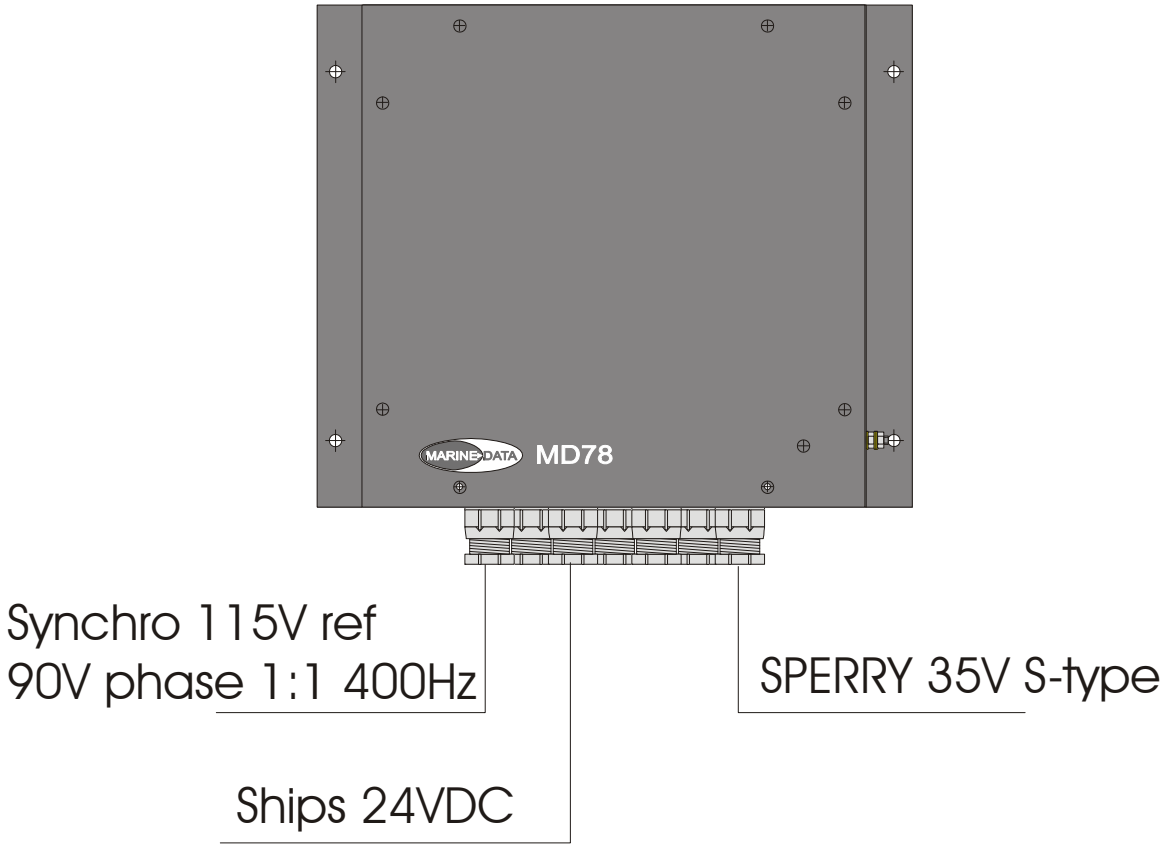
MARINE DATA
Vittlefields Ind. Est., Forest Road,
Newport, Isle of Wight, PO30 4LY, UK.
Telephone: +44 (0) 1983 822180
Facsimile: +44 (0) 1983 822181
E-mail: marinedata@dial.pipex.com
Web: www.marine-data.co.uk

MD78

SYNCHRO TO STEP RETRANSMISSION UNIT



System application

- **Introduction**

This unit provides a six step per one degree, 35V DC, output, from a synchro input 400Hz 1:1 ref. applied. The prime application is with the Sperry SR50 Gyro. The unit is entirely solid state and contains no moving parts. Connections are made to four BA screw terminals via seven cable glands which accommodate cable diameter up to 13mm.

The retransmission init is based on Z80 microprocessor architecture, which processes the synchro input to generate a six step per one degree output. Three lED's are provided to monitor the output stages, which are in the open collector configuration and fitted with pull up resistors. A switch mode power supply provides 35V DC to supply the output with a maximum of 3A, 1A per switched line and 1A illumination. A 6.3A fuse protects the input. A 3.15A fuse protects the output. The unit has inbuilt protection against line overload and will limit at 3.2A. The switch mode power supply also supplies the microprocessor and interface circuits with their supplies. A switch is provided to turn the unit on and off.

- **Installation For Digital or step Input.**

Tools required: basic hand tools; D.V.M; megger

Step	Description	Remarks
1	Inspect the packing for contents.	Note any damage or exclusions.
2	Inspect the mounting position for suitable clearance and cable access.	Bulkhead mounting option. (see specification for detail.)
3	Locate signal and power connections	The MD78is designed to run on a 24vdc supply and accept a synchro (115V ref 90V phase 1:1) signal and provide a 35V S-Type step output. Isolation and earthing requirements should comply with Lloyd's rules and regs. VI para 1.13.2
4	Mechanically install the MD78	
5	Identify ships wire functions and remove lid of unit	
6	Wire as indicated below and commission	

Figure 1 Digital lid removed to expose connector panel

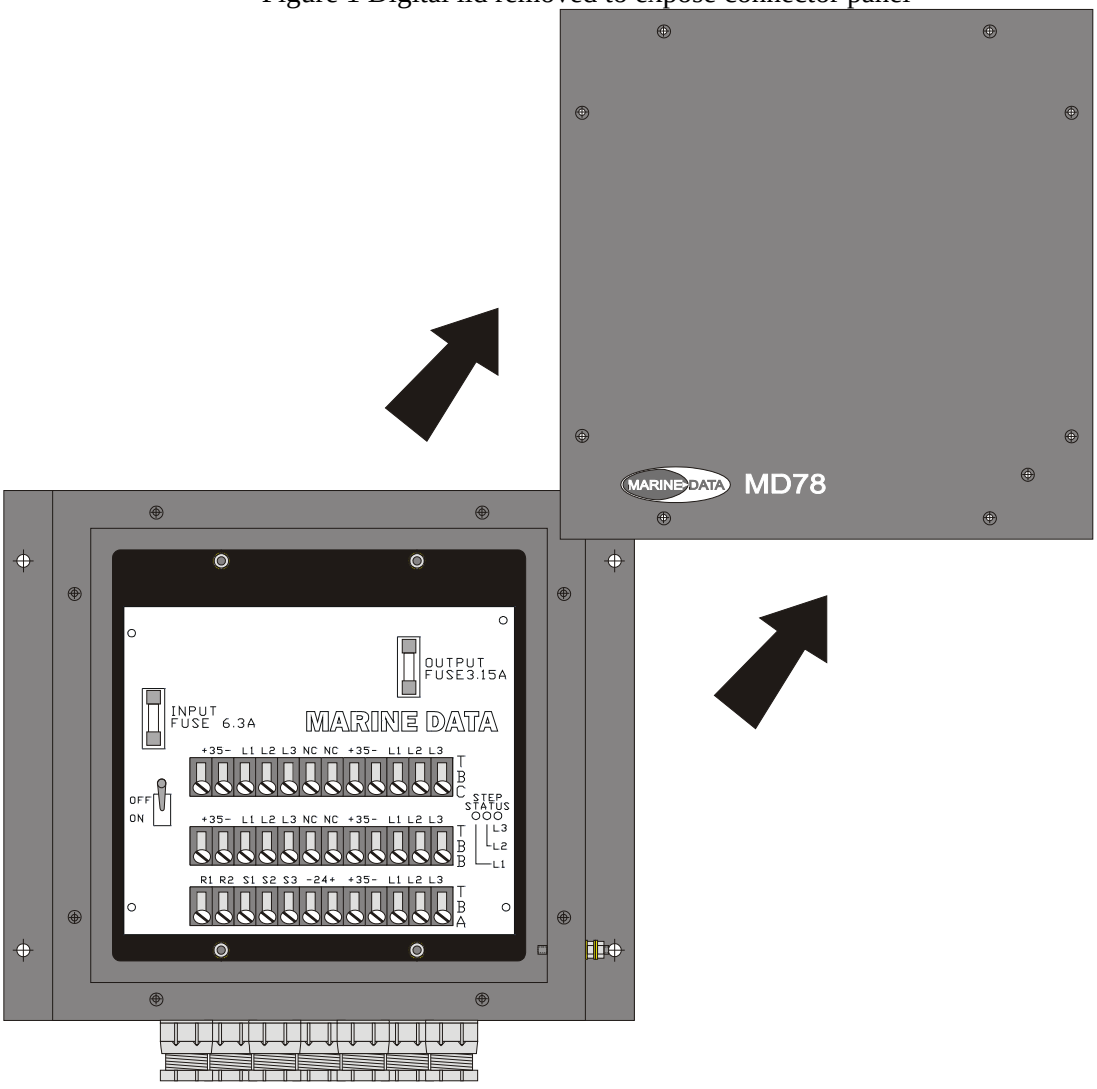
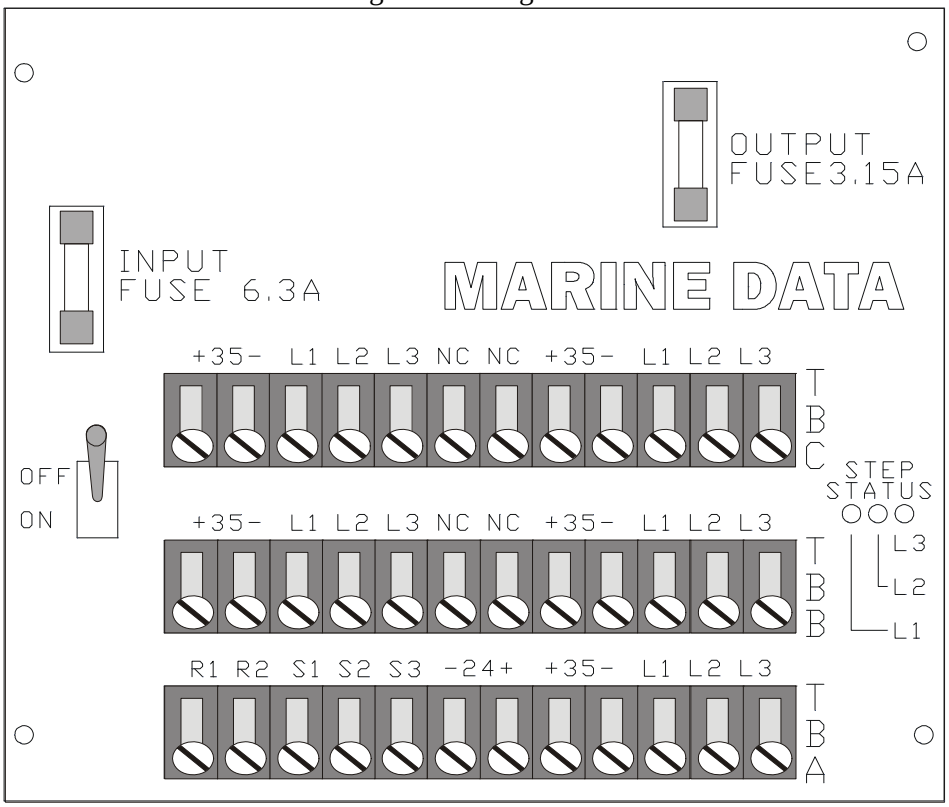


Figure 2 Wiring information



- **System Commissioning**

STEP	DESCRIPTION	REMARKS
1	Ensure that installation is satisfactory	
2	Switch supply and power	
3	Align all receiving devices to current transmitted heading.	For step input configuration the repeater will have to be aligned to the ships heading,
4	Ensure the repeater follows with the gyro	
5	Commissioning is complete	See Controls

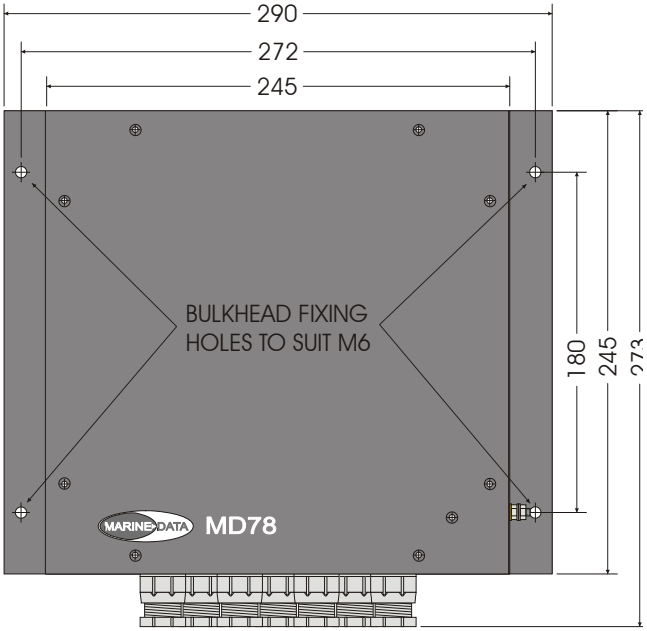
- **Operator Controls and indicators.**

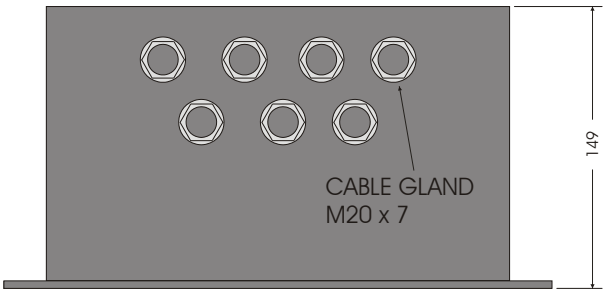
There is one single control located on the front terminal panel this is used to switch the unit on or off. In addition there are two fuses located on the front terminal panel, which protect the input ant output circuits. There are three indicator lamps, which indicate the status of the step lines only two should be lit at any one time.

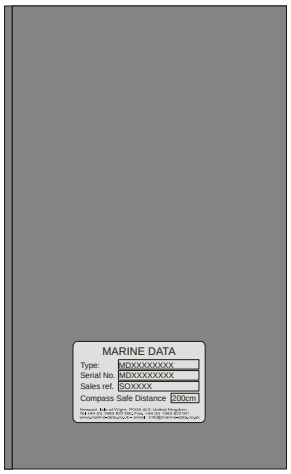
- **User fault finding Guide.**

Symptom	Probable fault	Remedy/Note
MD78 does not operate.	No Power Blown fuse	Check incoming power supply. Replace defective fuse(s).
When the unit is turned on one or two LED's should illuminate. If not measure the 35V DC output. If 35V DC is not present there is a fault with the Switch mode power supply PEC. If 35v DC is present there is likely to be a fault with the microprocessor PEC.		
If the unit starts up initially and then ceases to operate after a short period, there is likely to be an overload on the output. Check the current taken by the repeaters.		
If Fuse blows repeatedly. Fault on switch mode or interface PEC.		

- **SPECIFICATION FOR MD78**







- **Physical**
  - Weight: 2.8Kg
  - Mounting: Bulkhead
  - Finish: Black/Grey
  - Connections: 3 x 12 way connectors
  - Construction: Aluminium Enclosure
- **Electrical**
  - Power Supply: 24v DC
  - Data Input: Synchro 115V ref 90V phase 400Hz 1:1
    Sperry S type 35Vdc step. 6 steps per degree, five sets of terminals to operate a maximum of 4 motor repeaters and high impedance inputs as required. Total current rating 1A per line and 1A Illumination.
- **Operational**
  - Performance: +/- 1/6° (1 step) Accuracy
  - Follow up rate: 12° /S
- **Mounting Information**
  - See diagram at right for mounting information.
- **Environmental**
  - Rating: IP54
  - Temperature: -10° C to +70° C