



KONGSBERG

SPT and MPT 13x series

SSBL Positioning Transponder (SPT) Multifunction Positioning Transponder (MPT)

Low frequency - 3000 m rated

Introduction

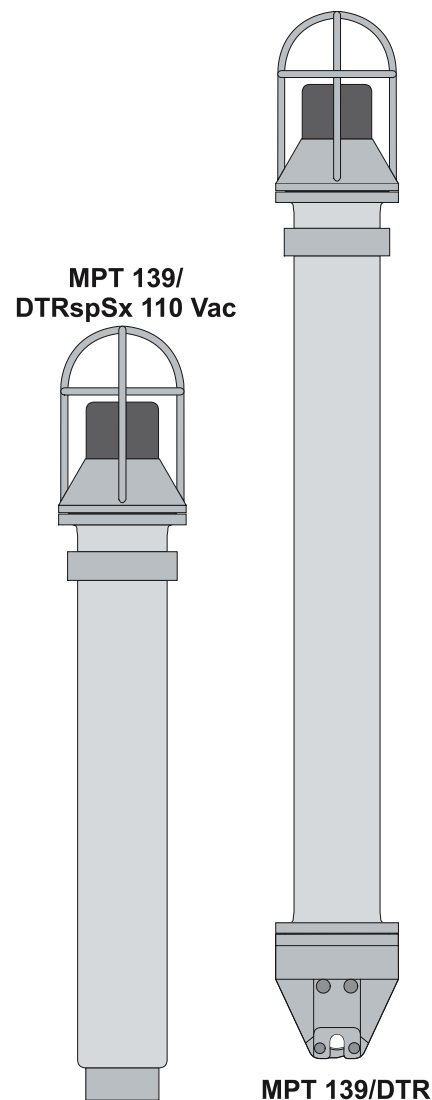
The new generation low frequency **SPT 13x-St** and **MPT 13x-St series** of transponders are subsea and seabed elements of the Kongsberg Maritime underwater positioning and navigation systems.

The LF transponder models have 30 channels for use with the HPR 400 systems.

Common for all the models are that they, on interrogation, will reply with a single- or a multi-pulse response. This reply contains different information to the HPR system, depending on the current application.

Applications

- Dynamic position reference for surface vessels.
- Navigation of underwater vehicles and towed bodies.
- Positioning aid for pipeline and underwater structure maintenance and construction.
- Positioning and re-entry of BOP's.
- Riser angle and BOP angle monitoring.
- Telemetry of acoustic release or external sensors.
- Sensor-reading telemetry transponder (depth and temperature).
- Position-transponder in an LBL array (MPT only).
- Master-slave transponder in an LBL array (MPT only).
- Transponder Range-Positioning mode, where it positions itself (MPT only).
- Range measuring transponder (MPT only).



Units and options

The transponder consists of the following main components:

- Transducer-head
- Battery
- Electronics
- Housing

The transponders are supplied with different transducer heads. The last digit in the model number identifies the \pm width of the beam pattern. The battery type provided will vary, as some types require very high energy for the transmitting pulse. The electronic circuitry with software is modular for all models. The physical housing length varies with transponder model.

MPT

The Multifunction Positioning Transponder (MPT) can be operated in both Super-Short Base Line (SSBL) and Long Base Line (LBL) modes. All required telemetry functionality is built-in.

SPT

The SSBL Positioning Transponder (SPT) can only operate in Super-Short Base Line. However, it has built-in telemetry capabilities and functionality. Any SPT transponder may be upgraded to an MPT.

Compatibility

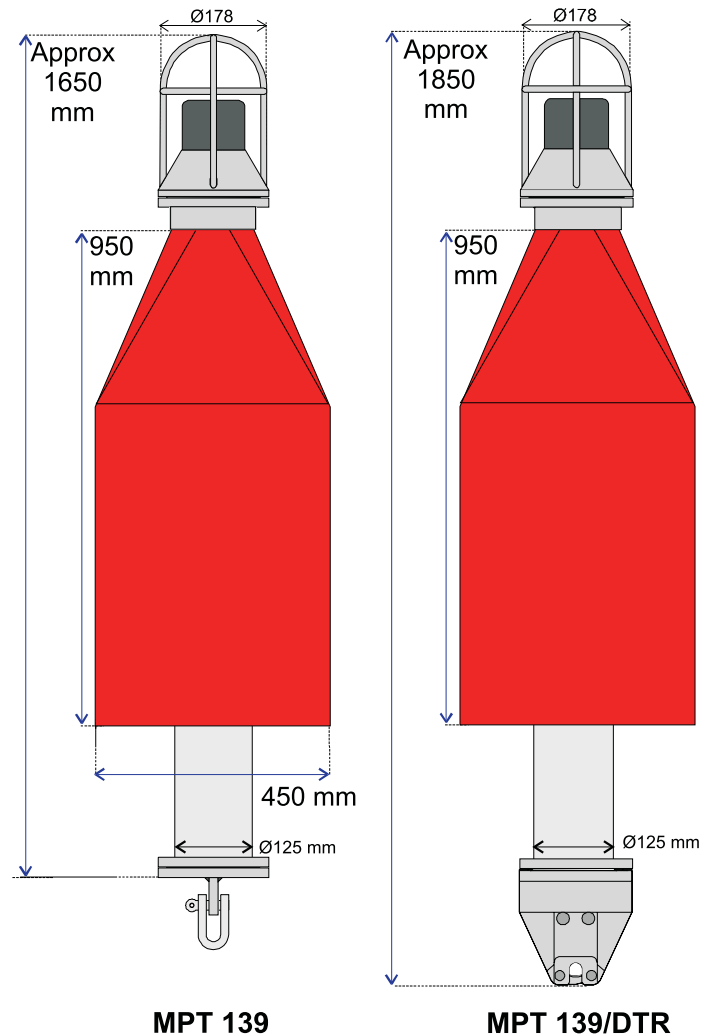
The transponders are not only compatible for use with the HPR 400 LF series systems. The SPT and MPT transponders can also be used by the HPR 1507 and HPR 1530 systems with the originally 5 low frequency channels. The transponder channel is preset from factory, but can be altered by either adjusting internal switches, or by acoustic telemetry from the HPR 400 LF systems (HPR 1507 and 1530 systems can not send telemetry for this purpose).

Special facilities

As mentioned above, the SPT and MPT transponders have an acoustic telemetry link. This link may be used to command the transponder into different modes of operation or to transfer data from the transponder. The unique setting of transponder receiver sensitivity and transmitter power level is used to achieve optimal performance and battery lifetime. Remaining battery life-time is known by telemetry of the internal battery status monitoring. Commands for changing the pulse length and turnaround delay are other operator selected parameters.

Mounting and handling

The transponder may be secured to a subsea structure using mounting brackets, or fitted with an anchor weight and buoyancy collar for location on the open seabed. The unit is designed for ROV manipulator handling.



Power supply

The transponder is normally self-contained with power supply using very long life lithium battery and can optionally be externally powered.

Housing material

The housing material (stainless steel) is selected for long mechanical lifetime, especially in environments exposed to corrosion. The units are very robust.

Naming principles

The transponder name contains three letters followed by three digits, and the letters after the digits describes the options.

- MPT** = Multifunction Positioning Transponder
- SPT** = SSBL Positioning Transponder
- 1xx** = 15 kHz band
- x3x** = 3000 meter depth rated
- xx3** = ±30° beamwidth
- xx9** = ±90° beamwidth
- DT** = includes Depth and Temperature sensors
- R** = includes Release mechanism

RspSx

- 110 Vac** = Responder, Short tube small backup battery
- S** = includes Split transducer with cable to electronic unit
- U** = Unlisted special version
- St** = Stainless steel (housing)

Models

- MPT 139/St
- MPT 139/DT-St
- MPT 139/DTR-St
- MPT 139/DTRspSx 110 Vac-St
- SPT 133/DTRspSx 110 Vac SU-St

Basic data

- Max depth rating3000 meters
- Housing materialStainless steel
- Flange and transducer, head material.....Stainless steel
- Weight in air / water 60 kg / 42 kg
- Outside diameter:
- Housing 125 mm
- Flange 178 mm
- Overall length 1650 mm
- Transducer beam widths:
- SPT 133/DTRspSx 110 Vac ±30°
- MPT 139 Series ±90°
- Source level (relative to 1 µPa. ref. 1 m):
- ±30°, 3 steps of 3 dBmax 200 dB
- ±90°, 3 steps of 3 dBmax 195 dB
- Receiver sensitivity, 2 steps 106/100 dB
(Relative to 1 µPa)
- Frequency band:
- TX 13,158 to 14,881 kHz
- RX9,506 to 11,547 kHz

Version /R and /DTR

As in basic data, except:

- Weight in air / water 65 kg / 46 kg
- Overall length 1850 mm
- Maximum release load 140 kg
- Separate release battery1000 releases
- Maximum depth on sensor 3000 m
- Resolution 0,1 m
- Accuracy ±1,5 m
- Temperature range on sensor-10° to +40° C
- Resolution 0,1° C
- Accuracy 0,2° C

Version /RspSx 110 Vac

As in basic data, except:

- Combined responder and transponder. The unit is normally powered by 110 Vac. It turns into transponder mode with back-up battery, if 110 Vac power is lost.
- Max power consumption, 110 Vac7,5 W
- Weight in air 45 kg
- Weight in water 33 kg
- Overall length 1080 mm
- Pig-tail with a "Gisma" U-connector 1 m

Version/SU

The Split housing and transducer (SU) transponder is a combined responder and transponder. It has separate housing (electronics unit) and transducer. The transducer is connect it to the housing via a cable. The electronics unit has an internal relay, which is activated from the HPR/HiPAP system.

As in basic data, except:

- Relay (release) active for 5 sec
- Cable 15 m

Electronic unit:

- Weight in air / water 31,8 kg / 23 kg
- Overall length 1140 mm

Transducer unit:

- Weight in air / water 35 kg / 28 kg
- Height 335 mm
- Maximum diameter 194 mm

Floating Collar

- Depth rating 3000 m
- Total weight in air 77 kg
- Total buoyancy in water 65 kg
- Overall height 950 mm
- Width x depth 450 x 450 mm
- Diagonal "diameter" 640 mm
- Colour Orange

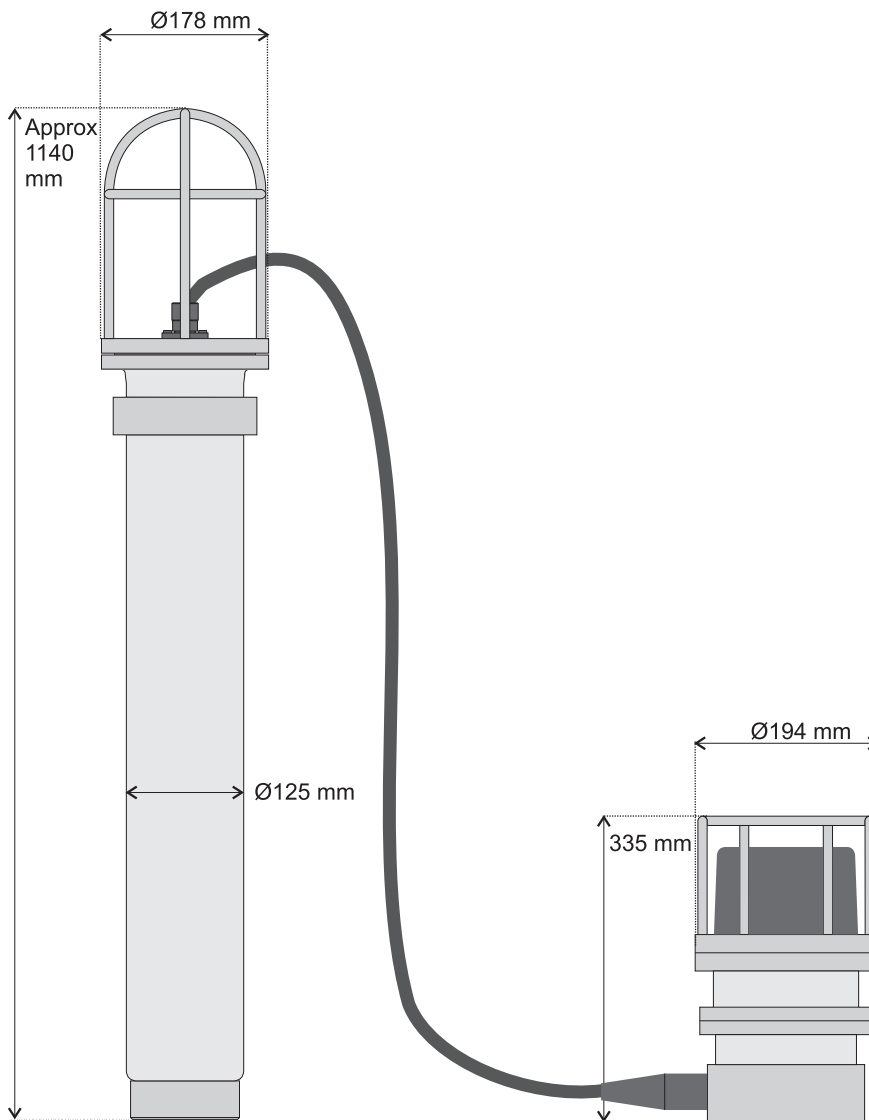
Lithium batteries

SPT 133/DTRspSx 110 Vac SU

Battery type.....L10/40
 Maximum continuous on-time.....30 days
 Quiescent time155 days
 No. of replies, low source level1,68 million
 No. of replies, max source level.....0,42 million

MPT 139 Series

Battery type.....L10/50
 Maximum continuous on-time.....120 days
 Quiescent time620 days
 No. of replies, low source level5,6 million
 No. of replies, max source level.....1,4 million



SPT 133/DTRspSx 110 Vac SU

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