



**Technical Manual**  
**KNX Transponder reader unit**



**GW 10 681**  
**GW 12 681**  
**GW 14 681**

# Summary

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# 1 Introduction

This manual describes the functions of the device named GW1x681 “**Transponder reader unit**” and how to use the ETS configuration software to change the settings and configurations.

## 2 Application

The transponder reader GW1x681 is a KNX/EIB device that recognizes transponder cards for different kinds of Access control systems (offices, hospital rooms, hotel rooms, swimming-pools, saunas, sporting facilities, restricted areas, car-parks, etc).

The device is equipped of three ON/OFF inputs free of potential, for instance in the controls of electro-locks or other functions (window contact, pull-cord pushbutton, do not disturb switch).

Two 24Vac Relays are also available, for example as electro-lock and/or courtesy light command or general purposes.

On the front of the transponder reader are available 4 LEDs:

- Red/green bi-color led identified by a key symbol, for valid/invalid access signaling.
- Green led, free programmable by ETS for instance in “Clean the Room” signaling.
- Red led, free programmable by ETS for instance in “Do not disturb” or “Room busy” signaling.
- Amber led, free programmable by ETS for instance in “Help requested” signaling.

The transponder card is read placing the badge in front of the reader unit with a maximum distance of 3 centimeters.

In this manual is reported the device parametrization only, while about the installation of the transponder reader unit is recommended to follow the instruction manual guide.

### 2.1 *Limits to the associations*

The maximum number of logical associations that the device is able to memorize is 32; this means that the maximum number of logical connections between communication objects and group addresses is 32.

The maximum number of group addresses that the device is able to memorize is 35; this means that it is possible to associate the communication objects to a maximum of 35 group addresses.

### 3 “Relay x Configuration” Menu

This chapter describes parameters and communication objects for both outputs as reported in Fig. 3.1.

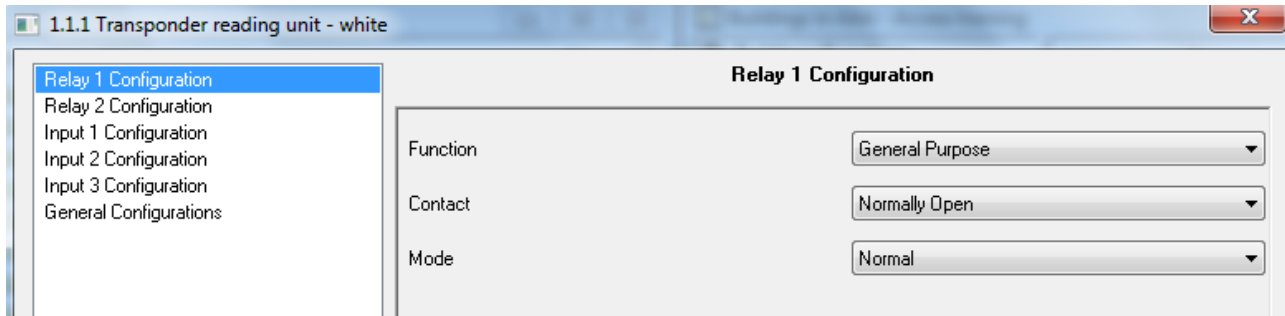


Fig 3.1

#### 3.1 Parameters

##### ➤ 3.1.1 Function

This determines the function associated to the Relay x; according to the value selected, the settings for the **Relay x** are:

- **General Purpose**

The Relay x can be used as a generic relay by the **Relay x** communication object.

- **Door open**

The Relay 1 only is used to command the electro lock automatically (without group address association in ETS) when a valid transponder card is recognized, anyway the same function is possible making a group address association in ETS by the **Door Unlock** communication object.

- **Courtesy light**

The Relay 2 only is used to command a courtesy light automatically (without group address association in ETS) when a valid transponder card is recognized, anyway the same function is possible making a group address association in ETS by the **Courtesy Light** communication object.

##### ➤ 3.1.2 Contact

This parameter defines the type of contact on the Relay x:

- **Normally open**

- **Normally close**

If the Power supply is not applied to the transponder reader, the contact is open.

##### ➤ 3.1.3 Mode

This parameter defines the activation mode of the Relay x and the settings are:

- **Normal**

A switch ON/OFF command is carried out

- **Timing**

A timed command is carried out according to the value selected on the **TimeBase** and **Factor parameters**.

At the end of the temporization a “deactivation” feedback is sent by the relative communication object; if this information of “deactivation” is not required, it’s possible to disable it deleting the “T” flag of the relative communication object.

➤ **3.1.4 TimeBase**

In Timing mode this parameter defines the time base and the available values are: **250 mS**, **500 mS**, **1 Sec**, **1 Min** and **1 Hour**.

➤ **3.1.5 Factor**

In Timing mode this parameter defines the value that multiplied per the TimeBase defines the actuation time by a value from **1** to **255**.

**NOTE:** for security reasons, it is recommended to do not use a Relay for unlocking the door of the Transponder reader because the device is installed out of the door and through an easy by-pass on the Relay the electro-lock is activated.

## 3.2 Communication objects

The communication objects activated by the **Relay x Configuration** are reported in Fig. 3.2:

| Number | Name           | Object Function  | Length | C | R | W | T | U | Data Type | Priority |
|--------|----------------|------------------|--------|---|---|---|---|---|-----------|----------|
| 0      | Door Unlock    | 1.001 DPT_Switch | 1 bit  | C | R | W | T | - |           | Low      |
| 1      | Courtesy Light | 1.001 DPT_Switch | 1 bit  | C | R | W | T | - |           | Low      |
| 0      | Relay 1        | 1.001 DPT_Switch | 1 bit  | C | R | W | T | - |           | Low      |
| 1      | Relay 2        | 1.001 DPT_Switch | 1 bit  | C | R | W | T | - |           | Low      |

Fig. 3.2

➤ **3.2.1 Door Unlock**

By this object the device is able to receive from the bus the command to activate the Relay 1. The enabled flags are C (communication), R (read by bus), W (written by bus), T (transmission). If a **Normal** mode is activated, the standard format of the object is **1.001 DPT\_Switch** and the dimension is 1 bit, instead in **Timing** mode the standard format change to **1.010 DPT\_Start**.

➤ **3.2.2 Relay 1 and Relay 2**

By this object the device is able to receive from the bus the commands to activate/deactivate the relative Relay. The enabled flags are C (communication), R (read by bus), W (written by bus), T (transmission). If a **Normal** mode is activated, the standard format of the object is **1.001 DPT\_Switch** and the dimension is 1 bit, instead in **Timing** mode the standard format change to **1.010 DPT\_Start**.

➤ **3.2.3 Courtesy Light**

By this object the device is able to receive from the bus the command to activate the Relay 2. The enabled flags are C (communication), R (read by bus), W (written by bus), T (transmission). If a **Normal** mode is activated, the standard format of the object is **1.001 DPT\_Switch** and the dimension is 1 bit, instead in **Timing** mode the standard format change to **1.010 DPT\_Start**.

## 4 “Input x Configuration” Menu

These parameters define the mode to send commands ON/OFF on the bus KNX/EIB using the inputs and in the Fig. 4.1 is reported the main menu.

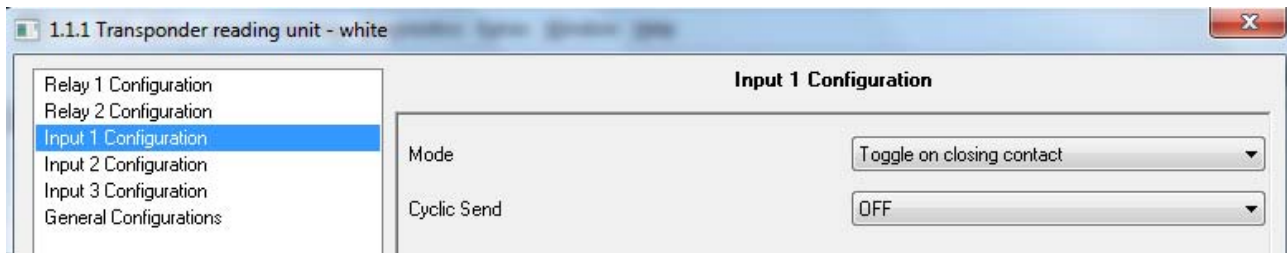


Fig. 4.1

### 4.1 Parameters

#### ➤ 4.1.1 Mode

This defines which commands must be sent when the contacts free of potential are open and/or closed; the possibility are:

- **ON on closing contact**

An ON value is sent when the device detects an edge from open to close to the input x connected. No action is carried out when the device detects an edge from close to open.

- **OFF on closing contact**

An OFF value is sent when the device detects an edge from open to close to the input x connected. No action is carried out when the device detects an edge from close to open.

- **ON on opening contact**

An ON value is sent when the device detects an edge from close to open to the input x connected. No action is carried out when the device detects an edge from open to close.

- **OFF on opening contact**

An OFF value is sent when the device detects an edge from close to open to the input x connected. No action is carried out when the device detects an edge from open to close.

- **ON on closing contact/OFF on opening contact**

An ON value is sent when the device detects an edge from open to close to the input x connected and an OFF value is sent when the device detects an edge from close to open to the input x connected.

- **OFF on closing contact/ON on opening contact**

An ON value is sent when the device detects an edge from close to open to the input x connected and an OFF value is sent when the device detects an edge from open to close to the input x connected.

- **Toggle on closing contact**

Usually a normal open (NO) push-button is connected to the input x in order to send ON and OFF values when the device detects a change from open to close.

- **Toggle on opening contact**

Usually a normal close (NC) push-button is connected to the input x in order to send ON and OFF values when the device detects a change from close to open.

### ➤ 4.1.2 Cyclic Send

The following options allow to activate or not the periodic sending for the input x:

- **OFF**

The cyclic send is no active and so the communication object is sent following the **Mode** selected only.

- **ON**

The communication object is sent following the **Mode** selected and cyclically according to the period configured by **Cycling Send Time ( Min. )**.

### ➤ 4.1.3 Cycling Send Time ( Min. )

This parameter defines the period in minutes for the **Cyclic send** and are accepted values from **1 to 200**.

## 4.2 Communication objects

The communication objects activated by the **Input x Configuration** are reported in Fig. 4.2:

| Number | Name    | Object Function  | Length | C | R | W | T | U | Data Type | Priority |
|--------|---------|------------------|--------|---|---|---|---|---|-----------|----------|
| 18     | Input 1 | 1.001 DPT_Switch | 1 bit  | C | R | W | T | - |           | Low      |
| 19     | Input 2 | 1.001 DPT_Switch | 1 bit  | C | R | W | T | - |           | Low      |
| 20     | Input 3 | 1.001 DPT_Switch | 1 bit  | C | R | W | T | - |           | Low      |

### ➤ 4.2.1 Input x

These communication objects are sent as defined on the **Input x Configuration** Menu.

The enabled flags are C (communication), R (read by bus), W (written by bus), T (transmission).

The standard format of the object is *1.001 DPT\_Switch* and the dimension is 1 bit.

## 5 “General Configurations” Menu

This section defines the access controls and on the Fig. 5.1 is reported the default window.

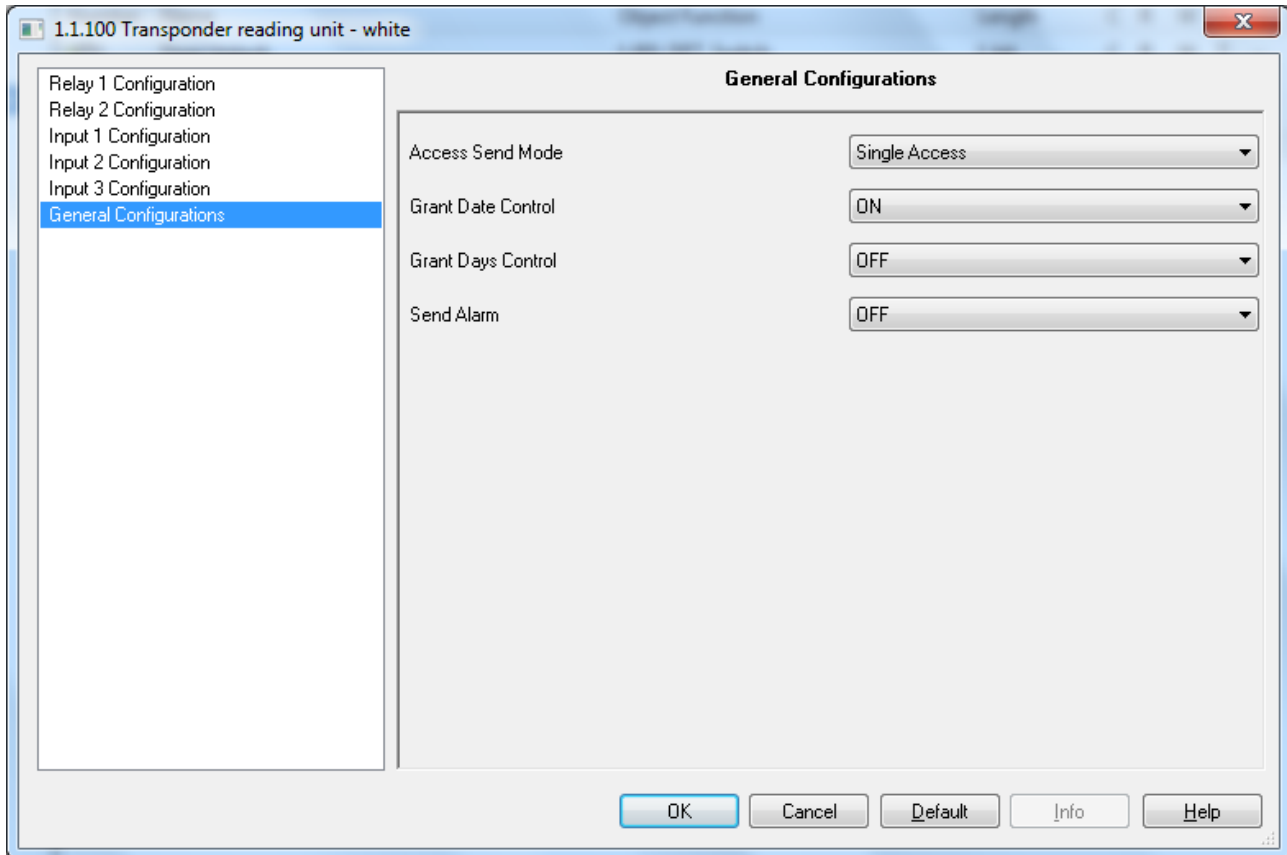


Fig. 5.1

### 5.1 Parameters

#### ➤ 5.1.1 Access Send Mode

This parameter able one (in **Single Access**) or more (in **Different Access**) communication objects sent when a valid transponder card is read by this device.

The software of Supervision GW Hotel and GW Access can generates different types of cards: *Customer, Service, Maintenance* and *Aid*.

To be informed that the software GW Hotel and Access in Base version can generate Customer cards only.

- **Single Access**

When a valid transponder card is read, the device sends by the communication object **Valid Access** a value of “1” for any type of card: *Customer, Service, Maintenance* or *Aid*.

- **Different Access**

In this case are available four different communication objects and according to the type of transponder card read, if it is valid a value of “1” is sent.

The communication object **Access 1** is sent for valid *Customer* cards.

The communication object **Access 2** is sent for valid *Service* cards.

The communication object **Access 3** is sent for valid *Maintenance* cards.

The communication object **Access 4** is sent for valid *Aid* cards.



➤ **5.1.2 Grant Date Control**

This parameter can activate on the device the control of the date in manner to validate the transponder cards read; the possibility are:

- **OFF**

In this case the Date control is deactivated, therefore a transponder card able to access but with the *Departure date* expired is considered as valid.

- **ON**

In this case the Date control is activated, therefore a transponder card able to access but with the *Departure date* expired is considered as no valid.

➤ **5.1.3 Grant Days Control**

This parameter supported by the software GW Hotel (no GW Access) can activate on the device the week days control in manner to validate the transponder cards read; the possibility are:

- **OFF**

In this case the week days control is deactivated, therefore a transponder card able to access but during a different day or hour respect to the *Active days* and/or *Hour access* is considered as valid.

- **ON**

In this case the week days control is activated, therefore a transponder card able to access but during a different day or hour respect to the *Active days* and/or *Hour access* is considered as no valid.

➤ **5.1.4 Send Alarm**

The transponder reader is powered by an external 12/24 Vac/dc and not from the bus KNX; this parameter activate the **Alarm** communication object that sends a value of "1" when the external Power supply back.

This function is very important when the control of Date and Days is activated, because after a Power fault the transponder reader lost both Date and Hour, thus the **Alarm** communication object can be used to update them using a specific KNX device.

To be informed that GW Hotel and GW Access can send only periodically Date and time but not automatically receiving the **Alarm** communication object.

- **OFF**

The communication object **Alarm** is not available.

- **ON**

The communication object **Alarm** is available.

## 5.2 Communication objects

The communication objects activated by the **General Configurations** are reported in Fig. 5.2:

| Number | Name         | Object Function          | Length  | C | R | W | T | U | Data Type | Priority |
|--------|--------------|--------------------------|---------|---|---|---|---|---|-----------|----------|
| 2      | Led 2        | 1.001 DPT_Switch         | 1 bit   | C | R | W | T | - |           | Low      |
| 3      | Led 2 Blink  | 1.001 DPT_Switch         | 1 bit   | C | R | W | T | - |           | Low      |
| 4      | Led 3        | 1.001 DPT_Switch         | 1 bit   | C | R | W | T | - |           | Low      |
| 5      | Led 3 Blink  | 1.001 DPT_Switch         | 1 bit   | C | R | W | T | - |           | Low      |
| 6      | Led 4        | 1.001 DPT_Switch         | 1 bit   | C | R | W | T | - |           | Low      |
| 7      | Led 4 Blink  | 1.001 DPT_Switch         | 1 bit   | C | R | W | T | - |           | Low      |
| 8      | Date         | 11.001 DPT_Date          | 3 Byte  | C | - | W | T | - |           | Low      |
| 9      | Time         | 10.001 DPT_TimeOfDay     | 3 Byte  | C | - | W | T | - |           | Low      |
| 10     | Build Number | 7.001 DPT_Value_2_UCount | 2 Byte  | C | - | W | T | - |           | Low      |
| 11     | Guest Data   | NO_DPT                   | 10 Byte | C | - | W | T | - |           | Low      |
| 12     | Access Code  | 15.000 DPT_Access_Data   | 4 Byte  | C | - | - | T | - |           | Low      |
| 13     | Access 1     | 1.003 DPT_Enable         | 1 bit   | C | R | - | T | - |           | Low      |
| 14     | Access 2     | 1.003 DPT_Enable         | 1 bit   | C | R | - | T | - |           | Low      |
| 15     | Access 3     | 1.003 DPT_Enable         | 1 bit   | C | R | - | T | - |           | Low      |
| 16     | Access 4     | 1.003 DPT_Enable         | 1 bit   | C | R | - | T | - |           | Low      |
| 17     | Valid Access | 1.003 DPT_Enable         | 1 bit   | C | R | - | T | - |           | Low      |
| 21     | Alarm        | 1.005 DPT_Alarm          | 1 bit   | C | R | - | T | - |           | Low      |

Fig. 5.2

### ➤ 5.2.1 Led 2

This communication object turns on the green led with a value of “1” and turns off it with a value of “0”. The object **Led 2** is priority respect to **Led 2 Blink**.

The enabled flags are C (communication), R (read by bus), W (written by bus), T (transmission). The standard format of the object is *1.001 DPT\_Switch* and the dimension is 1 bit.

### ➤ 5.2.2 Led 2 Blink

This communication object activate in blinking mode the green led with a value of “1” and turns off it with a value of “0”.

The object **Led 2 Blink** is less priority than the **Led 2**.

The enabled flags are C (communication), R (read by bus), W (written by bus), T (transmission). The standard format of the object is *1.001 DPT\_Switch* and the dimension is 1 bit.

### ➤ 5.2.3 Led 3

This communication object turns on the red led with a value of “1” and turns off it with a value of “0”.

The object **Led 3** is priority respect to **Led 3 Blink**.

The enabled flags are C (communication), R (read by bus), W (written by bus), T (transmission). The standard format of the object is *1.001 DPT\_Switch* and the dimension is 1 bit.

### ➤ 5.2.4 Led 3 Blink

This communication object activate in blinking mode the red led with a value of “1” and turns off it with a value of “0”.

The object **Led 3 Blink** is less priority than the **Led 3**.

The enabled flags are C (communication), R (read by bus), W (written by bus), T (transmission). The standard format of the object is *1.001 DPT\_Switch* and the dimension is 1 bit.

### ➤ 5.2.5 Led 4

This communication object turns on the amber led with a value of “1” and turns off it with a value of “0”.

The object **Led 4** is priority respect to **Led 4 Blink**.

The enabled flags are C (communication), R (read by bus), W (written by bus), T (transmission). The standard format of the object is *1.001 DPT\_Switch* and the dimension is 1 bit.

### ➤ 5.2.6 *Led 4 Blink*

This communication object activate in blinking mode the amber led with a value of “1” and turns off it with a value of “0”.

The object **Led 4 Blink** is less priority than the **Led 4**.

The enabled flags are C (communication), R (read by bus), W (written by bus), T (transmission).

The standard format of the object is *1.001 DPT\_Switch* and the dimension is 1 bit.

### ➤ 5.2.7 *Date*

By this communication object the device is able to receive a Date update from the bus KNX.

The enabled flags are C (communication), W (written by bus), T (transmission).

The standard format of the object is *11.001 DPT\_Date* and the dimension is 3 byte.

### ➤ 5.2.8 *Time*

By this communication object the device is able to receive a Time update from the bus KNX.

The enabled flags are C (communication), W (written by bus), T (transmission).

The standard format of the object is *10.001 DPT\_TimeOfDay* and the dimension is 3 byte.

### ➤ 5.2.9 *Build Number*

By this communication object the transponder reader receive from the bus KNX the installation number assigned through the software GW Hotel or GW Access by the *Access code* function.

During the generation of transponder cards, the programmer unit by GW Hotel or GW Access writes two codes: **Build Number** and **Guest Data** (explained on the paragraph 5.2.10), in fact when the device read a transponder card makes a double control on both Build Number and Guest Data.

The enabled flags are C (communication), W (written by bus), T (transmission).

The standard format of the object is *7.001 DPT\_Value\_2\_Ucount* and the dimension is 2 byte.

### ➤ 5.2.10 *Guest Data*

By this communication object the transponder reader receive from the bus KNX the *password* generated through the software GW Hotel or GW Access.

The *password* includes a code for identifying the card and the expiration of: date, days and hours.

The enabled flags are C (communication), W (written by bus), T (transmission).

There is no standard format for this object and the dimension is 10 byte.

### ➤ 5.2.11 *Access Code*

By this communication object the transponder reader sends on the bus KNX the transit identification, obviously when a transponder card that belongs to the installation is read.

The Access code can be received and stored in a log file on the software GW Hotel or GW Access.

The enabled flags are C (communication) and T (transmission).

The standard format of the object is *15.000 DPT\_Access\_Data* and the dimension is 4 byte.

### ➤ 5.2.12 *Access 1*

If Different Access is selected, this communication object is available and send a value of “1” when a valid *Customer* transponder card is read; a value of “0” is never send.

The enabled flags are C (communication), R (read by bus) and T (transmission).

The standard format of the object is *1.003 DPT\_Enable* and the dimension is 1 bit.

### ➤ 5.2.13 *Access 2*

If Different Access is selected, this communication object is available and send a value of “1” when a valid *Service* transponder card is read; a value of “0” is never send.

The enabled flags are C (communication), R (read by bus) and T (transmission).

The standard format of the object is *1.003 DPT\_Enable* and the dimension is 1 bit.

➤ **5.2.14 Access 3**

If Different Access is selected, this communication object is available and send a value of “1” when a valid *Maintenance* transponder card is read; a value of “0” is never send.

The enabled flags are C (communication), R (read by bus) and T (transmission).

The standard format of the object is *1.003 DPT\_Enable* and the dimension is 1 bit.

➤ **5.2.15 Access 4**

If Different Access is selected, this communication object is available and send a value of “1” when a valid *Aid* transponder card is read; a value of “0” is never send.

The enabled flags are C (communication), R (read by bus) and T (transmission).

The standard format of the object is *1.003 DPT\_Enable* and the dimension is 1 bit.

➤ **5.2.16 Valid Access**

If Single Access is selected, this communication object is available and send a value of “1” when any valid transponder card is read; a value of “0” is never send.

The enabled flags are C (communication), R (read by bus) and T (transmission).

The standard format of the object is *1.003 DPT\_Enable* and the dimension is 1 bit.

➤ **5.2.17 Alarm**

By this communication object the transponder reader sends on the bus KNX a value of “1” when the external Power supply back; a value of “0” is never send.

The enabled flags are C (communication), R (read by bus) and T (transmission).

The standard format of the object is *1.003 DPT\_Enable* and the dimension is 1 bit.