

Data Storage Unit 2990

D174 - April 2010



Data Storage Unit

The Data Storage Unit (DSU) is a portable, reusable, solid state module for storing data in the 10-bit PDC-4 code.



Engineering Data Graph from Data Reading Program 5059

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Data Storage Unit (DSU) is a standard data storage device for all Aanderaa Automatic Weather Stations, data collecting instruments and databuys with PDC-4 output. The DSU is molded in low density polyurethane, and it floats. The unit has a six-pin watertight receptacle for input/output of data. A five-digit LCD module shows the total number of data stored. After the unit is removed from an installation an internal battery provides power to the clock and LCD.

The DSU incorporates a pre-settable, real-time clock for recording time information. A time record consists of six ten-bit words. The first is a fixed binary reading equal to 7, followed by 5 words indicating year, month, day, hour and minute. The DSU will record time information for the first measurement, and thereafter for every first measurement after midnight. The clock features automatic leap year compensation.

When the unit is connected to a data collecting system, the

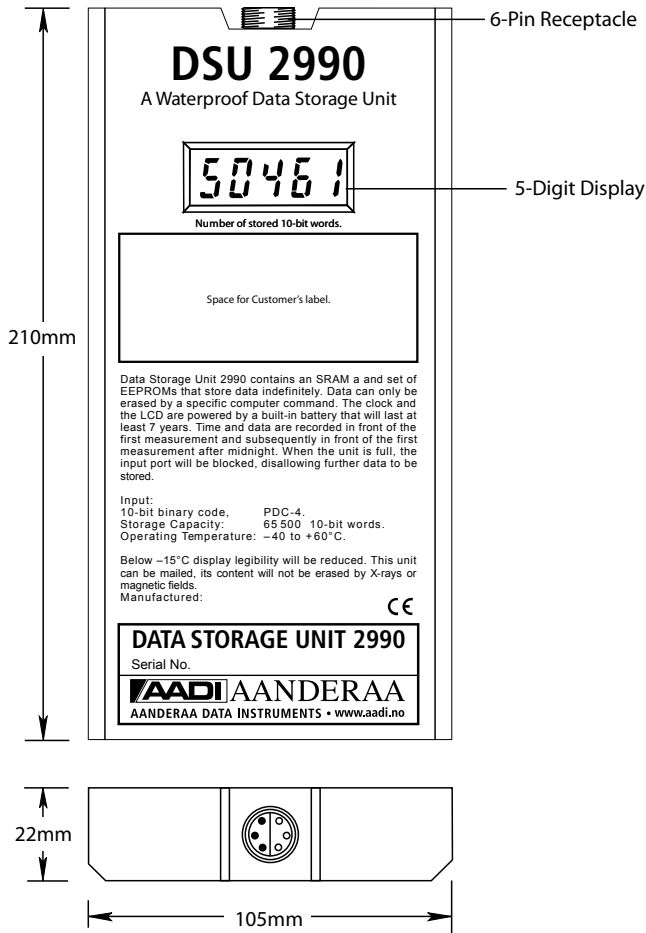
display reading will increment by one every time a ten-bit data word enters the unit. The DSU 2990E can accept up to 262100 individual ten-bit words. When the unit is full, the input port is blocked, disallowing further data to be stored. A special version, designated 2990X, will continue to receive new data and delete the oldest ones. A third version, designated 2990A is a special version storing data in the PDC-0.2 code.

The data stored in the DSU is transferred to a computer by means of the DSU Reader 2995 and Data Reading Program DRP 5059 which will allow for analysis of the data or transfer to other media. The reading process will not erase the data stored and the LCD module will show the full number of stored data after the unit is disconnected. In order to erase data a specific computer command must be given.

The Data Storage Unit will, while connected to a data logging system, be supplied with power from that system. It will draw about 3 mA from the system during storage sequence, four seconds per channel, and about 0.1 mA when the system is quiescent.

Specifications 2990

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DSU 2990
A Waterproof Data Storage Unit

50461
Number of stored 10-bit words.

Space for Customer's label.

Data Storage Unit 2990 contains an SRAM and set of EEPROMs that store data indefinitely. Data can only be erased by a specific computer command. The clock and the LCD are powered by a built-in battery that will last at least 7 years. Time and data are recorded in front of the first measurement and subsequently in front of the first measurement after midnight. When the unit is full, the input port will be blocked, disallowing further data to be stored.

Input: 10-bit binary code. PDC-4.
Storage Capacity: 65 500 10-bit words.
Operating Temperature: -40 to +60°C.

Below -15°C display legibility will be reduced. This unit can be mailed, its content will not be erased by X-rays or magnetic fields.
Manufactured:

DATA STORAGE UNIT 2990
Serial No. **AANDERAA**
AANDERAA DATA INSTRUMENTS • www.aadi.no

PIN CONFIGURATION

Receptacle, exterior view; pin = ●; bushing = ○

-9 volt — 3 — 4 — Commands

Control voltage — 2 — 5 — 10-bit code in

System ground — 1 — 6 — Data out

SERIAL OUTPUT FORMAT

One Data Word, 7 characters							Fault / Synch
1	2	3	4	5	6	7	
READING (any number from 0000 to 1023)				Space	Space	Null	No fault, no Synch
				Space	CR	LF	No fault, Synch
				*	Space	Null	Fault, no Synch
				*	CR	LF	Fault, Synch

Latest version on internet

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Input Signal: 10-bit binary code PDC-4

Output Signals: (Commands) Serial, asynchronous ASCII code at 9600 bits/s, 8 data bits, no parity, 2 stop bits. Mark: 0 V, Space: -5 V
Please refer to Technical Description No. 145: "Reading of Stored Data from DSU 2990" for a detailed account of output format and command specifications.

Clock stability: ±2s/day, -10 to +45°C
Time record format and commands for clock reading and setting are dealt with in Technical Description No. 145.

Current Consumption: When recording: 3mA

Quiescent: 0.1mA

Embedded Battery: Powers clock and LCD for >7 years

Memory Capacity:

DSU 2990A: 262,100 10-bit words

DSU 2990E : 262,100 10-bit words

DSU 2990X: 262,100 10-bit words with overflow

Display for 2990A/E/X:

0:0000=+100000 words i.e. 6:2100 = 162100 words

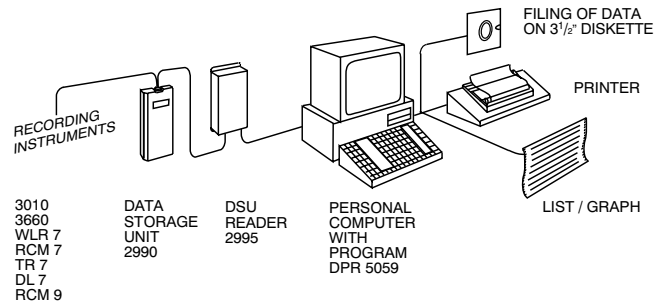
0:0:000=+200000 words i.e. 6:2:100 = 262100 words

Operating Temperature: -40 to +60C (LCD becomes illegible below -15°C)

Electrical Connection: 6-pin receptacle mating Watertight Plug 2828

Material and Finish: Molded in low density polyurethane

Weight: 0.4kg



DATA READING

To read stored data the Data Storage Unit (DSU) must be interfaced to the RS-232C port of a computer by means of a DSU Reader 2995. This reader converts the 0 and -5 V serial signals from the DSU to dual-polarity signals in accordance with the RS-232 standard. In addition it supplies the power to the DSU during the read-out process. For further details refer to Data Sheet D 192. The Data Reading Program DRP 5059 is available for presenting and processing raw data. Emphasized has been put on ease of use together with versatile, graphical user interface and system flexibility. See our Web site for further details.

Representative's Stamp