Vari KNX GPS

GPS Receiver

Item number 70387

elsner elektronik

Installation and Adjustment

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Installation, inspection, commissioning and troubleshooting of the device must only be carried out by a competent electrician.

This manual is amended periodically and will be brought into line with new software releases. The change status (software version and date) can be found in the contents footer. If you have a device with a later software version, please check **www.elsner-elektronik.de** in the menu area "Service" to find out whether a more up-to-date version of the manual is available.

Clarification of signs used in this manual

Safety advice.

Safety advice for working on electrical connections, components, etc.

DANGER! ... indicates an immediately hazardous situation which will lead to death or severe injuries if it is not avoided.

WARNING! ... indicates a potentially hazardous situation which may lead to death or severe injuries if it is not avoided.

CAUTION! ... indicates a potentially hazardous situation which may lead to trivial or minor injuries if it is not avoided.

ATTENTION! ... indicates a situation which may lead to damage to property if it is not avoided.

ETS In the ETS tables, the parameter default settings are marked by underlining.

1. Description

The **GPS Receiver Vari KNX GPS** for the KNX building system receives the GPS signal for time and location and uses it to compute the position of the sun (azimuth and elevation).

The compact housing of the **Vari KNX GPS** accommodates the receiver, evaluation circuits and bus-coupling electronics.

Functions:

- **GPS receiver**, outputting the current time and location coordinates. The **GPS Receiver Vari KNX GPS** also computes the position of the sun (azimuth and elevation)
- **Weekly and calendar time switch**: All time switching outputs can be used as communication objects.
  The **weekly time switch** has 24 periods. Each period can be configured either as an output or as an input. If the period is an output, then the switching time is set per parameter or per communication object.
  The **calendar time switch** has 4 periods. Two on/off switching operations, which are executed daily, can be set for each period

Configuration is made using the KNX software ETS. The **product file** can be downloaded from the Elsner Elektronik website on **www.elsner-elektronik.de** in the "Service" menu.

1.0.1. Scope of delivery

- Receiver
- Stainless steel installation band for pole installation
- 4×50 mm stainless steel roundhead screws and 6×30 mm dowels for wall mounting. Use fixing materials that are suitable for the base!

1.1. Technical specification

Housing	Plastic
Colour	White / Translucent
Assembly	Surface mount
Protection category	IP 44
Dimensions	approx. 65 × 80 × 30 (W × H × D, mm)
Weight	approx. 60 g
Ambient temperature	Operation -30…+50°C, Storage -30…+70°C
Operating voltage	KNX bus voltage
Bus current	max. 20 mA
Data output	KNX +/- bus connector terminal
BCU type	Integrated microcontroller
PEI type	0

Group addresses	max. 2000
Assignments	max. 2000
Communication objects:	150

The product conforms with the provisions of EU directives.

2. Installation and start-up

2.1. Installation notes

Installation, testing, operational start-up and troubleshooting should only be performed by an electrician.

CAUTION!
Live voltage!
There are unprotected live components inside the device.

- National legal regulations are to be followed.
- Ensure that all lines to be assembled are free of voltage and take precautions against accidental switching on.
- Do not use the device if it is damaged.
- Take the device or system out of service and secure it against unintentional use, if it can be assumed, that risk-free operation is no longer guaranteed.

The device is only to be used for its intended purpose. Any improper modification or failure to follow the operating instructions voids any and all warranty and guarantee claims.

After unpacking the device, check it immediately for possible mechanical damage. If it has been damaged in transport, inform the supplier immediately.

The device may only be used as a fixed-site installation; that means only when assembled and after conclusion of all installation and operational start-up tasks and only in the surroundings designated for it.

Elsner Elektronik is not liable for any changes in norms and standards which may occur after publication of these operating instructions.

2.2. Installation location

The **GPS Receiver Vari KNX GPS** must be installed outside.

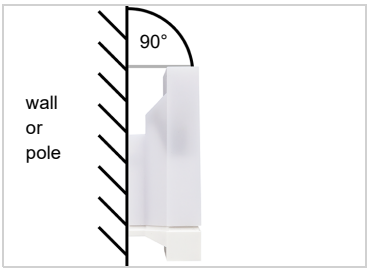


Fig. 1
The device must be attached to a vertical wall (or a pole).

Fig. 2
The device must be mounted in the horizontal (transverse) direction.

Magnetic fields, transmitters and interference fields from electrical consumers (e.g. fluorescent lamps, neon signs, switch mode power supplies etc.) can block or interfere with the reception of the GPS signal.

2.3. Device design

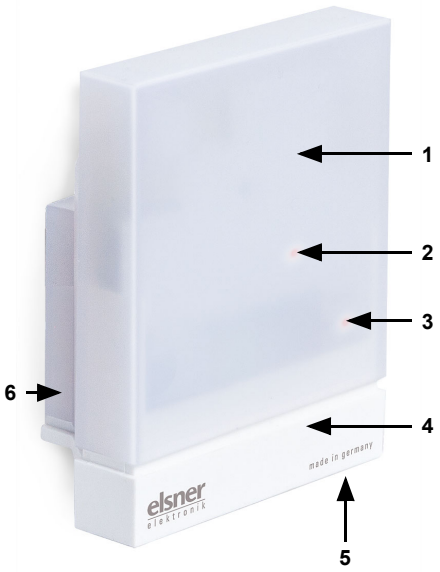


Fig. 3
1 Semi-transparent cover (GPS receiver below)
2 Position of the Signal LED (under the cover). LED is freely controlled via two objects
3 Position of the programming LED (under the cover)
4 Lower part of housing
5 Programming key on the bottom of the housing (recessed), see *Device design*, page 6
6 Wall/Pole holder

2.4. Installing the device

ATTENTION!
Even a few drops of water can damage the device electronics.
- Do not open the device if water (e.g. rain) can get into it.

2.4.1. Preparation for installation

Fig. 4
The cover and lower part of the housing are connected together. Pull both parts apart in a straight line.

2.4.2. Fitting the lower part of the housing with mounting

Now, first of all, assemble the lower part of the housing with the integrated mounting for wall or pole installation.

Wall installation

Use fixing materials (dowels, screws) that are suitable for the base.

Fig. 5
The device is installed with two screws. Break off the two longitudinal holes in the housing.

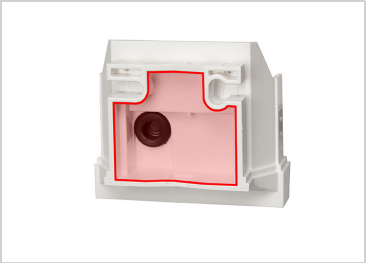
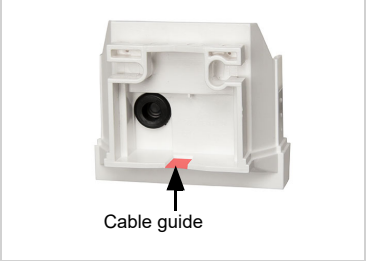


Fig. 6 a+b

a) If the power lead is to be hidden when installed, it must emerge from the wall in the vicinity of the rear of the housing (marked area).



b) If the power lead is to be surface-mounted, the cable guide is broken off. The lead is then fed into the device from the bottom of the housing.

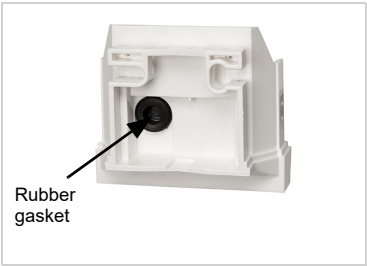


Fig. 7
Feed the power lead through the rubber gasket.

Drilling plan

ATTENTION! The print out of the data sheet doesn‘t have original size!
A separate, dimensionally correct drilling plan is included ex works and this can be used as a template.

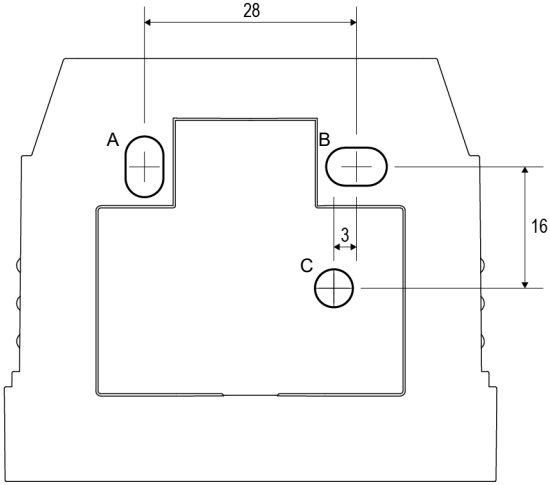


Fig. 8
Dimensions in mm. Variations are possible for technical reasons

A/B 2× longitudinal holes 8 mm × 5 mm
C Position of the cable outlet (rubber gasket) in the housing

Pole installation

The device is installed on the pole with the enclosed stainless steel mounting band.

Fig. 9
Feed the mounting band through the eyelets in the lower part of the housing.

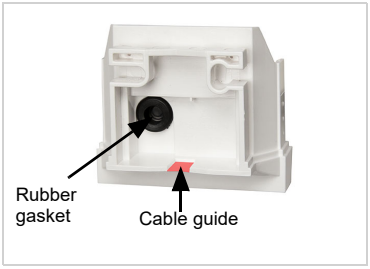


Fig. 10
Break the cable guide off.

Feed the power lead through the rubber gasket.

2.4.3. Connection

The connector is in the lower part of the housing.

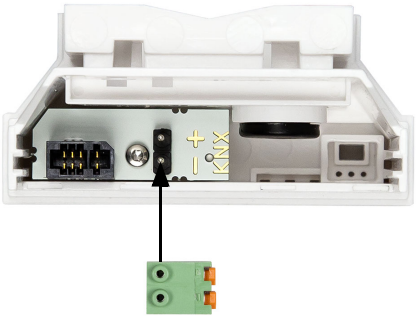
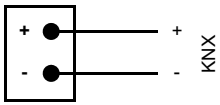


Fig. 11
Connect the device to the KNX bus via the pluggable terminal (+|-).



2.4.4. Completing the installation

Fig. 12
Put the cover on the lower part. This also makes the plug-in connection between the board in the cover and the socket in the lower part.

3. Addressing the device

The device is delivered ex works with the bus address 15.15.255. You can program a different address in the ETS by overwriting the address 15.15.255 or by teaching the device via the programming button.

The programming button can be reached through the opening on the underside of the housing; it is recessed by approx. 8 mm. Use a thin object to reach the button, e.g. a 1.5 mm² wire.

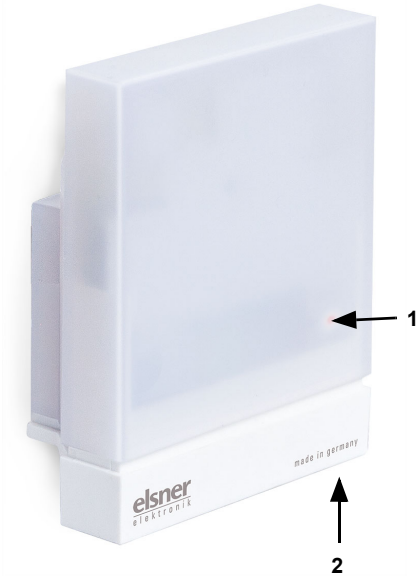


Fig. 13 a+b
1 Programming LED (under the semi-transparent cover)
2 Programming button for teaching the device

Housing from below

4. Maintenance

WARNING!
Risk of injury due to automatically moved components!
The automatic control may cause parts of the system to start up and pose a danger to humans.
- Always disconnect the system from the mains power before maintenance or cleaning.

The device should be regularly checked twice a year for soiling and cleaned if required. If there is major soiling, the function of the receiver may be limited.

ATTENTION
The device may be damaged if water penetrates the housing.
- Do not clean with high pressure cleaners or steam jets.

5. Transfer protocol

Units:

Azimuth and elevation in degrees

5.1. List of all communication objects

Abbreviation flags:

C Communication
R Read
W Write
T Transfer
U Update

No.	Text	Function	Flags	DPT type	Size
1	Software version	Output	R-CT	[217.1] DPT_Version	2 bytes
21	Signal LED object 1s cycle	Input	-WC-	[1.1] DPT_Switch	1 bit
22	Signal LED object 4s cycle	Input	-WC-	[1.1] DPT_Switch	1 bit
24	GPS malfunction (0 : OK | 1: NOK)	Output	R-CT	[1.2] DPT_Bool	1 bit
25	Date / time	Output	RWCT	[19.1] DPT_DateTime	8 bytes
26	Date	Output	RWCT	[11.1] DPT_Date	3 bytes
27	Time	Output	RWCT	[10.1] DPT_TimeOfDay	3 bytes
28	Date and time query	Input	-WC-	[1.017] DPT_Trigger	1 bit
30	Location: Northern latitude [°]	Output	R-CT	[14.7] DPT_Value_AngleDeg	4 bytes
31	Location: Eastern longitude [°]	Output	R-CT	[14.7] DPT_Value_AngleDeg	4 bytes
261	Sun position: Azimuth	Output	R-CT	[14.7] DPT_Value_AngleDeg	4 bytes
262	Sun position: Elevation	Output	R-CT	[14.7] DPT_Value_AngleDeg	4 bytes
263	Sun position: Azimuth	Output	R-CT	[9] 9.xxx	2 bytes
264	Sun position: Elevation	Output	R-CT	[9] 9.xxx	2 bytes
1211	Weekly timer period 1: Switch-on time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1212	Weekly timer period 1: Switch-off time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes

No.	Text	Function	Flags	DPT type	Size
1213	Weekly timer period 1: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1214	Weekly timer period 1: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1215	Weekly timer period 2: Switch-on time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1216	Weekly timer period 2: Switch-off time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1217	Weekly timer period 2: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1218	Weekly timer period 2: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1219	Weekly timer period 3: Switch-on time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1220	Weekly timer period 3: Switch-off time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1221	Weekly timer period 3: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1222	Weekly timer period 3: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1223	Weekly timer period 4: Switch-on time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1224	Weekly timer period 4: Switch-off time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1225	Weekly timer period 4: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1226	Weekly timer period 4: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1227	Weekly timer period 5: Switch-on time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1228	Weekly timer period 5: Switch-off time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1229	Weekly timer period 5: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1230	Weekly timer period 5: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1231	Weekly timer period 6: Switch-on time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1232	Weekly timer period 6: Switch-off time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1233	Weekly timer period 6: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit

No.	Text	Function	Flags	DPT type	Size
1234	Weekly timer period 6: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1235	Weekly timer period 7: Switch-on time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1236	Weekly timer period 7: Switch-off time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1237	Weekly timer period 7: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1238	Weekly timer period 7: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1239	Weekly timer period 8: Switch-on time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1240	Weekly timer period 8: Switch-off time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1241	Weekly timer period 8: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1242	Weekly timer period 8: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1243	Weekly timer period 9: Switch-on time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1244	Weekly timer period 9: Switch-off time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1245	Weekly timer period 9: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1246	Weekly timer period 9: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1247	Weekly timer period 10: Switch-on time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1248	Weekly timer period 10: Switch-off time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1249	Weekly timer period 10: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1250	Weekly timer period 10: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1251	Weekly timer period 11: Switch-on time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1252	Weekly timer period 11: Switch-off time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1253	Weekly timer period 11: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1254	Weekly timer period 11: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte

No.	Text	Function	Flags	DPT type	Size
1255	Weekly timer period 12: Switch-on time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1256	Weekly timer period 12: Switch-off time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1257	Weekly timer period 12: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1258	Weekly timer period 12: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1259	Weekly timer period 13: Switch-on time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1260	Weekly timer period 13: Switch-off time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1261	Weekly timer period 13: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1262	Weekly timer period 13: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1263	Weekly timer period 14: Switch-on time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1264	Weekly timer period 14: Switch-off time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1265	Weekly timer period 14: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1266	Weekly timer period 14: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1267	Weekly timer period 15: Switch-on time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1268	Weekly timer period 15: Switch-off time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1269	Weekly timer period 15: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1270	Weekly timer period 15: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1271	Weekly timer period 16: Switch-on time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1272	Weekly timer period 16: Switch-off time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1273	Weekly timer period 16: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1274	Weekly timer period 16: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1275	Weekly timer period 17: Switch-on time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes

No.	Text	Function	Flags	DPT type	Size
1276	Weekly timer period 17: Switch-off time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1277	Weekly timer period 17: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1278	Weekly timer period 17: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1279	Weekly timer period 18: Switch-on time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1280	Weekly timer period 18: Switch-off time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1281	Weekly timer period 18: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1282	Weekly timer period 18: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1283	Weekly timer period 19: Switch-on time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1284	Weekly timer period 19: Switch-off time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1285	Weekly timer period 19: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1286	Weekly timer period 19: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1287	Weekly timer period 20: Switch-on time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1288	Weekly timer period 20: Switch-off time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1289	Weekly timer period 20: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1290	Weekly timer period 20: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1291	Weekly timer period 21: Switch-on time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1292	Weekly timer period 21: Switch-off time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1293	Weekly timer period 21: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1294	Weekly timer period 21: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1295	Weekly timer period 22: Switch-on time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1296	Weekly timer period 22: Switch-off time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes

No.	Text	Function	Flags	DPT type	Size
1297	Weekly timer period 22: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1298	Weekly timer period 22: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1299	Weekly timer period 23: Switch-on time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1300	Weekly timer period 23: Switch-off time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1301	Weekly timer period 23: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1302	Weekly timer period 23: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1303	Weekly timer period 24: Switch-on time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1304	Weekly timer period 24: Switch-off time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1305	Weekly timer period 24: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1306	Weekly timer period 24: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1331	Calendar timer period 1: Start date	Input	RWCT	[11.1] DPT_Date	3 bytes
1332	Calendar timer period 1: End date	Input	RWCT	[11.1] DPT_Date	3 bytes
1333	Calendar timer period 1 sequence 1: Switch-on time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1334	Calendar timer period 1 sequence 1: Switch-off time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1335	Calendar timer period 1 sequence 1: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1336	Calendar timer period 1 sequence 1: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1337	Calendar timer period 2 sequence 1: Switch-on time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1338	Calendar timer period 2 sequence 1: Switch-off time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1339	Calendar timer period 2 sequence 1: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1340	Calendar timer period 2 sequence 1: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1341	Calendar timer period 2: Start date	Input	RWCT	[11.1] DPT_Date	3 bytes
1342	Calendar timer period 2: End date	Input	RWCT	[11.1] DPT_Date	3 bytes
1343	Calendar timer period 2 sequence 1: Switch-on time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes

No.	Text	Function	Flags	DPT type	Size
1344	Calendar timer period 2 sequence 1: Switch-off time	Input	RWCT	[10.1] DPT_-TimeOfDay	3 bytes
1345	Calendar timer period 2 sequence 1: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1346	Calendar timer period 2 sequence 1: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1347	Calendar timer period 2 sequence 2: Switch-on time	Input	RWCT	[10.1] DPT_-TimeOfDay	3 bytes
1348	Calendar timer period 2 sequence 2: Switch-off time	Input	RWCT	[10.1] DPT_-TimeOfDay	3 bytes
1349	Calendar timer period 2 sequence 2: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1350	Calendar timer period 2 sequence 2: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1351	Calendar timer period 3: Start date	Input	RWCT	[11.1] DPT_Date	3 bytes
1352	Calendar timer period 3: End date	Input	RWCT	[11.1] DPT_Date	3 bytes
1353	Calendar timer period 3 sequence 1: Switch-on time	Input	RWCT	[10.1] DPT_-TimeOfDay	3 bytes
1354	Calendar timer period 3 sequence 1: Switch-off time	Input	RWCT	[10.1] DPT_-TimeOfDay	3 bytes
1355	Calendar timer period 3 sequence 1: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1356	Calendar timer period 3 sequence 1: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1357	Calendar timer period 3 sequence 2: Switch-on time	Input	RWCT	[10.1] DPT_-TimeOfDay	3 bytes
1358	Calendar timer period 3 sequence 2: Switch-off time	Input	RWCT	[10.1] DPT_-TimeOfDay	3 bytes
1359	Calendar timer period 3 sequence 2: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1360	Calendar timer period 3 sequence 2: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1361	Calendar timer period 4: Start date	Input	RWCT	[11.1] DPT_Date	3 bytes
1362	Calendar timer period 4: End date	Input	RWCT	[11.1] DPT_Date	3 bytes
1363	Calendar timer period 4 sequence 1: Switch-on time	Input	RWCT	[10.1] DPT_-TimeOfDay	3 bytes
1364	Calendar timer period 4 sequence 1: Switch-off time	Input	RWCT	[10.1] DPT_-TimeOfDay	3 bytes
1365	Calendar timer period 4 sequence 1: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1366	Calendar timer period 4 sequence 1: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte

No.	Text	Function	Flags	DPT type	Size
1367	Calendar timer period 4 sequence 2: Switch-on time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1368	Calendar timer period 4 sequence 2: Switch-off time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1369	Calendar timer period 4 sequence 2: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1370	Calendar timer period 4 sequence 2: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte

6. Parameter setting

6.1. Behaviour on power failure/ restoration of power

Behaviour following a failure of the bus power supply:

The device sends nothing.

Behaviour on bus restoration of power and following programming or reset:

The device sends all outputs according to their send behaviour set in the parameters with the delays established in the "General settings" parameter block.

6.1.1. Malfunction objects

Malfunction objects are sent after every reset and, additionally, after changes (i.e. at the beginning and end of a malfunction).

6.1.2. General settings

Set basic characteristics of data transfer. A different transmission delay prevents an overload of the bus shortly after the reset.

Transmission delay after reset/restoration of bus for:	
GPS and sun position objects	5 ... 300 seconds
Time switch objects	5 ... 300 seconds
Maximum telegram quota	1 • 2 • 5 • 10 • 20 • 50 Telegrams per sec.

Set the function of the signal LED. Via the input objects "Signal LED object 1s/4s cycle", the LED can visualise two different types of information flashing slowly or quickly. If both objects receive a 1, it flashes in the prioritised cycle.

Function of the signal LED	• always OFF • flashes if a signal LED object receives a 1
The following has priority *(if the signal LED is being used)*	• Signal LED object 1s cycle • Signal LED object 4s cycle

6.2. GPS

Set whether the time and date are to be sent as separate objects or as one common object. Specify whether the time and date are to be set by the GPS signal or objects.

If time and date are **set by the GPS-Signal**, the data is available as soon as a valid GPS signal is received.

If time and date are **set by two objects**, then only a maximum of 10 seconds may elapse between receiving the date and receiving the time Furthermore, a change of

date may not occur between receiving both objects. The objects must be received by the device on the same day.

The device has an integrated real-time clock. Therefore, time keeps on running internally and can be sent to the bus, even when no GPS coverage is available or no time object has been received for some time. The internal clock can show a time drift of up to ±6 seconds per day.

Object type date and time	• two separate objects • a common object
Date and time will be set by	• GPS signal and not sent • GPS signal and sent periodically • GPS signal and sent on request • GPS signal and sent on request + periodically • object(s) and not sent
Send cycle *(if sent periodically)*	5 s ... 2 h; 1 min

Set what happens in the event of a GPS malfunction. Please note, that after return of auxiliary voltage, it can take up to 10 minutes before the GPS signal is received.

If there is no reception, GPS fault is ... recognised after the last reception	20 min • 30 min • 1 h • 1.5 h • 2 h
GPS fault object sends (1: malfunction| 0: no malfunction)	• never • on change • on change to 1 • on change to 0 • on change and periodically • on change to 1 and periodically • on change to 0 and periodically
Send cycle *(if sent periodically)*	5 s ... 2 h; 10 s

6.3. Location

The location data is required in order to be able to calculate the **position of the sun** with the help of the date and time.

The **location** is received via GPS or entered manually (selection of the nearest town or by entering coordinates). Also when using the GPS signal coordinates can be entered manually for the initial commissioning. This data is used as long as no GPS reception exists. For this you select the option "Input (only valid until the first GPS reception)".

Location is determined by	• input • input (only valid until the first GPS reception) • GPS reception
Location input using *(if input selected)*	• Town • Coordinates

Country *(if input by town is selected)*	• Belgium • Denmark • Germany • France • Great Britain • Italy	• Liechtenstein • Luxembourg • Netherlands • Austria • Switzerland • USA
Town *(if input by town is selected)*	6 towns in Belgium 1 town in Denmark 48 towns in Germany; Stuttgart 23 towns in France 4 towns in Great Britain 10 towns in Italy 1 town in Liechtenstein 1 town in Luxembourg 2 towns in the Netherlands 4 towns in Austria 4 towns in Switzerland 2 towns in the USA	
E. longitude [degrees, -180…+180] *(if input by coordinates is selected)*	0 [negative values mean "western longitude"]	
E. longitude [minutes, -59…+59] *(if input by coordinates is selected)*	0 [negative values mean "western longitude"]	
Northern latitude [Degrees, -90…+90] *(if input by coordinates is selected)*	0 [negative values mean "southern latitude"]	
Northern latitude [minutes, -59…+59] *(if input by coordinates is selected)*	0 [negative values mean "southern latitude"]	

In order to be able to output the **local time**, the time zone (difference to world time (Coordinated Universal Time)) and the summer time rules must be defined. Specify the hours and minutes after winter time (standard time).

Time zone (relative to GMT):	
Prefix	• positive (+) • negative (-)
Hours	0 ... 13; 1
Minutes	0 ... 59; 0
Summertime rule	• Europe • USA • user-defined • none
All the following times are to be entered as winter time = standard time	
Start of Summer Time:	
on	• Monday ... Sunday • Date

From (day) *(for Europe or USA summer time rules)* (Day) *(For user defined summer time rules)*	1 ... 31; 25
(Month)	1 ... 12; 3
(Hour)	0 ... 23; 2
(minutes)	0 ... 59
End of Summer Time:	
on	• Monday ... Sunday • Date
From (day) *(for Europe or USA summer time rules)* (Day) *(For user defined summer time rules)*	1 ... 31; 25
(Month)	1 ... 12; 10
(hour)	0 ... 23; 2
(minutes)	0 ... 59
Time shift:	
hours	-12 ... 12; 1
minutes	0 ... 59

The standard coordinates can be transmitted from the device to the bus and thus be used in other applications, no matter whether they have been received via GPS or specified manually.

Send coordinates	• never • periodically • on change • on change and periodically
on change of	0.5° • 1° • 2° • 5° • 10°
Send cycle	5 s ... 2 h; 5 min

6.4. Sun position

Select whether the device should calculate the sun position itself or if the values are received via the bus. The type of object and send pattern are also set.

Sun position	is calculated • is received
Object type	4 Byte floating point • 2 Byte floating point
Send pattern *(if the sun position is calculated by the device)*	• never • periodically • on change • on change and periodically

on change of *(if sent on change)*	0.1 degrees • 0.2 degrees • 0.5 degrees • 1.0 degree • 2.0 degrees • 5.0 degrees
Send cycle *(if sent periodically)*	5 s ... 2 h; 1 min

6.5. Weekly timer

The weekly timer in the device allows for 24 periods to be defined.

The respective period objects can be configured as inputs or outputs, i.e. send to the bus (internal timer function, use internal and for other bus members) or be switched from there (timer function via an external device). If several devices are used in the system, the timer settings may be done on one device that sends the period objects as output. The other devices apply the timer-command (input), whereby a better synchronisation is achieved.

Activate the required periods for the weekly timer. The menus for setting the timer are loaded.

Use period 1/2/3/.../24	No • Yes

6.5.1. Weekly timer period 1-24

Set whether the period can be set (period object is the output and is sent to the bus) or if the period is received externally via the bus (period object is the input).

Period	• can be set (period object is output) • can be switched (time period object is output)

Period can be set (time period object is output)

Set whether the switching times are set per object and in which cases the switching times received are to be retained. Please note that the setting "After power restoration and programming" should not be used for the initial start-up, as the factory settings are always used until the first call (setting via objects is ignored).

Use objects for switching times	No • Yes
The threshold values and delays received by the communication object	
Switching data should	• not be retained • be retained after power restoration • be retained after power restoration and programming

Set the switching on and off times and the days of the week for this period. If, for example, 15:35 is set as the switch-off time, the output switches off on the change from 15:35 to 15:36.

Switch on time (hours)	0 ... 23
Switch on time (minutes)	0 ... 59
Switch-off time (hours)	0 ... 23
Switch-off time (minutes)	0 ... 59
Period switches to	
Monday ... Sunday	No • Yes

Set the send pattern for the week clock switch output and the value of the output.

Switching output sends	• never • on change • on change to active • on change to inactive • on change and periodically • on change to active and periodically • on change to inactive and periodically
Send cycle *(if sent periodically)*	5 s ... 2 h; 10 s
8-bit output value if Period active	0 ... 255
8-bit output value if Period not active	0 ... 255

Period that can be switched externally (time period is the input)

The time switches are taken over from an external timer switch. Set at which value the period is to be active and define the object value before the first communication.

Period is active	• at object value = 1 • at object value = 0
Object value prior to initial communication	0 • 1

6.6. Calendar timer

In the device's calendar timer, four periods with two switching sequences can be defined.

Activate the required periods for the calendar timer. The menus for setting the timer are loaded.

Use period 1	No • Yes
Use ... period	No • Yes
Use period 4	No • Yes

6.6.1. Calendar clock Period 1-4

Set whether the switching date and the switching time are set per object and in which cases the switching dates and times received are to be retained. Please note that the setting "After power restoration and programming" should not be used for the initial start-up, as the factory settings are always used until the first call (setting via objects is ignored).

Use objects for switching times	No • Yes
Maintain the	
switching data and times received via communication objects	• never • after power restoration • after power restoration and programming
.	

Define the period

From:	
Month	January ... December
Day	1 ... 29 / 1 ... 30 / 1 ... 31 (according to month)
Up to and including:	
Month	January ... December
Day	1 ... 29 / 1 ... 30 / 1 ... 31 (according to month)

Sequence 1 / 2

Define the switching times.

Switch on time (hours)	0 ... 23
Switch on time (minutes)	0 ... 59
Switch-off time (hours)	0 ... 23
Switch-off time (minutes)	0 ... 59
Switching output sends	• never • on change • on change to active • on change to inactive • on change and periodically • on change to active and periodically • on change to inactive and periodically
Send cycle *(if sent periodically)*	5 s ... 2 h; 10 s

Set the send pattern for the switch sequence and the value of the 8-bit output.

Switching output sends	• never • on change • on change to active • on change to inactive • on change and periodically • on change to active and periodically • on change to inactive and periodically
Send cycle *(if sent periodically)*	5 s ... 2 h; 10 s
8-bit output value if Period active	0 ... 255
8-bit output value if Period not active	0 ... 255

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