FURUNO FINLAND Oy

GNSS

Anti-jamming and Spoof Monitoring device

Model:
FFSP-100

www.furuno.fi

FFSP-100 warns You when GNSS signal is jammed or spoofed

When severe interference is detected, it is important to react and defend rapidly.

FFSP-100 has an optional Display unit and provides relay output which can be connected to the vessels alarm management system or control an external buzzer.

What is jamming and spoofing?

- **Jamming** is noise which blocks the signal
- **Spoofing** is when you receive the wrong position

GNSS interference monitoring

Algorithms detect interference and anomalies within the GNSS spectrum and data.
FFSP-100 provides automatic monitoring of different GNSS parameters such as spectrum, power level, number of satellites, signal to noise ratio, data values and missing information. GPS, Galileo, Beidou and GLONASS constellations are covered. An optional display unit indicates interference warnings and alarms with different LED colors.

ALARM STATUS LED shows GREEN light

When GNSS status is normal with no interferences detected, ALARM STATUS LED shows green light. This is the Normal status of the unit.

ALARM STATUS LED shows BLUE light

When poor GNSS signal or weak interference signals are detected which are not severe enough to affect safe navigation or timing, ALARM STATUS LED shows blue light. Eg. minor CW signals in L1 band. This is the Warning status of the unit.

ALARM STATUS LED shows RED light

When severe strong interference signals, jamming or spoofing is detected which is affecting safe navigation or timing, ALARM STATUS LED shows red light and a short audible alarm is generated. This is the Alarm status of the unit.

FFSP-100 GNSS Monitor owner benefits

- **Early detection of jamming and spoofing enable safe navigation also in environments where GNSS interferences exist.**
- **FFSP-100 provides clear indication of anomalies in the GNSS spectrum with an optional Alarm unit.**
- **Additional available functionality is protection of time servers and other corresponding equipment in spoofing events with relay output and RF relays (not included).**
- **Relay output can be connected to vessel's Alarm management system and VDR.**
- **FFSP-100 is easy to install and use.**

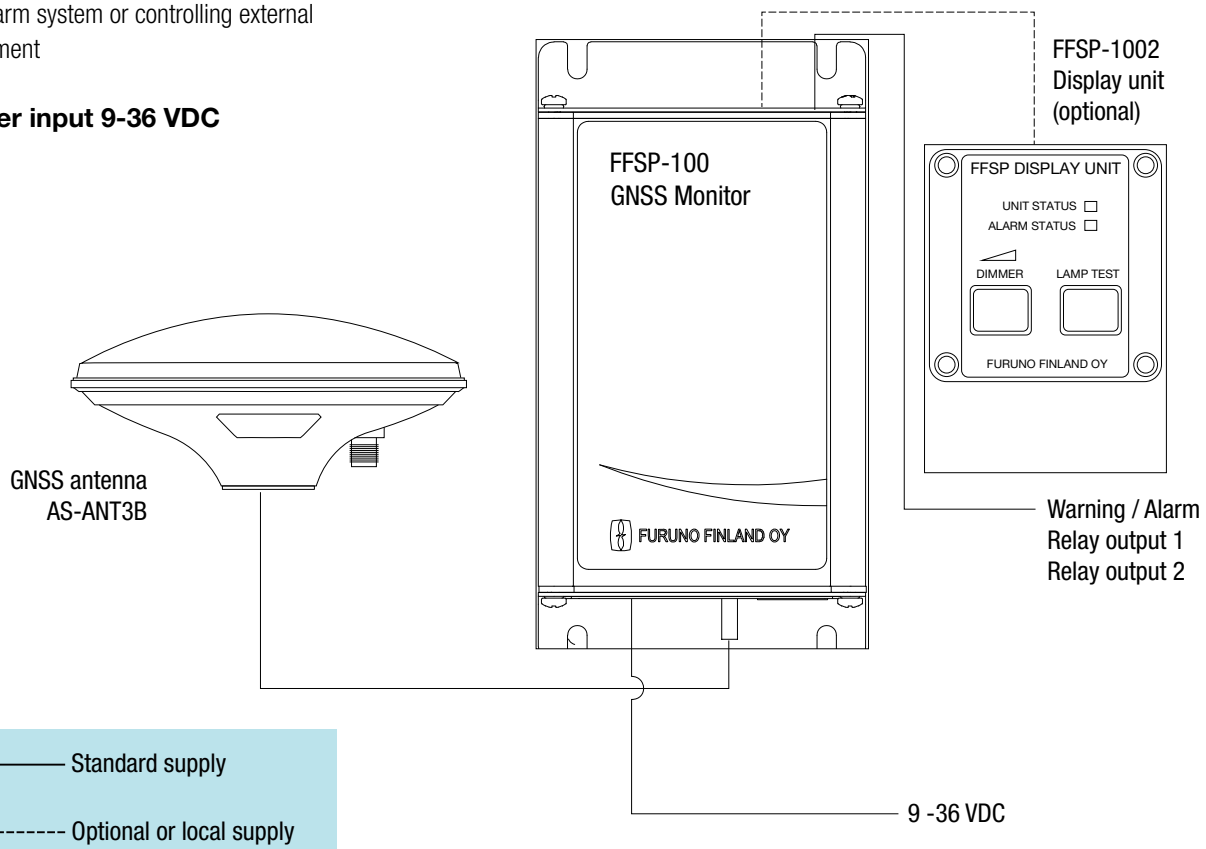
Integrating FFSP-100

GNSS antenna
AS-ANT3B antenna
Existing antenna

Optional Display unit
Warning/alarm indication with LED
Audible alarm

Relay output
For alarm system or controlling external equipment

Power input 9-36 VDC



SPECIFICATIONS

GENERAL

Parameter	Value
SUPPORTED GNSS	GPS L1 C/A, Galileo E1B/C, BeiDou B1I /B1C, GLONASS L1OF, SBAS L1 C/A
Input frequency	L1: 1559 to 1606 MHz
Detected threat types	Anomalies caused by RF interference, jamming and medium to high power spoofing

PROCESSOR UNIT

Outputs	Relay 1: Warning, Relay 2: Alarm
RF connector	TNC 50 ohm, Bias voltage 3.3 VDC
Power Supply	VDC 9 – 36 / 1W.

DISPLAY UNIT

Led indicators	Warning: Blue colour - Poor GNSS signal or weak interference. Alarm: Red colour - Strong interference, jamming and medium to high power spoofing.
Push buttons	Led dimmer, Lamp test
Buzzer	Audible alarm when alarm detected

ENVIRONMENT

Temperature range	Transponder	-15 - +55 C
	Display unit	-40 °C to + 85 °C
	Antenna unit	-40 °C to + 85 °C
IP Rating	Transponder	IP22
	Display unit	IP22
	Antenna unit	IP66

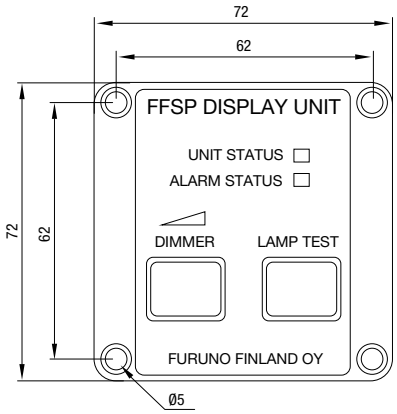
EQUIPMENT LIST

Standard

1	Processor unit	FFSP-100	1 unit
2	Antenna	AS-ANT3B w/ TNC-F connector	1 unit
3	Cable	w/ SMA male con.	2,5 meter

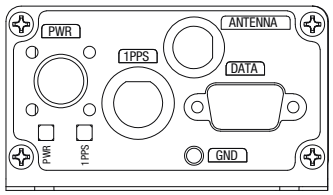
Option

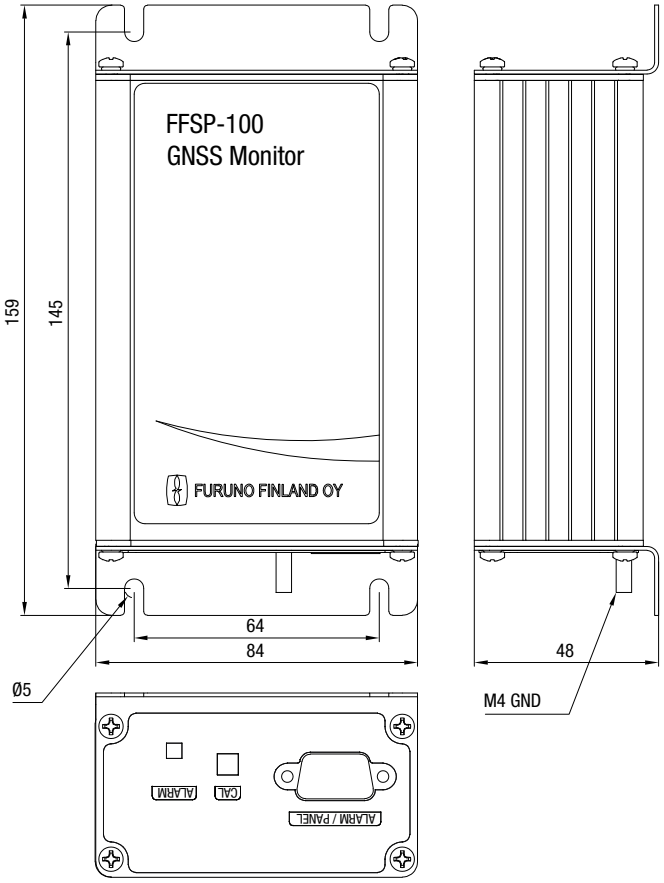
1	Display unit	FFSP-1002	1 unit



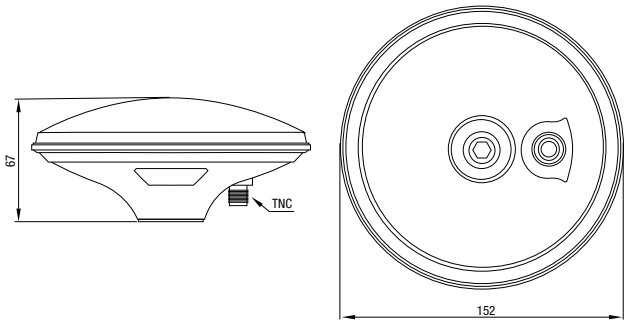
DIMENSIONS

Processor Unit





Antenna



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SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

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