VHF Radio System

VHF RADIO TRANSMITTER 3838
VHF RADIO RECEIVER 3839
VHF RADIO REPEATER 3842

A short range real-time telemetering system for Aanderaa PDC-4 raw data signals from Automatic Weather Station 2700, Data Buoys and other monitoring stations.

Approved by the Norwegian Post and Tele-communication Authorities. Approval No.99000011and 99000012.

Automatic weather stations and data buoys are normally placed far from inhabited areas. To convey data in real-time from these stations or buoys, VHF radio communication has been found to be a good and inexpensive solution. The VHF Radio Transmitter 3838, Receiver 3839 and Repeater 3842 have been designed to take care of this data transmission.

The radio set is a low power, short range system, operating in the VHF band on frequency 141 - 143MHz, and requires line of sight between the transmitter and the receiver to function properly. A typical application for the radio set is transmitting a message from an AADI Automatic Weather Station every 10 minutes. This message consists of a number of 10-bit data words and lasts for about 4 seconds per word.

The Transmitter 3838 has a 2.5” OD aluminum housing with a half wave whip antenna on the top and a standard AADI sensor foot with a 6-pin receptacle at its lower end. The transmitter fits directly onto the AADI Sensor Cross Arm used on AADI Automatic Weather Stations and Data Buoys. The Receiver 3839 and Repeater 3842 have a cone joint with an 18-pin receptacle which fits a vertical 2” aluminum mast section.

The antenna has a good low angle omnidirectional radiation pattern. The modulation type for the transmission is frequency modulation which allows the 10-bit PDC-4 Aanderaa code to modulate the transmitter directly.

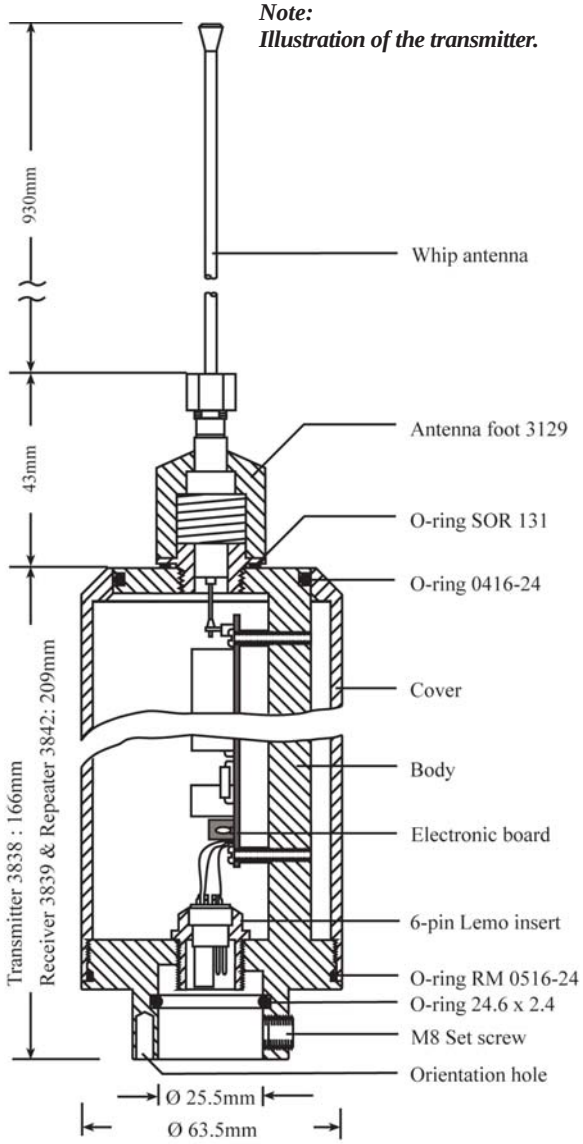
The output from the receiver is PDC-4 signals, the same as the input to the transmitter. This code is accepted by the 3127 Deck Unit for transfer of data into a PC.

The range of the radio set varies with topography. On land and over uneven terrain a range of 50km is realistic provided line of sight. Over flat land and water the range is only 6-8km with normal antenna height.

To get a better range or where line of sight is not possible, use Repeater 3842.

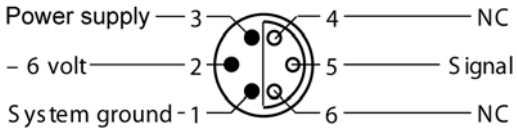
Specifications VHF Radio

Note:
Illustration of the transmitter.



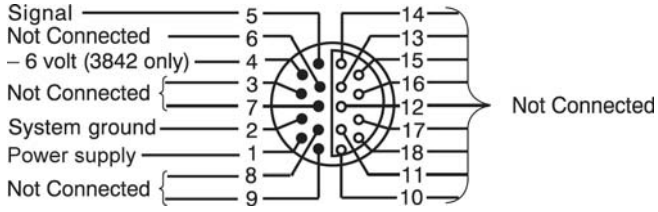
Pin configuration VHF Transmitter 3838

Receptacle, external view; bushing = o ; Pin = ●



Pin configuration VHF Receiver 3839 and Repeater 3842

Receptacle, external view; bushing = o ; Pin = ●



VHF Radio Transmitter 3838 (see front picture)

RF module:	Woods & Douglas, ST 100
Type of transmission:	Frequency shift F1D
Frequency:	141MHz to 143MHz* (other frequencies on request) channel spacing: 25KHz
Output power:	100mW max
Output impedance:	50Ω
Input impedance:	10kΩ
Current consumption:	Transmitting 100mA max
Temperature stability:	±5ppm
Net weight:	550g
Connection 3694:	Standard sensor foot with 6-pin receptacle mating Sensor Cross Arms 3415, 3435, 3465 and 3485

For installation on a 2" cone joint with 18-pin plug use Adapter 3715

VHF Radio Receiver 3839

RF module:	Woods & Douglas, SR 100
Double heterodyne receiver:	1st. I.F.45MHz 2nd I.F.455kHz
Type of reception:	Frequency shift, F1D
Sensitivity:	-117dBm at 12dB SINAD
Frequency:	As transmitter*
Output signal, PDC-4:	6V, 35mA at maximum load
Input impedance:	50Ω
Current consumption:	40mA
Net weight:	700g
Connection:	18 pin receptacle mating standard mast section with Radio Cable 2852
Dimension:	**H:** 166mm, OD: 63mm
Accessories, optional:	Brackets 3346 & tube with cone for fitting receiver to a vertical surface. Radio Cable 2852, 10m (shield)

VHF Radio Repeater 3842

RF module:	Woods & Douglas, SX 100

Otherwise specifications as for 3838 and 3839

Common to all units

Material and finish:	Aluminum 6061T, anodized 10-15µ
Operating temperature:	–30 to +50°C
Power supply:	–7 to –14Vdc
Antenna:	Half wave vertical whip type with connector type N
Approval:	ETS 300 220, ETS 300 683, CE

**** Note:***
Concerning restrictions on use of this equipment, the responsibility for obtaining the applicable permission from the appropriate authorities remains solely with the user. Actual frequency will normally be specified by the same authority.

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