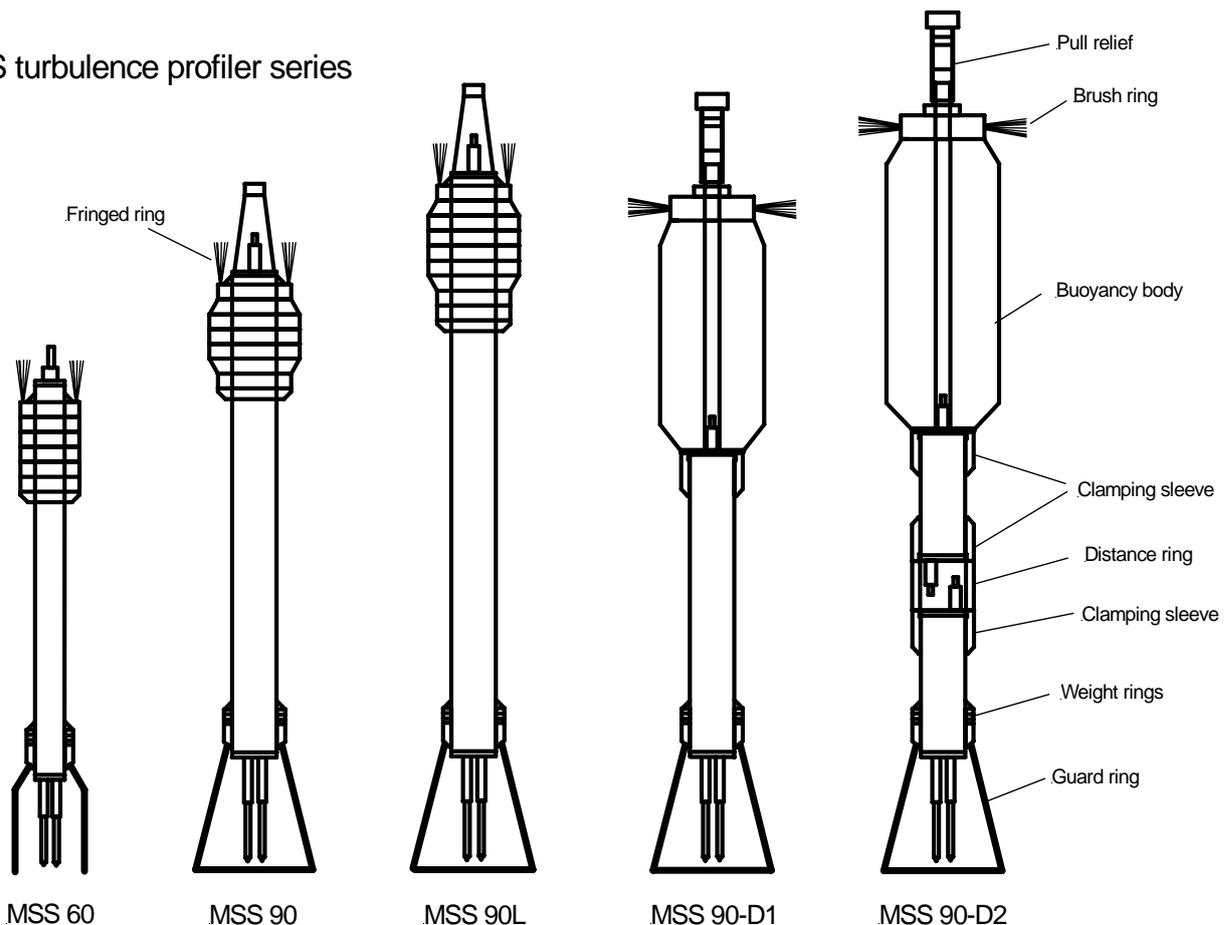# MSS microstructure profiler family

MSS profiler are multiparameter probes for simultaneous microstructure/turbulence and standard hydrographic measurements. Actually, 5 types of MSS profilers for different depth ranges and measurement conditions are available.

	MSS60	MSS90	MSS90L	MSS90-D1	MSS90-D2
Max. depth (m)	200	500	500	1000	2000
Body length (m)	0.8	1.0	1.25	1.2	1.4
Weight in air (kg)	6	9	15	20	27
Data link	RS485	RS485	RS485	RS485	DSL
Interface	USB 2.0	USB 2.0	USB 2.0	USB 2.0	DSL
Acquisition	SDA	SDA	SDA	SDA	BLUE

MSS turbulence profiler series

MSS 60   MSS 90   MSS 90L   MSS 90-D1   MSS 90-D2

Labels: Pull relief, Brush ring, Buoyancy body, Clamping sleeve, Distance ring, Clamping sleeve, Weight rings, Guard ring, Fringed ring

Common properties for all MSS profilers

- Sample rate: 1024 data sets/sec
- Number of data channels   16 / data set
- Bandwidth of microstructure channel: 150 Hz (-3dB)
- Response time of MS channels   < 11 ms
- Resolution (all channels):   16 bit

RS485 data transmission baud rate is 614400.

Sensor equipment

The MSS90 profiler may be equipped with up to 9 different sensors on the bottom cap
(MSS60: 5 sensors on the bottom cap), which can be subdivided in three different groups:

- Standard CTD sensors
- Microstructure sensors
- House keeping sensors

The standard CTD sensors have a relatively slow response but high accuracy. The following
sensors are available:

Standard   - Pressure
                - Temperature (PT 100)
                - Conductivity
Optional: - pH
                - ORP
                - dissolved oxygen
                - Fluorescence Chl A
                - Turbidity

The microstructure sensors are especially designed for the measurement of small scale
stratification and turbulence. They have a fast response and limited accuracy and long term
stability. Following sensors are available:

Standard: - Temperature (FP07)
                - Current shear (2 x)
Optional: - Conductivity

Furthermore, housekeeping sensors are integrated in the profiler:

Standard: - Horizontal profiler acceleration (instrument vibration)
Optional: - Tilt (two components)
                - Surface detector (for rising measurements)

Except the tilt sensor, all the above mentioned sensors will be mounted directly on the
bottom cap of the profiler with no external underwater cable connection. The tilt sensor is
placed inside the profiler housing. In case of lack of space on the bottom end cap of the
profiler, the vibration sensor (Acceleration) can be mounted inside the profiler housing.

Interface and power supply

There are two different interfaces available:

USB-Interface
115/230VAC or /and battery powered (9..36VDC)
RS485 data link to profiler
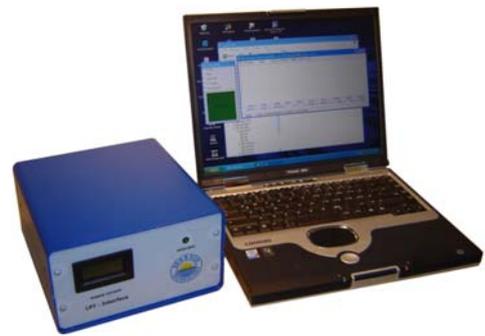USB2 port for PC connection
Max. cable length: 1000m

DSL-Interface
115/230VAC power supply
DSL data link to profiler
Network RJ45 port to PC
Max. cable length: approx. 3000m

MSS board unit:
USB-Interface + Laptop

For data acquisition, a laptop can be used

Software

There are different software packages for data acquisition available:

- **SDA** data acquisition software
- **Blue** data acquisition software

The **S**tandard **D**ata **A**cquisition program **SDA** is used in combination with RS485 data link and USB interface. **SDA** is running under all WINDOWS operating systems from W98 to XP (except NT). It displays the received data online and stores it on hard disk. Graphic functions allow convenient operation and online control of the system. Conversion of the stored data files to ASCII is included.

Blue is the successor of the **SDA** program and actually used with the DSL Interface. Concerning microstructure measurements, **Blue** is intended to replace the SDA program in the near future. **Blue** is designed to run under different operating systems like WINDOWS and UNIX . Functionality is very similar to the SDA software.