

GPS 4500 v2

Satellite Time Signal Receiver



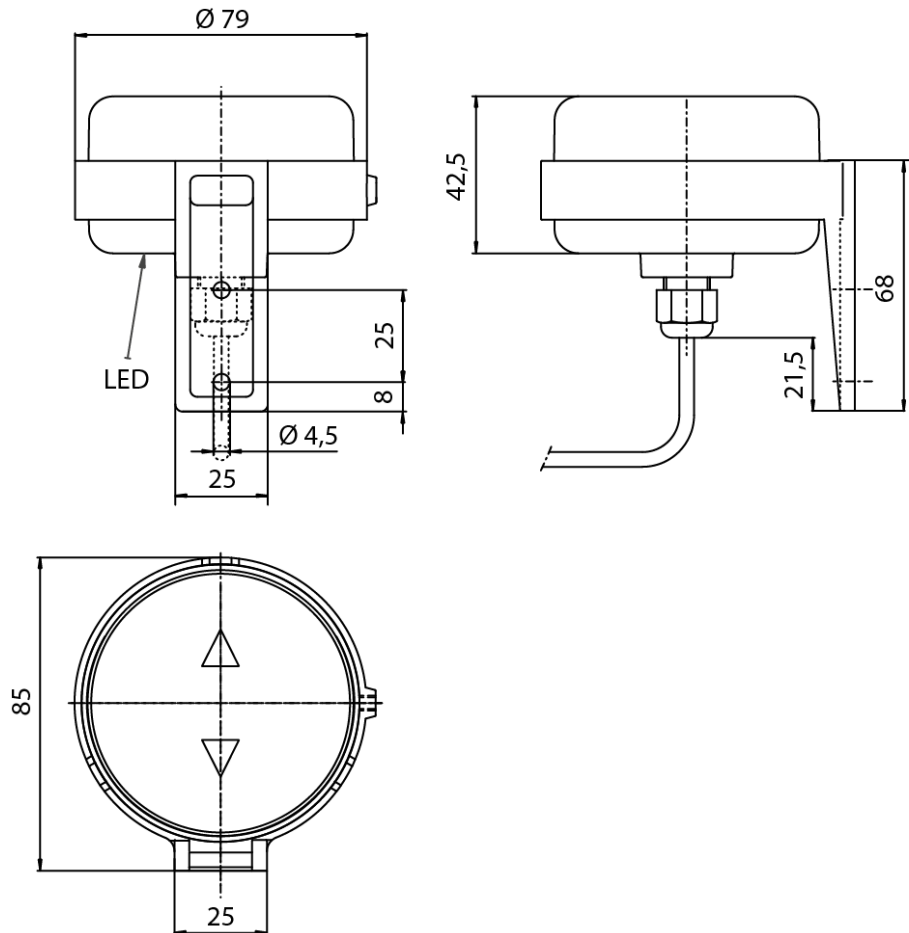
Description

The time signal receiver GPS 4500 v2 receives and processes the signals of the GPS navigation system. With this precise time source as a reference, it is designed to synchronize master clocks and time servers. For this purpose, it sends out a serial time signal (DCF coded, UTC or CET) over a current loop interface.

Functions

- Receives GPS satellite signals (max. 56 channels)
- Current loop interface, electrically isolated, for DCF time code output (UTC or CET). Leading edge is synchronous to the 1PPS (second impulse) from the GPS module
- Automatic stop of the signal output during insufficient reception
- Selection of time code signal UTC or CET via polarity reversal of the supply connectors
- Status display via LEDs (visible from cable side)
- Input voltage 10 - 40 VDC, < 0.4W
- Simple mounting: direct connection to end devices via UV resistant 4-wire cable for power supply and time code signal.
- Housing: IP 65, UV resistant, L 85 x W 80 x H 86 mm

Housing / Dimensions

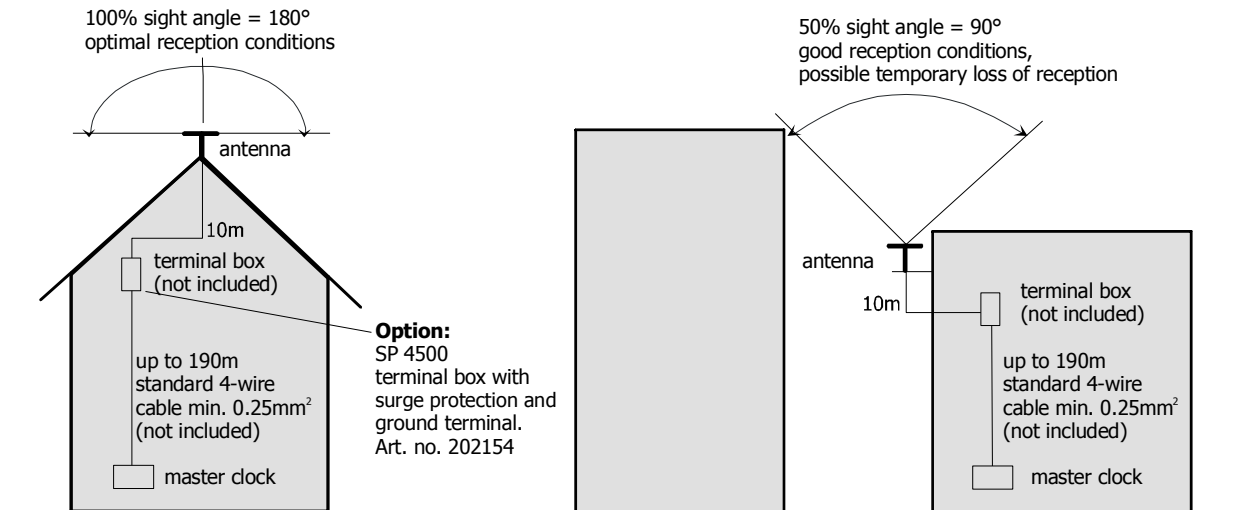


Technical data

		GPS 4500 v2
Reception properties	frequencies	GPS: L1 C/A
GPS module	channels	max. 56 satellites traceable
	Sensitivity	-160dBm
	Accuracy time pulse signal	RMS 30 ns 99% 60 ns
	Time output	min. 3 satellites traceable Automatic stop of the signal output during insufficient reception
Interfaces / connections	1 x Current loop	DCF Current loop passive interface (Open Collector) leading edge synchronous to 1PPS of the GPS module electrically isolated (optocoupler)
	Connection allocation	white DCF+ optocoupler output (isolated) brown DCF- optocoupler output (isolated)
		Time code output UTC Time code output CET
		yellow V+ (10 – 40 VDC) V- (GND) green V- (GND) V+ (10 – 40 VDC)
Output	DCF	Time code UTC or CET Impulse duration (typical): logic 0: 100 ms: logic 1: 200 ms CET: automatic daylight saving time change according to valid rule. announcing bit A1 (Bit 16) supported CET: last Sunday in October 03:00 -> 02:00 CEST: last Sunday in March 02:00 -> 03:00 Announcing bit A2 (bit 19) not supported for switch seconds
Accuracy	Current loop	Leading edge DCF (typical): +/- 5 µs (measured at output GPS 4500)
Length of synchronization	Cold start	< 5 minutes (typical)
Status display	LEDs	LEDs visible from below (cable side) LED red: UTC time output LED green: CET local time output Power supply OK: LED blinks in 5s tact ⁽¹⁾ Synchronization OK: LED blinks once per second (signal output) Synchronization lost: LED blinks in 5s tact ⁽¹⁾
Electrical properties	Input voltage	10 - 40 VDC
	Power consumption	< 0.4W (< 40mA @ 10V)
Mechanical properties	Housing material	POM (polyester, UV resistant); black upper, milky white lower
	Measurements	85 x 80 x 86 mm (L x B x H) (L = distance to wall)
	Weight	approx. 200g
	Cable	10m, UV protected, 4-wire, 0.25mm ² (AWG 23), ext. up to 200m possible
Environmental requirements	Protection class	IP 65
	Temperature range	-30 °C to +70 °C
Compliance		2014 / 53 / EU (see www.mobatime.com)
Order information		Art. no. 201821
Accessories	Lightning protection	Art. no. 202154 SP 4500 lightning protection unit for GPS 4500 receiver
	GPS 4500 extension cable	Art. no. 701378 up to 100m UV resistant, black, 4x0.25mm ² , for outdoors
	GPS 4500 extension cable	Art. no. 701172 100m roll UV resistant, black, 4x0.25mm ² , for outdoors

⁽¹⁾ The unsynchronized state is signaled on the DCF output (current loop) by 500ms pulses every 5 seconds.

Mounting



SP 4500 – Optional lightning protection box

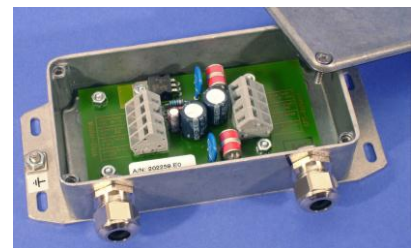
The lightning protection box SP 4500 protects the master clock from dangerous voltage fluctuations (surges).

To protect the antenna from lightning strike, it must be protected by a lightning protective system on the building.

The earth screw on the SP 4500 case should be connected to the building's earth system (ground), the same earth (potential) where you connect metallic parts on the roof. The SP 4500 should be mounted just after the entrance of the cable into the building.

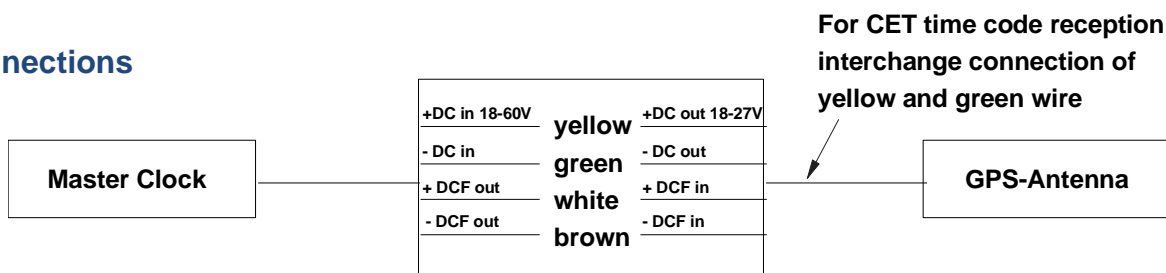
Cross section of the earth cable:

Up to 3m distance and with flex cable, 2.5 mm² is OK. For longer distance, 4 mm² or even 6 mm² flex earth cable should be used.

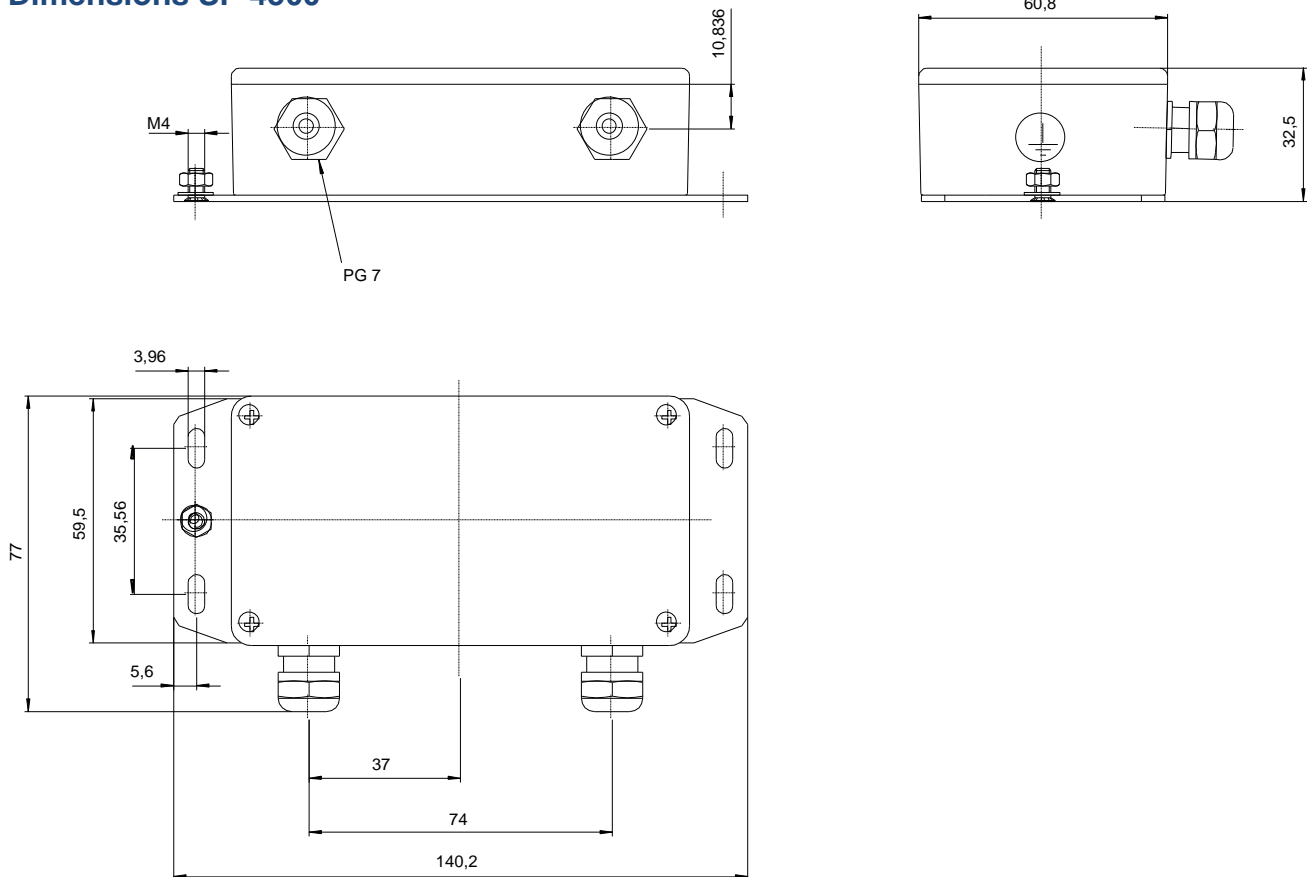


		SP 4500	
Connections	Allocation	Side master clock	Side GPS receiver
		+DC-in 18-60V yellow - DC- in green +DCF out white - DCF out brown	+ DC out 10 - 27V - DC out + DCF in - DCF in
Electrical properties	Input voltage	+10 – 60 VDC	
	Output voltage	+10 – 27 VDC	
Mechanical properties	Material	aluminum die cast	
	Measurements	140 x 77 x 33 mm (L x B x H) (L = distance from wall)	
	Weight	180 g	
Environmental conditions	protection class	IP 65	
	temperature range	-30 °C to +70 °C	
Order information		Art. no. 202154	

Connections



Dimensions SP 4500



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HEADQUARTERS / PRODUCTION

MOSER-BAER AG
 Spitalstrasse 7, CH-3454 Sumiswald
 Tel. +41 34 432 46 46 / Fax +41 34 432 46 99
 moserbaer@mobatime.com / www.mobatime.com

SALES WORLDWIDE

MOSER-BAER SA EXPORT DIVISION
 19 ch. du Champ-des-Filles, CH-1228 Plan-les-Ouates
 Tel. +41 22 884 96 11 / Fax + 41 22 884 96 90
 export@mobatime.com / www.mobatime.com

SALES SWITZERLAND

MOBATIME AG
 Stettbachstrasse 5, CH-8600 Dübendorf
 Tel. +41 44 802 75 75 / Fax +41 44 802 75 65
 info-d@mobatime.ch / www.mobatime.ch

MOBATIME SA
 En Budron H 20, CH-1052 Le Mont-sur-Lausanne
 Tél. +41 21 654 33 50 / Fax +41 21 654 33 69
 info-f@mobatime.ch / www.mobatime.ch

SALES GERMANY, AUSTRIA

BÜRK MOBATIME GmbH
 Postfach 3760, D-78026 VS-Schwenningen
 Steinkirchring 46, D-78056 VS-Schwenningen
 Tel. +49 7720 8535 0 / Fax +49 7720 8535 11
 buerk@buerk-mobatime.de / www.buerk-mobatime.de