

DShip - System

Manufacturer: [Werum System AG](#)

Responsible Persons

Summary of connected devices and systems

The following list is a summary of all devices and systems connected with DShip. During the cruises, mostly reduced and uncorrected data sets from these devices and systems are stored and available in the DShip onboard version. Shortly after the cruises, these data sets are made available in the DShip online database <https://dship.awi.de/>.

Page	Device name	DShip	Parameters
Acoustic Doppler Current Profiler (ADCP)	ADCP		average east velocity [m/s]; average north velocity [m/s]; averaging interval [s]; maximum depth for averaging [m]; minimum depth for averaging [m]; number of measurements used for averaging; true horizontal velocity [m/s]; true velocity direction [°]; up velocity [m/s]
Anschütz Gyrocompass	NACOS ship navigation system		System Heading
Dual Axis Doppler Log (DO-Log)	DO-Log		speed bottomtrack across [kn]; speed bottomtrack ahead [kn]; speed watertrack across [kn]; speed watertrack ahead [kn]
Electromagnetic Log (EM-Log)	EM-Log		speed [kn]
Ferrybox	FerryBox		CDOM [ppb]; conductivity [mS/cm]; NO2 [μmol/l]; sampling_time_NO2; PO4 [μmol/l]; NO3 [μmol/l]; sampling_time_NO3; sampling_time_SIO2; SIO2 [μmol/l]; flow [l/min]; fluorescence_chlorophyll_A_raw [μg/l]; fluorescence_chlorophyll_A_TR [μg/l]; fluorometer_temperature [°C]; oxygen_corrected [μmol/l]; pH; pH_temperature [°C]; phycocyanin [cells/m]; pressure [mbar]; quality_flag; salinity [PSU]; salinity_temperature [°C]; sampling_time_PO4; sound_velocity [m/s]; turbidity [NTU]
Fishing Echo Sounder (Simrad EK 80 with ADCP)	fishing echo sounder		depth (18 kHz) [m]; depth (38 kHz) [m]; depth (70 kHz) [m]; depth (120 kHz) [m]; depth (200 kHz) [m]
Global Acoustic Positioning System (GAPS)	GAPS		day; depth [m]; EW; latitude [°]; longitude [°]; month; NS; time in hours; transponder_no_sag; transponder_no_sax; x_coordinate [m]; y_coordinate [m]; year; z_coordinate [m]; pitch [deg]; roll [deg]; heading_std_dev [deg]; pitch_std_dev [deg]; roll_std_dev [deg]; altitude_std_dev; latitude_std_dev; longitude_std_dev; heading [deg]
Magnetometer System (Magnetics)	magnetics		electronics_temperature_port [°C]; electronics_temperature_starboard [°C]; FP [nT]; FS [nT]; gyro_heading [deg]; gyro_pitch [deg]; gyro_roll [deg]; sensor_temperature_port [°C]; sensor_temperature_starboard [°C]; XP-component [nT]; XS-component [nT]; YP-component [nT]; YS-component [nT]; ZP-component [nT]; ZS-component [nT]
Marine Gravimeter System (Gravimeter)	gravimeter		GRAVIMETER.PBGGGD.1.datafield3; GRAVIMETER.PBGGGD.1.datafield4; GRAVIMETER.PBGGGD.2.datafield1; GRAVIMETER.PBGGGD.2.datafield2; GRAVIMETER.PBGGGD.2.datafield3; GRAVIMETER.PBGGGD.2.datafield4
Motion Sensor (Hydrins Inertial Navigation System)	hydrins		course [deg]; gyro_heading [deg]; gyro_heading_ang_rate [°/s]; gyro_pitch [deg]; gyro_pitch_ang_rate [°/s]; heave [m]; position_latitude [°]; position_longitude [°]; speed [kn]; x-velocity [m/s]; y-velocity [m/s]; z-velocity [m/s]
Navigation Echo Sounder	navigation sounder		depth [m]

pCO2 Monitoring System General Oceanics (GO pCO2)	GO pCO2 Analyzer		DateTime; fCO2 [μmol/mol]; Type
pCO2 Monitoring System OceanPac k SAE (SubCtech)	OceanPac k pCO2 Analyzer		xCO2 (air) [ppm]; xCO2 corrected (water) [ppm]; CO2 concentration[mmol/m3]; pressure difference (membrane; licor) [mbar]; xH2O (air) [ppt]; H2O concentration [mmol/m3]; xCO2 dry [μmol/mol]
POSIDON IA	POSIDON IA		day; EW; month; NS; position_latitude [°]; position_longitude [°]; raw_time [secs]; transponder_No; transponder No (rel); x [m]; y [m]; year; z (depth) [m]
Sediment Echo Sounder (Parasound P70)	parasound		depth [m]
Ship Navigation Platform (NACOS)	NACOS ship navigation system		EW; identifier; message mode; message number; NS; route Id; speed bottom track across [kn]; speed bottom track ahead [kn]; speed made good [kn]; speed watertrack across [kn]; speed watertrack ahead [kn]; system course [deg]; system course status; system heading [deg]; system heading status; system position latitude [°]; system position longitude [°]; system position status; system speed [kn]; system speed status; system speed [kn]; system speed status; system speed unit; track made good [deg]; track speed status; waypoint Id From; waypoint Id To; waypoint position EW; waypoint position longitude [°]; waypoint position NS; waypoint position latitude [°]
Thermosalinograph Keel 1 and Keel 2 (TSK1 and TSK2)	TSK2		ConductivityHz [Hz], Conductivity Keel S/m [S/m], ConductivityKHz [kHz], Conductivity ms [ms/cm], density [kg/m3], FirstVoltage [V], salinity Keel 2 [psu], SBE [Hz], SecondVoltage [Hz], Sentence, soundvelocity external [m/s], sound velocity Keel [m/s], TemperatureHz [Hz], temperature Keel [°C], temperature Keel internal [°C], TSK2.SBE21.SBE21
Trimble GPS Receiver	trimble 1 GPS trimble 2 GPS		course made good [°]; Date; day; EW; GPS quality indicator; month; NS; number of satellites in fix; position latitude [°]; position longitude [°]; raw time; speed made good [kn]; Time; UTC raw [s]; year
Weather Station	weatherstation		air pressure [hPa]; air temperature [°C]; ceiling [ft]; dewpoint rows nest [°C]; direct radiation [W/m2]; global radiation [W/m2]; max rel. wind velocity last min [m/s]; precipitation [mm/min]; rel. humidity [%]; rel. wind direction [deg]; rel. wind velocity [m/s]; sunshine indicator; true wind direction [deg]; true wind velocity [m/s]; true wind velocity [Beaufort]; true wind velocity [Knots] [Kn]; visibility [m]; water temperature [°C]

Computers for online display and serial output of DShip data

The installed "client" software of the DShip system provides the opportunity for online display and online output of the data via serial interface. DShip "client" computers are located in all Labs and operational rooms. DShip manuals: https://dms.awi.de/dship-usermanual/dship-user-manual_en.pdf (onshore) and http://DShip_admin.fs-polarstern.de (on board).

Online data output via NMEA-Client

The DShip online data output is also possible via NMEA-Client. Example of a generated NMEA-Data telegram:

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$GPGGA,093421,5353.9802,N,00800.8279,E,1,9,,,,,,,,,*67
$GPVTG,119.0,,,,,10.1,,,,,*47
$GPVBW,10.1,-0.2,A,9.8,-0.5,A,,,,,*62
$GPDPT,17.2,4.0,*4B
$GPHDT,120.8,T*3E
$GPZDA,93423,4,3,2009,-1,0*57
$GPGGA,093422,5353.9787,N,00800.8321,E,1,9,,,,,,,,,*6A
$GPVTG,0.0,,,,,0.0,,,,,*7E
$GPVBW,10.1,-0.3,A,9.9,-0.5,A,,,,,*62
$GPDPT,17.3,4.0,*4A
$GPHDT,120.7,T*31
$GPZDA,93424,4,3,2009,-1,0*50
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These NMEA-Data telegrams are distributed via the computer network and have to be converted (1-port terminal server or device server) to serial (9600,8,N,1). Please contact the chief electronic technician for the converter and generation of the required NMEA-telegram (the number of converters on board is limited).