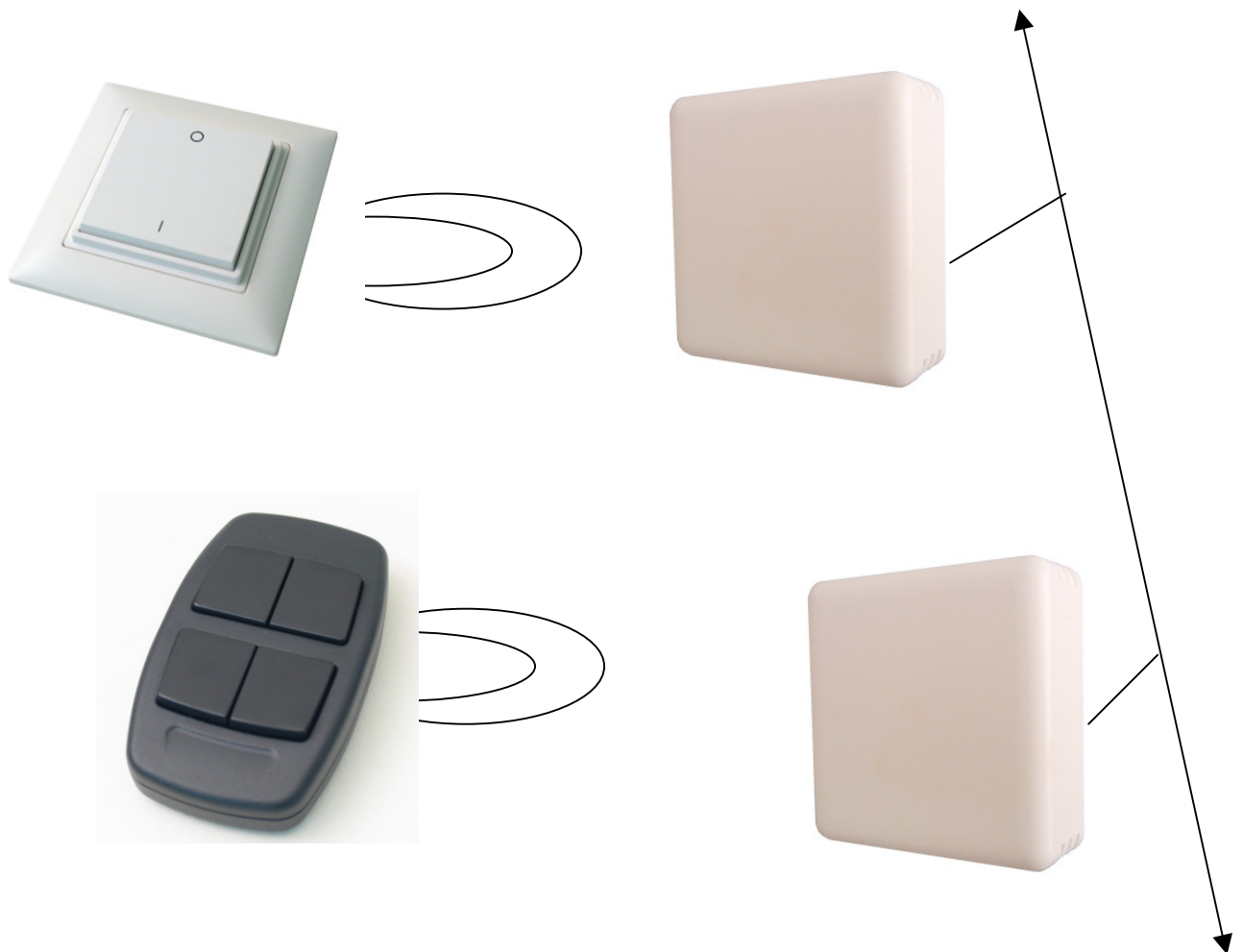




**RS485 Gateway bidirektional**  
**Typ APG03B-RS485-Eno**  
**Art-Nr. 6011000**  
**Manual**



# Manual

## RF-Gateway RS485 Typ APG03B-RS485



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Versionsverfolgung:

Version / SW-release	Modifications
V2g / 08072400	
V2h / 08083105	No learning-mode needed whilst storage ID's in the Inputfilter. Beim setzen von ID's in den Eingangfilter muss das Gateway vorgängig nicht mehr in den Lern-Mode gesetzt werden. Concerns Commands 8B-B3, 8B-B4, 8B-B5, AB-B3, AB-B4, AB-B5
V2h / 08083105 25.10.08	Documentation from Command Type 6B (Sending)

### 1. General Information

The bidirectional radio gateway APG03B-RS485 is a device for surface mounting and is used as a receiver for sensors of the Ratio® radio bus system based on the EnOcean technology for devices such as PC, PLC and controller systems with RS485 interface. All radio telegrams received from radio transmitters are packed into a telegram frame and output on the RS485 side. All telegrams received from the master of the RS485-System (PC or PLC) are output on the RF-Side as an original enocean-telegramm. For that, the gateway APG03B-RS485 enable a bidirectional conjunction between Ratio-Transmitters and Ratio-Receivers.

The gateway includes two operation modes.

In the operation mode „Direct“ all received telegrams are sent to the RS485 bus. In the operation mode „Filter“, only telegrams of transmitters learned into the gateway will be sent to the RS485 bus. You can change between these two operation-mode either with a special command or if the input filter is empty, the operation mode „Direct“ is active; the operation mode „Filter“ is active as soon as an ID has been learned in.

#### 1.1 Device Overview

APG03B-RS485-Eno                      bidirectional radio gateway RS485

#### 1.2 Technical Data

Power supply	12-30VDC or 12-24VAC
Power consumption	max. 40mA
Radio module	TCM120
Radio protocol	EnOcean standard (PTM/STM/CTM)
Antenna	Integrated
Connection	Plug terminals 8-pole for T-wire cable 1x4x0,8mm <sup>2</sup>
Casing	Plastic ABS, mass 80mmx80mmx25mm, weight 80g
Protection type	IP20
Operating temperature	-5°C ... +40°C, rel. humidity (no condensation) 5 ... 90%
Interface	RS485 Multiple Access, Master-Slave Transfer rate adjustable via plug-in jumpers. All parameters can be set via software commands. Load resistance integrated, can be activated using plug-in jumpers
Protocols	RS485-Eno Conversion of the standard EnOcean protocol into RS485 level  RS485 Modbus (in preparation)

#### 1.3 Parameterization Software

A parameterization software is available free of charge for setting up the communication parameters, the user's address and the radio transmitter ID's, and for the documentation. This software can be downloaded from the site [www.omnio.ch](http://www.omnio.ch).

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## RF-Gateway RS485 Typ APG03B-RS485



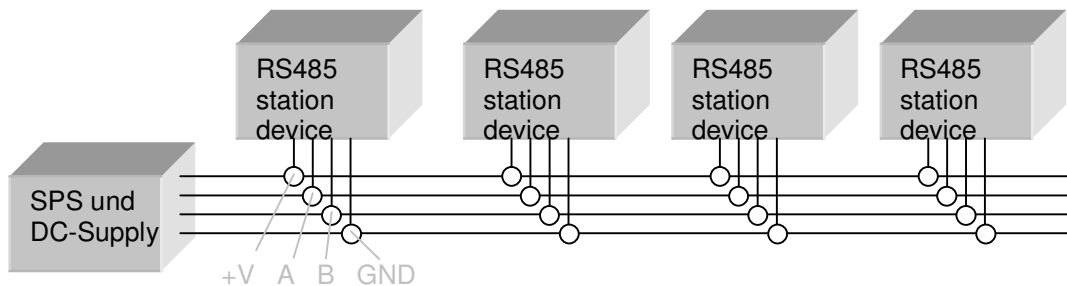
### 2 RS485-Gateway – HW Description

#### 2.1 Connection

##### 2.1.1 Principle

The radio gateways are connected to the RS485 bus cable by means of plug terminals. The bus cable must be a twisted pair, screened T-wireless cable 1x4x0.8mm<sup>2</sup>.

The gateways are connected serially to the RS485 network cable. Stub lines with a maximum length of 15m are possible.



All ends of the RS485 network cable (including those at stub lines) must be terminated by a 120 Ohm resistor. This is executed by the setting of jumper J3 on the two outer gateways. Communication problems will occur if the RS485 bus cable is not terminated by a resistor. The power supply of the gateway can be either 12-30VDC at bornes 1 and 4 or 12-24VAC at bornes 4 an 5.

##### 2.1.2 Connection Terminals

Plug terminal block X1 (plug terminals 8-pole for T-wire cable 1x4x0.8mm<sup>2</sup>)

PIN	Name	Remark
1	GND	Mass for Power-supply 12-24DC at terminal 4
2	B	B – RS485 – data line
3	A	A – RS485 – data line
4	+VDC/AC1	Power supply 12-24VDC / AC1
5	- VAC2	Power supply AC Pol negativ / AC2

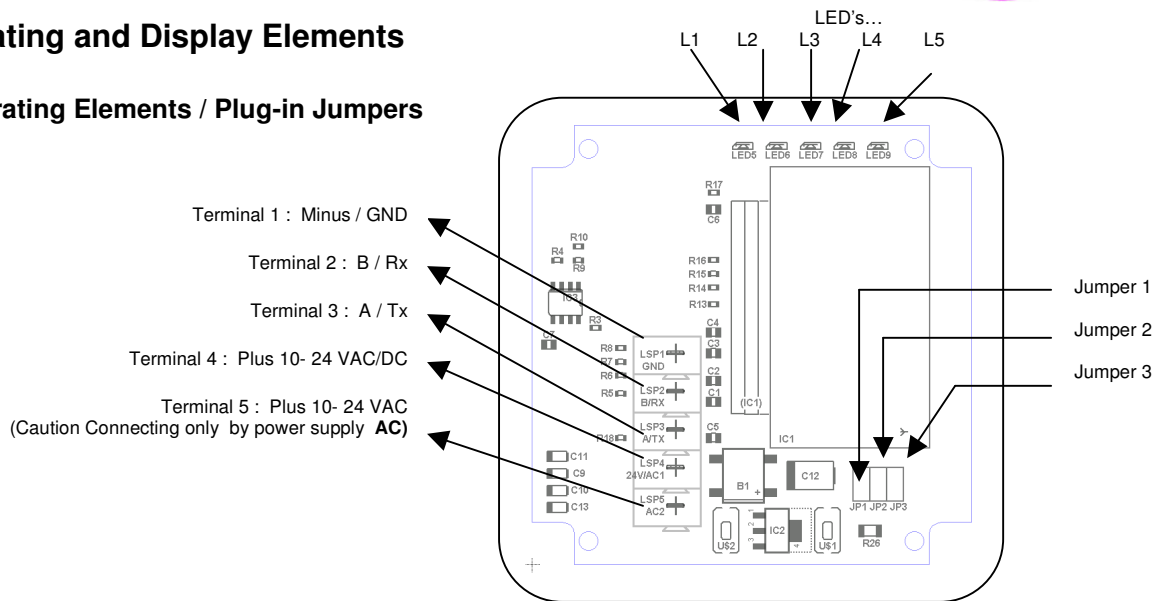
# Manual

## RF-Gateway RS485 Typ APG03B-RS485



### 2.2 Operating and Display Elements

#### 2.2.1 Operating Elements / Plug-in Jumpers



##### 2.2.1.1 Plug-in Jumpers J1/J2 – Baud Rates

The baud rate is set by means of the plug-in jumpers J1 and J2. Four different baud rates can be set.

Baud rates				
Jumper J1	on	off	on	off
Jumper J2	on	on	off	off
	<b>9600</b>	<b>19200</b>	<b>38400</b>	<b>57600</b>

##### 2.2.1.2 Plug-in Jumpers J3 – Load Resistance

The load resistance with 120 Ohm is activated by means of plug-in jumper J3.

##### 2.2.1.3 Button S3 – Learning Mode, Input Filter

With the button S3 you can switch over between normal mode and learning mode.

###### Learning mode

Push the button S3 for 2 seconds to switch to the learning mode. LED L3 lights up permanently. If the button S3 is pushed again for 2 seconds, the program switches back to the normal operation mode, LED L3 goes off.

###### Erase input filter

If you press the button S3 in the normal operation mode for more than 6 seconds, all transmitter ID's in the input filter will be erased. LED L3 is flashing. If you then release the button S3, the program switches to the learning mode, LED L3 shows a constant light. If the button S3 is again pushed for 2 seconds, the program switches back to the normal operation mode, LED L3 goes off.

If the input filter is erased, the operation mode „Direct“ is active. All received telegrams are sent to the RS485 bus. As soon as a transmitter has been learned into the input filter of the gateway, the operation mode „Direct“ is active. Only telegrams that are also stored in the input filter will be sent to the RS485 bus.

Remark: The Command „Master Set INFI Disable (TCT Transmit Command Telegram)“ (see endorsement 4.2.6) enables you to change the operation mode „Filter“ and „Direct“ from the Master-System (PC/PLC) without erase the input-filter.

##### 2.2.1.4 Button S4 – Reset

With the button S4 you can reset possible errors indicated by the LED's.

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## RF-Gateway RS485 Typ APG03B-RS485



### 2.2.2 Indications by LED's

#### 2.2.2.1 Power supply LED L1

LED L1 lights up -> power supply is ok.

LED L1 does not light up -> power supply is not connected or power supply is faulty.

#### 2.2.2.2 Data Communication LED L2

LED L2 is flickering -> data communication to the RS485 bus.

LED L2 does not light up -> no data communication to the RS485 bus active.

#### 2.2.2.3 Learning Mode / Input Filter

LED L3 does not light up -> normal operation mode is active.

LED L3 lights up -> learning mode is active.

LED L3 is flickering -> input filter will be erased.

#### 2.2.2.4 Fault Indication

Malfunctions are indicated by cyclical flash packages.

LED L4 off -> no malfunction.

LED L4 Flash packages with 2 times flashing -> no ACK telegram received by the Master.

LED L4 Flash packages with 3 times flashing -> receipt buffer is full, neither RMT nor RRT telegrams to the Master are / were possible

LED L4 Flash packages with 5 times flashing -> the input filter is full. A corresponding telegram is sent to the Master.

#### 2.2.2.5 Various Messages

LED L5 can be used as needed by the Master.

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## RF-Gateway RS485 Typ APG03B-RS485



### 3 RS485-Gateway – SW Description

#### 3.1 Principle of Communication

All radio gateways in the same RS485 network must be set with the same baud rate. Each gateway must be provided with a unique user number. This user number and all other communication parameters can be set by means of software commands from the Master (PC/SPC or control system). Upon delivery, all gateways have the user number „FFFFFF80h“. To set up the communication parameters you may also download our commissioning software from our web site [www.omnio.ch](http://www.omnio.ch).

##### 3.1.1 Allocating the User Number

The possible range of the user number is of FF800000h to FFFFFFF80h. With each gateway, starting from the user number, a total of 128 radio telegrams can be sent; therefore, the user address has to differ from gateway to gateway by the value 80h. Example for 5 gateways:

Gateway	User number
1	FF800000h
2	FF800080h
3	FF800100h
4	FF800180h
5	FF800200h

Caution! To rule out abuse, the user number can be changed max. 10 times.

##### 3.1.2 Telegram Structure

All telegrams sent and received have the same structure, based on the standard EnOcean telegram and each telegram consists of 14 bytes.

Allgemeiner Telegrammaufbau	
0xA5	Sync Byte 1
0x5A	Sync Byte 2
Typ	Telegrammtyp
Org	Sendertyp
Data 3	Data depending on transmitter type
Data 2	Data depending on transmitter type
Data 1	Data depending on transmitter type
Data 0	Data depending on transmitter type
ID 3	Number of the transmitter
ID 2	Number of the transmitter
ID 1	Number of the transmitter
ID 0	Number of the transmitter
Status	Status
Cks	Sum LSB (from byte type incl. Status)

##### 3.1.3 Master / Slave

The telegram flow in the RS485 network and the bus access is not strictly controlled by the Master (PC/SPC/Controller) only. There are telegrams which are initiated by the radio gateways (slaves) themselves, and which have to be acknowledged by the master system.

Basically, each telegram, whether from the master or the slave, has to be acknowledged by the respectively addressed user.

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## RF-Gateway RS485 Typ APG03B-RS485



### 3.1.4 Bus Conflicts -Telegram Repeats

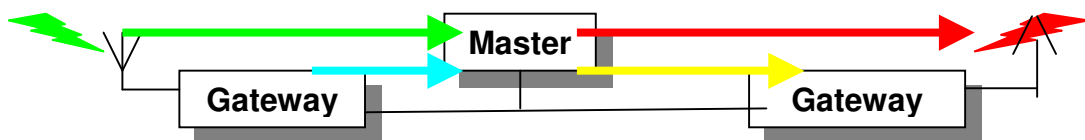
Bus conflicts have different causes, some of them are, for example, a false cable type of the RS485 bus cable, a user device that is not – or incorrectly – connected, or a baud rate that has been set incorrectly.

Bus conflicts are solved such that a missing answer or acknowledgement telegram ACK to a telegram (inquiry or command) will be repeated up to two times. The breaks between two repeated telegrams is between 500 and 1000ms. After the third attempt, if no answer acknowledgement telegram ACK is received, the telegram is discarded and the next command is processed.

### 3.2 Telegram Types

The following table describes the telegram flow and the possible telegram types which are specified by the value in the byte **type** (see Telegram Structure 3.1.1):

Flow direction	Value	Description	Remark
Gateway-> Master	<b>0B</b>	<b>RRT</b> Radio Receive Telegram	A telegram from a radio transmitters has been received through the gateway and sent to the RS485 bus. The telegram must be acknowledged by the Master.
Master -> Gateway	<b>6B</b>	<b>TRT</b> Transmit Radio Telegram	A telegram from the gateway (addressed by the user number) to the Master. The telegram must be acknowledged by the Master.
Gateway -> Master	<b>8B</b>	<b>RMT</b> Receive Message Telegram	A telegram from the gateway (addressed by the user number) to the Master. The telegram must be acknowledged by the Master
Master -> Gateway	<b>AB</b>	<b>TCT</b> Transmit Command Telegram	A telegram from the Master to the gateway itself (addressed by the user number). The gateway will acknowledge the telegram or send an answer telegram to the Master.



#### 3.2.1 Possible Transmission Types of an RRT Telegram (Type = 0B)

The telegrams of different radio transmitter differ by one value in the ORG field. These are:

Wert	Beschreibung
05	A TG of a transmitter with a PTM module
06	A TG of a transmitter with a STM module 1Byte
07	A TG of a transmitter with a STM module 4Byte
08	A TG of a transmitter with a CTM module

The data sheets of the sensors include detailed descriptions of the telegrams of the various sensors.

### 3.3 Telegrams in Detail / Release Notes

See Appendix A. All possible telegrams are listed there which can be used in the current SW release.

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## RF-Gateway RS485 Typ APG03B-RS485



### 4 First Steps

This section describes the first steps to allow fast commissioning by means of our parameterization software:

Starting point: The parameterization software is installed on a PC/notebook and a RS485 network is available. The baud rate of the Master and the gateways have been set to the same value.

1. Connect the gateways to the RS485 bus and turn on the power supply. Make sure that at this moment no other gateway with the same user number (TLNR) is connected. LED L1 must light up.
2. First communication test using the parameterization software.  
Try to change the status of LED L5 by means of the buttons Signal\_On, Signal\_OFF and Signal\_Flash. If this is possible, correct communication has been established.
3. Push the radio transmitter. The telegrams must be displayed on the Test tab of the parameterization software.
4. Push the button S3 until LED L3 is flashing. Release the button S3, the gateway switches to the learning mode and you have now erased the input filter completely.  
Now learn in a radio transmitter. Each new learned in transmitter ID is indicated by a brief flickering of LED L3 and a respective telegram by the Master. As soon as all sensors have been learned in, push the button S3 for two seconds to switch back to the normal operation mode. L3 goes off.

Changing the user number. The station is now ready for operation.

14.06.08 tw/chg

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## RF-Gateway RS485 Typ APG03B-RS485

### Appendix (Software – release 080514.04)



#### 4.1 The RMT Telegrams (Receive Message Telegram)

##### 4.1.1 Gateway Message changed its Baud Mode (RMT Receive Message Telegram)

	Bit7	Bit0
SB 1	0xA5	
SB 2	0x5A	
Typ	8B	
ORG	94	
DB 3	00	
DB 2	00	
DB 1	00	
DB 0	BM	
ID3	No. of the gateway	
ID2	No. of the gateway	
ID1	No. of the gateway	
ID0	No. of the gateway	
Status	BM	
Chks	Chk-Sum	

This telegram is sent by the gateway to the Master after the baud rate has changed. The baud rate is set by means of plug-in jumpers at the gateway.

DB0 (BM) -> New baud rate value

Status (BM) -> 1 = 9.6 kBaud  
 Status (BM) -> 2 = 19.2 kBaud  
 Status (BM) -> 3 = 38.4 kBaud  
 Status (BM) -> 4 = 57.6 kBaud

##### 4.1.2 Gateway Message changed its LRN Mode (RMT Receive Message Telegram)

	Bit7	Bit0
SB 1	0xA5	
SB 2	0x5A	
Typ	8B	
ORG	9A	
DB 3	00	
DB 2	00	
DB 1	00	
DB 0	00	
ID3	No. of the gateway	
ID2	No. of the gateway	
ID1	No. of the gateway	
ID0	No. of the gateway	
Status	00, 01	
Chks	Chk-Sum	

This telegram is sent by the gateway to the Master after the button S3 has been pushed. The status of the learning mode is displayed in the status byte:

Status = 00 -> LRN-Mode is passive  
 Status = 01 -> LRN-Mode is active, transmitters can be learned into the input filter.



### 4.1.3 Gateway Message New INFI ID learned (RMT Receive Message Telegram)

	Bit7	Bit0
SB 1	0xA5	
SB 2	0x5A	
Typ	8B	
ORG	9B	
DB 3	ID3	
DB 2	ID2	
DB 1	ID1	
DB 0	ID0	
ID3	No. of the gateway	
ID2	No. of the gateway	
ID1	No. of the gateway	
ID0	No. of the gateway	
Status	IND	
Chks	Chk-Sum	

This telegram is sent by the gateway to the Master after a transmitter has been learned in the LRN mode into the input filter. The respective transmitter ID of the learned in transmitter is indicated in the bytes DB3 to DB0.

Status (IND) = index pointer (1-32) in the input filter. Shows the position of the learned in transmitter in the input filter.

### 4.1.4 Gateway Message Duplicate ID not learned (RMT Receive Message Telegram)

	Bit7	Bit0
SB 1	0xA5	
SB 2	0x5A	
Typ	8B	
ORG	9D	
DB 3	ID3	
DB 2	ID2	
DB 1	ID1	
DB 0	ID0	
ID3	No. of the gateway	
ID2	No. of the gateway	
ID1	No. of the gateway	
ID0	No. of the gateway	
Status	IND	
Chks	Chk-Sum	

This telegram is sent by the gateway to the Master after attempting to learn in a transmitter into the input filter which has already been learned in.

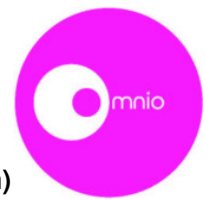
The respective transmitter ID of the learned in transmitter is indicated in the bytes DB3 to DB0.

Status (IND) -> index pointer(1-32) in the input filter. Shows the position of the already learned in transmitter in the input filter.

### 4.1.5 Gateway Message INFI completely erased (RMT Receive Message Telegram)

	Bit7	Bit0
SB 1	0xA5	
SB 2	0x5A	
Typ	8B	
ORG	9E	
DB 3	00	
DB 2	00	
DB 1	00	
DB 0	00	
ID3	No. of the gateway	
ID2	No. of the gateway	
ID1	No. of the gateway	
ID0	No. of the gateway	
Status	00	
Chks	Chk-Sum	

This telegram is sent by the gateway to the Master after the input filter has been erased by means of the button S3 at the gateway.



### 4.1.6 Gateway Message INFI full, ID not learned (RMT Receive Message Telegram)

	Bit7	Bit0
SB 1	0xA5	
SB 2	0x5A	
Typ	8B	
ORG	9F	
DB 3	Transmitter-ID	
DB 2	Transmitter -ID	
DB 1	Transmitter -ID	
DB 0	Transmitter -ID	
ID3	No. of the gateway	
ID2	No. of the gateway	
ID1	No. of the gateway	
ID0	No. of the gateway	
Status	00	
Chks	Chk-Sum	

This telegram is sent by the gateway to the Master if no further transmitters can be learned in any more since the input filter is already full.

DB3-DB0 (transmitter ID) -> ID of the transmitter which could not be learned in.

### 4.1.7 Gateway ACK: of the last TG (RMT Receive Message Telegram)

	Bit7	Bit0
SB 1	0xA5	
SB 2	0x5A	
Typ	8B	
ORG	AC	
DB 3	00	
DB 2	00	
DB 1	00	
DB 0	00	
ID3	No. of the gateway	
ID2	No. of the gateway	
ID1	No. of the gateway	
ID0	No. of the gateway	
Status	00	
Chks	Chk-Sum	

This telegram is sent by the gateway to the Master if the received telegram has been processed successfully.

### 4.1.8 Gateway Replay SW Version (RMT Receive Message Telegram)

	Bit7	Bit0
SB 1	0xA5	
SB 2	0x5A	
Typ	8B	
ORG	B0	
DB 3	VERSION	
DB 2	Y (Year)	
DB 1	M (Month)	
DB 0	D (Day)	
ID3	No. of the gateway	
ID2	No. of the gateway	
ID1	No. of the gateway	
ID0	No. of the gateway	
Status	BLD	
Chks	Chk-Sum	

This telegram is sent by the gateway to the Master if the received telegram has been processed successfully.



### 4.1.9 Gateway Replay Set ID to INFI (RMT Receive Message Telegram)

	Bit7	Bit0
SB 1	0xA5	
SB 2	0x5A	
Typ	8B	
ORG	B3	
DB 3	00	
DB 2	00	
DB 1	00	
DB 0	00	
ID3	No. of the gateway	
ID2	No. of the gateway	
ID1	No. of the gateway	
ID0	No. of the gateway	
Status	00,F7,FF	
Chks	Chk-Sum	

This telegram is sent by the gateway to the Master after the Master tried to enter a transmitter number into the input filter.

Status = 00 -> Transmitter successfully read into input filter

Status = F7 -> Gateway not in the LRN mode  
(not valid since version 080831.05)

Status = FF -> Index not in the permitted range

### 4.1.10 Gateway Replay INFI Element (RMT Receive Message Telegram)

	Bit7	Bit0
SB 1	0xA5	
SB 2	0x5A	
Typ	8B	
ORG	B4	
DB 3	ID3	
DB 2	ID2	
DB 1	ID1	
DB 0	ID0	
ID3	No. of the gateway	
ID2	No. of the gateway	
ID1	No. of the gateway	
ID0	No. of the gateway	
Status	Ind	
Chks	Chk-Sum	

This telegram is sent by the gateway to the Master after the Master has sent an inquiry for the transmitter ID (Ind) in the input filter.

The respective transmitter ID of the learned in transmitter is indicated in the bytes DB3 to DB0.

IND = index pointer (1-32) in the input filter. Shows the position of the already learned in transmitter in the input filter.

### 4.1.11 Gateway Replay INFI Size/Mode (RMT Receive Message Telegram)

	Bit7	Bit0
SB 1	0xA5	
SB 2	0x5A	
Typ	8B	
ORG	B4	
DB 3	00	
DB 2	00	
DB 1	00, FF	
DB 0	Size (1..20h)	
ID3	No. of the gateway	
ID2	No. of the gateway	
ID1	No. of the gateway	
ID0	No. of the gateway	
Status	FF	
Chks	Chk-Sum	

This telegram is sent by the gateway to the Master after the Master has sent an inquiry for the number of already stored transmitter ID's (Ind) in the input filter.

DB1 = 00 -> In the DB0 the number of the already learned in transmitter in the input filter is indicated. Possible range from 0 to 32 (20h). **The input filter is active.**

DB1 = FF -> In the DB0 the number of the already learned in transmitter in the input filter is indicated. Possible range from 0 to 32 (20h). **The input filter is passive.** All telegrams received from the gateway are sent to the Master.

See also command „Master Set INFI Disable (TCT Transmit Command Telegram)“, (chapter 4.2.6).



### 4.1.12 Gateway INFI Disable (RMT Receive Message Telegram)

	Bit7	Bit0
SB 1	0xA5	
SB 2	0x5A	
Typ	8B	
ORG	B5	
DB 3	00	
DB 2	00	
DB 1	00	
DB 0	00	
ID3	No. of the gateway	
ID2	No. of the gateway	
ID1	No. of the gateway	
ID0	No. of the gateway	
Status	00, FF	
Chks	Chk-Sum	

This telegram is sent by the gateway to the Master after the Master has changed the mode of the input-filter of the gateway.

Status = 00 -> The input filter is active.

Status = FF -> The input filter is passive.

### 4.1.13 Gateway Replay Stat Base ID change (RMT Receive Message Telegram)

	Bit7	Bit0
SB 1	0xA5	
SB 2	0x5A	
Typ	8B	
ORG	D0	
DB 3	New no. of the gateway	
DB 2	New no. of the gateway	
DB 1	New no. of the gateway	
DB 0	New no. of the gateway	
ID3	(Old) no. of the gateway	
ID2	(Old) no. of the gateway	
ID1	(Old) no. of the gateway	
ID0	(Old) no. of the gateway	
Status	00, 01, 02, F7	
Chks	Chk-Sum	

This telegram is sent by the gateway to the Master after the Master has changed the user number of the gateway.

Status = 00 -> New user number was set.

Status = 01 -> The desired new user number is not in the permitted range.

Status = 02 -> The user number cannot be changed anymore.

Status = F7 -> Gateway not in the LRN mode.

### 4.1.14 Gateway Message TRT-Buffer is full (RMT Receive Message Telegram)

	Bit7	Bit0
SB 1	0xA5	
SB 2	0x5A	
Typ	8B	
ORG	EB	
DB 3	00	
DB 2	00	
DB 1	00	
DB 0	00	
ID3	TG-ID3	
ID2	TG-ID2	
ID1	TG-ID1	
ID0	TG-ID0	
Status	00	
Chks	Chk-Sum	

This telegram is sent by the gateway to the Master if the last TRT telegram sent by the Master cannot be executed by the gateway.

In bytes ID3 to ID0 the transmitter ID is listed which the Master tried to send.



### 4.1.15 Gateway Message TCT-Buffer is full (RMT Receive Message Telegram)

	Bit7	Bit0
SB 1	0xA5	
SB 2	0x5A	
Typ	8B	
ORG	EB	
DB 3	00	
DB 2	00	
DB 1	00	
DB 0	00	
ID3	No. of the gateway	
ID2	No. of the gateway	
ID1	No. of the gateway	
ID0	No. of the gateway	
Status	00	
Chks	Chk-Sum	

This telegram is sent by the gateway to the Master if the last TCT telegram sent by the Master cannot be executed by the gateway.

In bytes ID3 to ID0 the user number of the gateway is listed.

## 4.2 The TCT Telegrams (Transmit Command Telegram)

### 4.2.1 Station ACK prüfen (TCT Transmit Command Telegram)

	Bit7	Bit0
SB 1	0xA5	
SB 2	0x5A	
Typ	AB	
ORG	AC	
DB 3	00	
DB 2	00	
DB 1	00	
DB 0	00	
ID3	No. of the gateway	
ID2	No. of the gateway	
ID1	No. of the gateway	
ID0	No. of the gateway	
Status	RC	
Chks	Chk-Sum	

This telegram is sent by the Master to the Gateway after a telegram has been processed successfully by the gateway.

### 4.2.2 Master Get SW Version (TCT Transmit Command Telegram)

	Bit7	Bit0
SB 1	0xA5	
SB 2	0x5A	
Typ	AB	
ORG	B0	
DB 3	00	
DB 2	00	
DB 1	00	
DB 0	00	
ID3	No. of the gateway	
ID2	No. of the gateway	
ID1	No. of the gateway	
ID0	No. of the gateway	
Status	00	
Chks	Chk-Sum	

Inquiry by the Master to the Gateway TLNR for the current SW version.



### 4.2.3 Master Set ID to INFI Element @Ind (TCT Transmit Command Telegram)

	Bit7	Bit0
SB 1	0xA5	
SB 2	0x5A	
Typ	AB	
ORG	B3	
DB 3	New Transmitter-ID	
DB 2	New Transmitter-ID	
DB 1	New Transmitter-ID	
DB 0	New Transmitter-ID	
ID3	No. of the gateway	
ID2	No. of the gateway	
ID1	No. of the gateway	
ID0	No. of the gateway	
Status	Ind	
Chks	Chk-Sum	

The Master sets a new transmitter ID in the input filter of the gateway TLNR. The gateway must not be in the LRN mode.

DB3 – DB0 -> Transmitter ID that is to be added to the input filter.

Status (Ind) -> Index in the input filter. Possible range from 1..20h

Caution! The gateway do not check wheter the Transmitter-ID is already stored in the input-filter or the place where you intend to store the new transmitter-ID in the storage is already occupied by another ID.

### 4.2.4 Master Get INFI Element (TCT Transmit Command Telegram)

	Bit7	Bit0
SB 1	0xA5	
SB 2	0x5A	
Typ	AB	
ORG	B4	
DB 3	00	
DB 2	00	
DB 1	00	
DB 0	00	
ID3	No. of the gateway	
ID2	No. of the gateway	
ID1	No. of the gateway	
ID0	No. of the gateway	
Status	Ind	
Chks	Chk-Sum	

Inquiry of the current transmitter ID in the input filter of the gateway TLNR by the Master.

Status (Ind) -> Index on storage location in the input filter that is to be read out. Possible range from 1..20h

### 4.2.5 Master Get INFI Size/Mode (TCT Transmit Command Telegram)

	Bit7	Bit0
SB 1	0xA5	
SB 2	0x5A	
Typ	AB	
ORG	B4	
DB 3	00	
DB 2	00	
DB 1	00	
DB 0	00	
ID3	No. of the gateway	
ID2	No. of the gateway	
ID1	No. of the gateway	
ID0	No. of the gateway	
Status	FF	
Chks	Chk-Sum	

Inquiry of the values of the input filter of the gateway.

Status (FF) -> Code for inquiry.



### 4.2.6 Master Set INFI Disable (TCT Transmit Command Telegram)

	Bit7	Bit0
SB 1	0xA5	
SB 2	0x5A	
Typ	AB	
ORG	B5	
DB 3	00	
DB 2	00	
DB 1	00	
DB 0	00	
ID3	No. of the gateway	
ID2	No. of the gateway	
ID1	No. of the gateway	
ID0	No. of the gateway	
Status	00, FF	
Chks	Chk-Sum	

Change the operating-mode of the input-filter of the gateway.

Status (00) -> switch the inputfilter INFI on.  
Status (FF) -> switch the input-filter INFI off.

### 4.2.7 Master Set Signal State (TCT Transmit Command Telegram)

	Bit7	Bit0
SB 1	0xA5	
SB 2	0x5A	
Typ	AB	
ORG	C0	
DB 3	00	
DB 2	00	
DB 1	00	
DB 0	00	
ID3	No. of the gateway	
ID2	No. of the gateway	
ID1	No. of the gateway	
ID0	No. of the gateway	
Status	00, FF	
Chks	Chk-Sum	

Control of LED5 of the gateway TLNR by the Master.

Status (00) -> switch off LED 5  
Status (FF) -> switch on LED 5

### 4.2.8 Master Set new Station Base ID (TCT Transmit Command Telegram)

	Bit7	Bit0
SB 1	0xA5	
SB 2	0x5A	
Typ	AB	
ORG	D0	
DB 3	New no. of the gateway	
DB 2	New no. of the gateway	
DB 1	New no. of the gateway	
DB 0	New no. of the gateway	
ID3	(Old) no. of the gateway	
ID2	(Old) no. of the gateway	
ID1	(Old) no. of the gateway	
ID0	(Old) no. of the gateway	
Status	00	
Chks	Chk-Sum	

Inquiry on changing the user number of the gateway.

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### 4.3 The TRT Telegrams (Transmit Radio Telegram)

#### 4.3.1 Master sends a PTM-Telegramm (TRT Transmit Radio Telegram)

	Bit7	Bit0
SB 1	0xA5	
SB 2	0x5A	
Typ	6B	
ORG	05	
DB 3	xx	
DB 2	00	
DB 1	00	
DB 0	00	
ID3	No. of the gateway	
ID2	No. of the gateway	
ID1	No. of the gateway	
ID0	No. of the gateway	
Status	00, 10	
Chks	Chk-Sum	

The Master sends a telegram of the type PTM according to transmitters such as  
 Walltransmitter Typ WS, or Remote Transmitter Typ R101  
 Occupancy-Sensor PM101 Channel 1 to Channel 4

DB 3 = 30 -> Push Rocker AO - Aus  
 DB 3 = 10 -> Push Rocker AI - Ein  
 DB 3 = 70 -> Push Rocker BO - Aus  
 DB 3 = 50 -> Push Rocker BI - Ein  
 DB 3 = B0 -> Push Rocker CO - Aus  
 DB 3 = 90 -> Push Rocker CI - Ein  
 DB 3 = F0 -> Push Rocker DO - Aus  
 DB 3 = 90 -> Push Rocker DI - Ein  
 DB 3 = 00 -> Release Rocker for all Rockers A0 to DI.

Status = 00 -> By rocker pushed  
 Status = 10 -> By rocker released

For example:

The basis-id of the gateway is FFFFFFF80h.

Sends the telegram „rocker A On“ and immediately „release rocker“ with adress-offset 1 relative to the basis-id of the gateway:

SB1	SB2	Typ	ORG	DB3	DB2	DB1	DB0	ID3	ID2	ID1	ID0	Stat.	Chks.
A5	5A	6B	05	30	00	00	00	FF	FF	FF	81	10	xx
A5	5A	6B	05	00	00	00	00	FF	FF	FF	81	00	xx

Sends the telegram „rocker C Off“ and immediately „release rocker“ with adress-offset 20 relative to the basis-id of the gateway:

SB1	SB2	Typ	ORG	DB3	DB2	DB1	DB0	ID3	ID2	ID1	ID0	Stat.	Chks.
A5	5A	6B	05	B0	00	00	00	FF	FF	FF	A0	10	xx
A5	5A	6B	05	00	00	00	00	FF	FF	FF	A0	00	xx

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### Legal requirements

The transmitters may not be used in connection with devices that are employed, directly or indirectly, for health- or life-saving purposes or if their operation may cause hazards to human beings, animals or property. Do not leave packaging material lying around carelessly. Plastic foils/bags, etc. may be hazardous toys for children.

These operating instructions are part of the device and part of our warranty terms. They have to be handed over to the customer. The technical specifications of the device may be changed without prior notice. The products may be sold and operated without a license and free of charge in the countries of the European Union, in Switzerland, Croatia and Romania.

### Old devices

Do not throw your old appliances into the domestic garbage can. The device contains electrical components that have to be disposed off as electronic waste. The case is made of reusable plastic material.

### General information

For additional questions, please contact our technical support:

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