The three analog outputs are updated at the same time as the displays at an update rate of 8 times per second. It is suggested that these outputs be used as indicators as the accuracy and resolution are limited by the 12 bit D/A converter. Scaling is as follows:

Pressure: 5.00 V = 100% FS ±0.1%
Temperature: 5.00 V = 25°C ±25 m°C
Conductivity Ratio: 5.00 V = 1.00 ±0.001

Data and clock outputs can be recorded on a stereo tape recorder and then played back through the control unit at a later time for processing. The recommended recorder and tape are Sony type 186 SD using Memorex C90 tape cassette. General recorder specifications are:

- frequency response 40 Hz to 12 KHz ±3db
- high input impedance (> 100 KΩ)
- low output impedance (1/2 volt signal into 100 KΩ load)
- ungrounded input and output
- non-Dolby system
- non-CrO_2 tape

The tape recorder is supplied as Option 02 and is factory tested.

1.6 SPECIFICATIONS, MEASUREMENT RANGE AND ACCURACY

Range	Accuracy	Resolution	Stability
Conductivity(1)			
100 ppm to 40 ppt	±0.005 ppt(2)	±0.001 ppt	±0.002 ppt/6 mo.
Temperature			
-2°C to +30°C	±0.005 C°(3)	±0.0005 C°	±0.002 C°/30 days ±0.005 C°/6 mo.
Pressure			
to 6000 dbar	±0.15%fsp	±0.01%fsp	

NOTE: 1) The conductivity specifications are given in terms of equivalent salinity for convenience. The calculations used to produce these figures are based on the work of Dr. A. S. Bennett, Atlantic Oceanographic Institute, Dartmouth, Nova Scotia, Canada.

2) The accuracy statement includes linearity, resolution, repeatability and calibration uncertainty relative to standard sea water.
3) Accuracy is as specified at the time of calibration and includes resolution, system linearity and repeatability (±0.003 C^{o}) plus calibration uncertainty relative to the International Practical Temperature Scale of 1968 (±0.002 C^{o}).

RESPONSE TIME CONSTANT:

Less than 50 ms all channels, including sensors and associated electronics.

DATA FORMAT:

Code: Multiplexed analog outputs converted to offset binary, in turn converted to 3 level (+1, 0, -1) return-to-zero for cable transmission.
Bit rate: 4800 bits per second.
Cycle time: 40 ms

OUTPUT FROM CONTROL UNIT:

Parallel: TTL compatible positive logic. Message content: 12 bit binary word, 4 bit channel address, 1 bit read command (20 μs). A complete cycle for conductivity, temperature and depth consists of six messages - the 1st and 2nd words of the measured parameter, plus channel address and a read command for each word.
Analog: A 12 binary bit digital-to-analog converter provides DC outputs of up to ±5 V at 2 mA for use with an XY_1Y_2 chart recorder.
Power to probe: 270 mA constant current through a cable resistance of up to 350 Ω.

DISPLAY:

The 1st and 2nd words making up the values of conductivity, temperature and depth are recombined in the control unit and fed to three LED displays of 5½ digit resolution. Readout units are: Conductivity - Conductivity ratio referred to 1.000 at 35 ppt,0 dbar, 15°C. Temperature - degrees Celsius. Depth - pressure in % of full scale pressure.

SENSORS:

Conductivity - Four electrode conductivity cell, spatial resolution in vertical plane approximately 5 cm. Nominal conductance 10 mS at 35 ppt, 15°C.
Temperature - Resistance thermometer consisting of fine copper wire sensing element encased in oil-filled stainless steel capillary tube, terminated in a four terminal configuration. Nominal ice point resistance is 46 ohms.
Pressure - Strain gauge type transducer having an output of 2 mV/V. Available in ranges up to 6000 decibars (overrange capability: 50%).

CABLE REQUIREMENTS:

Single conductor, contrawound double armour.

PROBE CONNECTOR:

Electro-Oceanics Type B53F2M-1. Mates with Electro-Oceanics Type B51F2F-1.

SLIPRING REQUIREMENTS:

Two section slipring assembly. Guildline Model 8600/2W or equivalent.

POWER REQUIREMENTS:

115 or 230 volts, 50/60 Hz, approximately 200 watts.

DIMENSIONS AND WEIGHTS (Approximate):

MODEL	APPLICATION	DIMENSIONS	WEIGHT
8705	Open ocean to 6000 metres.	15.2 cm diam. X 113 cm long. 36 cm across sensor cage	32 kg.
8706	Arctic (minimum-cross-section) to 2500 metres.	12.7 cm diam. X 142 cm long.	18 kg.
8707	Towed bodies (Sensor mountings independent of case) to 400 metres.	12.7 cm diam. X 97 cm long.	14 kg.