galvanic isolation between any ComNav Autopilot System and the electronic control systems typically found on Rudder/Propeller Z-Drives, Surface Piercing Drives and Jet Drives. Some of the more familiar drive systems that fit into this category are ones like Aquamaster, Ulstein, Nigata, Schottel and Hamilton.

The signal format coming from each module is an analog (-10.0VDC)-0-(+10.0VDC) output and is available in completely isolated one or two channel models (must be specified at the time of ordering).

DIMENSIONS:

Length = 12.0 in. (305mm) Width = 5.5 in. (140mm) Depth = 2.5 in. (64mm)

HIGHLIGHTS OF THE Z-DRIVE INTERFACE INCLUDE:

- Solid State circuitry
- Anodized aluminum housing (watertight if installed correctly)

SPECIFICATIONS:

Weight: 3.0 lb 1.36 kg
Operating Voltage Range: (-10.0VDC)-0-(+10.0VDC)
Operating Temperature Range: -10 degrees Celsius to +70 degrees Celsius

WIRING DIAGRAM TO 2001 PILOT (Fig. 1 & Fig. 2)



Fig. 1

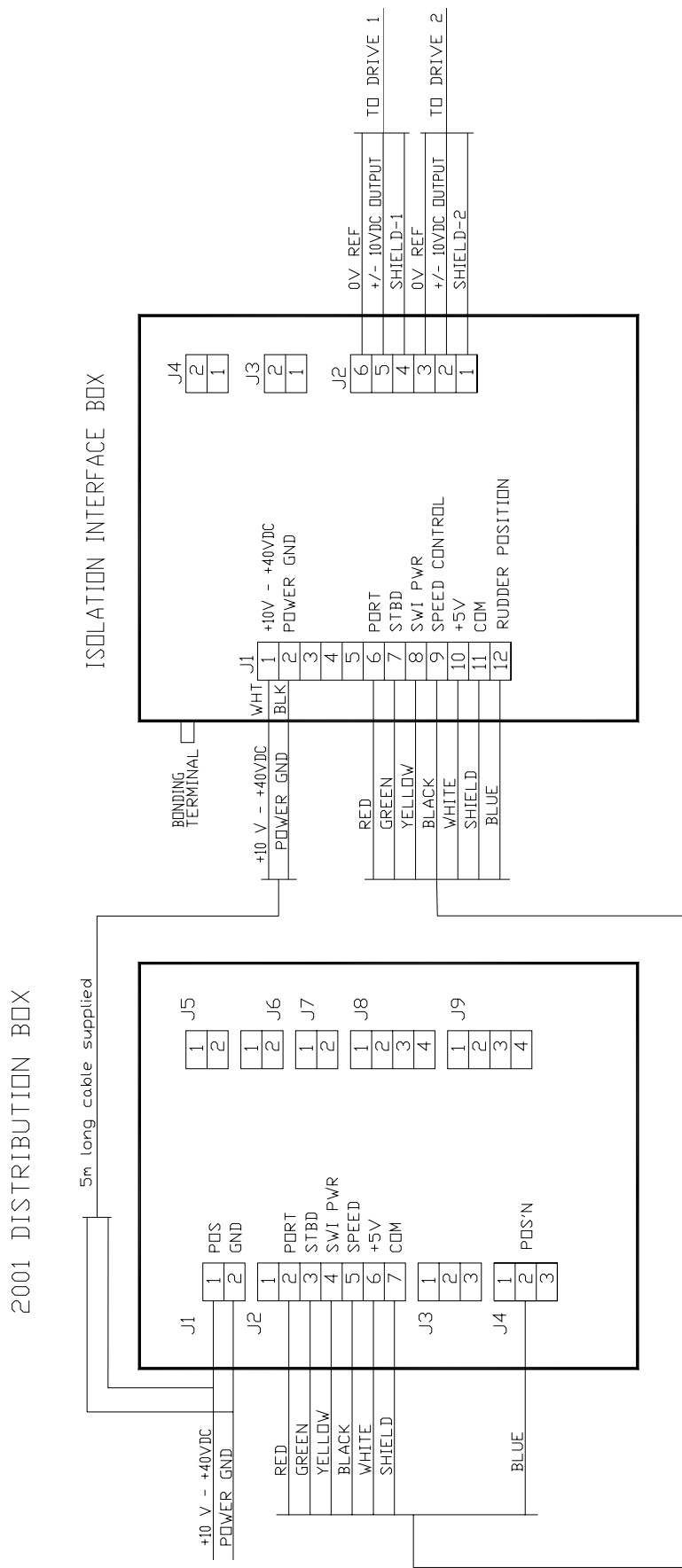


Fig.2

CONNECTIONS FROM 2001 DISTRIBUTION BOX TO ISOLATION INTERFACE BOX

SET-UP AND ADJUSTMENTS

Refer to the component layout labelled **ISOR1** to locate the various points discussed in the following set-up and adjustment procedure.

Amplifier Adjustments

1. **Normal or Inverse direction:** steering direction may be reversed by changing the shunt on **JP1**. To reverse steering direction, move the shunt connecting **pin 1** and **pin 2** over to connecting pin 2 and pin 3. To verify that the steering is moving in the correct direction, activate either the **Port** or **Starboard** dodge keys while the autopilot is in the **Power Steer** mode.

Autopilot/Control System mode selection

2. Electronic selection by a remote switch or by logic circuitry is made possible through connector **J3**. This may be required on vessels such as double-ended ferries or in circumstances where the Z-Drive Control System is required to have system priority over the ComNav autopilot.

Rudder Gain Settings

3. **VR1** provides the adjustment for maximum rudder angle commanded by the autopilot and consequently the maximum output signal swing. **VR1** should be adjusted if:
 - a) Less than a ± 10.0 VDC output swing is required
 - b) A larger steering gear angle limit is specified
 - c) A smaller steering gear angle limit is specified

To correctly adjust **VR1**, first put the autopilot in the **Power Steer** mode. Activate and hold either the **Port** or **Starboard** dodge keys until the autopilot output reaches the normal limit. Then adjust **VR1** on the isolation amplifier until the steering gear reaches the desired value or limit.

Input Offsets

4. Each channel has a trimming potentiometer; **VR2** adjusts channel one and **VR3** adjusts channel two (some systems only require one channel). Both trimmers are factory pre-set to zero volts when the autopilot is in the **Standby** mode. Each channel can be individually adjusted by the trimmers to compensate for small steering gear offsets away from the mechanical mid-ships position. This adjustment may be required to trim and keep the vessel dead ahead while under way and is called helm bias. The autopilot is designed to compensate for helm bias but will require a small amount of time to do so after being switched into the **Pilot** mode. The required offset can only be determined by doing sea trials at the desired cruising speed. While under way, record the offset angle by watching the Steering Angle Indicator. At dockside, adjust **VR2** and **VR3** (if two channels are being used) to command the same angle when the autopilot is first switched into the **Pilot** mode. This will allow smoother transition when switching from manual to autopilot steering.