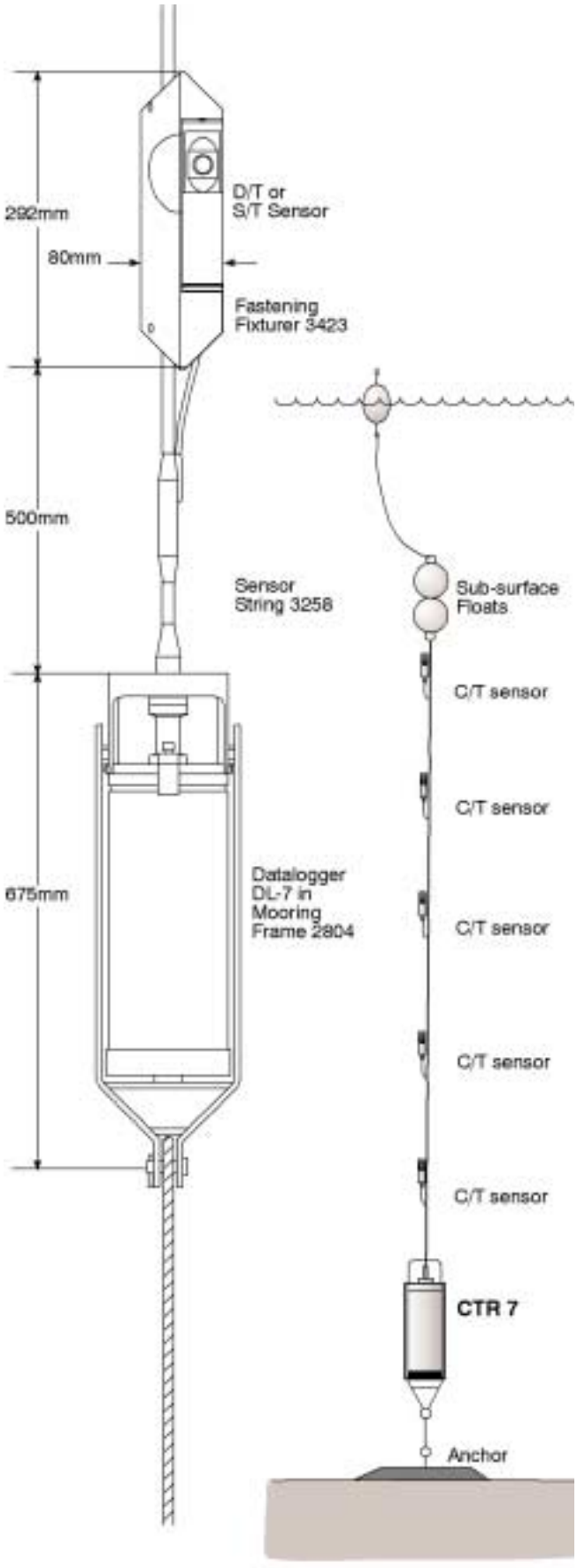
AANDERAA INSTRUMENTS

DATA COLLECTING INSTRUMENTS FOR LAND SEA AND AIR

CONDUCTIVITY/TEMPERATURE PROFILE RECORDER, CTR 7

A solid state in-situ recorder for measuring the vertical conductivity and temperature profiles in the sea.

Sensor String with 5 C/T sensors.



Monitoring the vertical conductivity and temperature profile of the water is of significant importance to oceanographers and marine biologists in their study of the sea. The Conductivity Temperature Recorder CTR7 is a versatile instrument designed to measure and record these parameters at regular time intervals. The CTR7 is moored in a fixed position and can operate for long periods.

The CTR 7 consists of a 12-channel datalogger and a string with up to 5 Conductivity/Temperature sensors. The sensors are clamped to the string by a fastening fixture.

The sensor string, which has a strain member, is terminated at the datalogger with a strain-proof watertight plug. The datalogger is furnished with a frame for in-line mooring.

The Datalogger DL7 is housed in a standard Aanderaa pressure case and contains all necessary functions and electronics to scan and store the parameters at user selectable time intervals. All electronics are molded in low density polyurethane foam.

When triggered, the datalogger will scan each sensor in sequence, starting with the sensor nearest the logger, and convert the readings to 10-bit data words (PDC-4). These are stored in the Data Storage Unit DSU 2990. Simultaneously, an acoustic transducer transmits the same data words into the water, thus providing in-situ monitoring of data on the surface by means of a Hydrophone Receiver 3079.

An electrical terminal on the top end-plate gives access to the same data signals that are being stored in the DSU 2990, a convenient feature when calibrating and testing the instrument.

The first channel gives a reference reading identifying the datalogger and the recorded data. The reference number also serves as a check of the datalogger's performance. When the last channel is read, the logger goes quiescent, waiting for the next trigger pulse to arrive. Time and date for the first measurement cycle and subsequently for every measurement after midnight are also recorded in the DSU.

After the measuring program is completed, the stored data are easily read by a PC with DSU Reader 2995 and Program 4059.

The CTR 7 can be deployed in various ways. One example is shown to the left where the logger is fastened to an anchor weight on the sea floor and the string with the sensors is held in an upright position by sub-surface floats. A marker buoy on the surface will ease the retrieval of the instrument.

One of the C/T or S/T Sensors can be replaced by a C/T/D or S/T/D Sensor if required.

SPECIFICATIONS FOR CTR 7 (P/N 3141)

DATALOGGER DL 7

Measuring system:

Self balancing bridge with sequential measuring of 12 channels, and a solid state memory. Each channel is represented by a 10-bit binary word. The first channel is a fixed reference number, acting as a control and identification of the instrument.

Measuring Speed: 4 seconds each channel
Signal Type: 10- bit binary words (PDC-4)
Number of Channels: Selectable from 2 to 12
Operating Temp.: -7.5 to + 41°C
Sampling Intervals: 10 selectable intervals in minutes 1,2,5,10,15,20,30,60,120 and 180
Recording Type: Aanderaa Standard Data Storage Unit 2990
Capacity: 65500 data words
Data Storage Unit DSU 3990
Capacity: 1 million data words

Acoustic Telemetry: Range up to 800 m with Hydrophone Receiver 3079
Battery: (included) 9V,4Ah battery
Operating Temp.: -7.5 to + 41°C
Depth Capability: 2000m
External Material: CuNiSi (OSNISIL) and stainless acid proof steel, epoxy coated
Weight (kg): In air: 13,7 kg, In water: 9.2 kg
Gross weight: 19 kg incl. plywood packing case
Packing Case: Plywood case (mm):190 x 250 x 650
Accessories(included)**:** Mooring Frame 2804

SENSORS

The C/T and S/T sensors are of the electrodeless induction type based on two toroidal windings surrounding a calibrated bore. The temperature measurements are done by a thermistor. Individual data sheets are available on request.

C/T SENSOR 3211/3211D

	Conductivity:	**Temperature:**
Range:	0–75mS/cm.	-7.5to+41°C
Accuracy:	±0.3mS/cm.	±0.1°C
Response Time:	15 seconds	
Depth Capability:		
3211	300 meters	
3211D	1500 meters	
Materials:	Titanium and Durotong	
Net Weight:	385 grams	

S/T SENSOR 3210/3210D

	Salinity:	**Temperature:**
Range:	0–40ppt	-7.5to+41°C
Accuracy:	±0.2ppt.	±0.1°C
Response Time:	15 seconds	
Depth Capability:		
3211	300 meters	
3211D	1500 meters	
Materials:	Titanium and Durotong	
Net Weight:	314 grams	

The above sensors can also be delivered as STD or CTD sensors designated 3230 and 3231 respectively. The pressure range is the same for both sensors.
Pressure range: 0-100kPa. abs. Other ranges on request.
Accuracy: 0.2% of range

SENSOR STRING 3258, and Sensor Fastening Fixture 3823

Cable: 13mm O.D.,18-conductor polyurethane cable with built-in, 4.5mm, strain member
Breaking Load: 1300kg.
Connectors: One 18-pin watertight plug, and five 10-pin sensor plugs (normally equally spaced)
Weight (in water): 1.61 + L x 0.125kg.
L = Cable length in meters.

Packing Weight (Gross): 7.9 + L x 0.26 Kg.
(+ 0.93 Kg. for each 3423.)
Fastening fixtures: The sensors are clamped to the string by means of Fastening Fixture 3423. (Optional)
Weight: 930 grams
Warranty: Two years against faulty materials and workmanship

AUXILIARY EQUIPMENT FOR CTR 7

DATA STORAGE UNIT (DSU) 2990.

This portable, watertight unit stores up to 65530 ten bit, PDC-4 coded words in a set of EEPROMs. The data stored in the DSU is transferred to a computer via a DSU Reader 2995. The real-time clock and LCD display are powered by a built-in battery when the unit is removed from the instrument. When higher storage capacity is required use DSU 2990E which has a storage capacity of maximum 262127 ten bit words.

DSU READER 2995.

This unit provides a full duplex communication between a computer and the Data Storage Unit 2990. It converts the 0 to –5 volt serial signals associated with the DSU to dual-polarity signals in accordance the RS-232C standard. It also supplies the control voltage for powering the DSU during the read-out process.

A “Windows” based program 4059 is available that will provide:

1. Raw data in RS 232C format on 3.5” diskette (format 3056)
2. Data in engineering units in RS 2332C ASCII format, on 3,5” diskette.
3. Listing of raw data
4. Listing of data in engineering units
5. Data plotted as graphs

The program can be used for PC’s running MS Windows 3.11 or newer and MS Exel 5.0 or newer.The program, delivered on two 3.5” diskettes, is menu driven and easy to use. Relevant documentation included.

DECK UNIT 3127.

This battery or mains powered unit is recommended to users for checking instrument performance as well as for calibrating purposes. An LCD display shows the decimal number corresponding to the ten bit binary output signal. The unit has an RS-232C output and is furnished with a push button that will trigger one measuring cycle of the instrument.

HYDROPHONE RECEIVER 3079.

This hydrophone receiver is used to monitor the acoustic signals transmitted by a moored instrument. The Hydrophone is connected to and powered by Deck Unit 3127 which displays the acoustic signals as a decimal reading.

MOORING FRAME 2804

This frame, made of stainless steel and epoxy coated, enables in-line mooring of the CTR 7

SUBSURFACE FLOATS.

Viny Float set 2209B, buoyancy: 40 kg, depth capability: 200 m. Use one set for each CTR 7 with up to 100m sensor string in currents up to 3 knots.

ORDERING INFORMATION

Orders can be placed by fax, letter or telephone and will be acknowledged by return mail. Delivery time is normally from 4 to 6 weeks. Spare parts will be delivered from stock. Terms of payment is 30 days Net. The warranty period runs from date of delivery

Latest version is on the Internet

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