



KNX RF LC-TP

Media coupler for KNX TP / KNX RF

Technical specifications and installation instructions

Item number 70701



1. Description

The **Media coupler KNX RF LC-TP** connects the wired KNX installation (KNX TP, twisted pair) with the KNX radio (KNX RF). The media coupler is used to forward messages from TP to RF and from RF to TP. The **KNX RF LC-TP** uses the KNX RF S standard.

The **KNX RF LC-TP** uses multiple display pages to show the addressing, traffic and message flow. The housing is supplemented with a frame of the switch series used in buildings, and thus fits seamlessly into the interior fittings.

Functions:

- **Connects wireless** KNX devices (KNX RF) with **wired** devices (KNX TP)
- **Bidirectional communication** between KNX TP and KNX RF
- The **display screens** show addressing, KNX traffic (bus load for RF and TP), incoming and outgoing messages (for RF and TP, with source and target addresses)
- **2 keys** for selecting the display screen and for reset

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.

1.1. Deliverables

- Housing with display
- Base plate

Additionally required (not included in the deliverables):

- Junction box Ø 60 mm, 42 mm deep
- Frame (for insert 55 x 55 mm), compatible to the switch scheme used in the building

1.2. Technical specifications

Housing	White glossy plastic
Assembly	Flush mounting, wall mounting in junction box Ø 60 mm, 42 mm depth
Protection category	IP 20
Dimensions	Housing approx. 55 x 55 (W x H, mm), installation depth approx. 15 mm, Base plate approx. 71 x 71 (W x H, mm),
Total weight	approx. 60 g (with base plate)
Ambient temperature	Operation 0...+50°C, storage -10...+60°C
Ambient humidity	max. 95% RH, avoid condensation
Operating voltage	KNX bus voltage
Bus current	max. 15 mA

Data output	KNX +/- bus plug terminal
BCU type	Integrated microcontroller

The product is compliant with the provisions of EC guidelines.

2. Installation and commissioning

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 device is installed in a flush-mounted box (Ø 60 mm, 42 mm deep).



The device must only be installed and operated in dry, indoor spaces. Avoid condensation.

2.3. Device structure

2.3.1. Housing

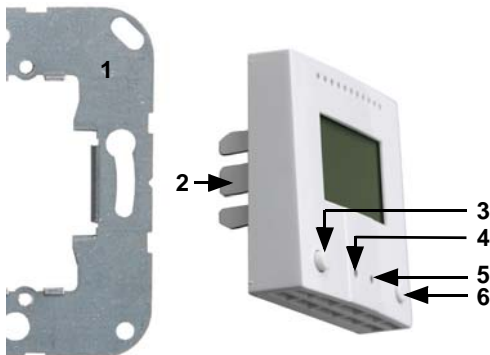


Fig. 1

- 1 Base plate
- 2 Catches
- 3 Key
- 4 Programming LED (recessed)
- 5 Programming button (recessed) for teaching the device
- 6 Key

2.3.2. Rear view of the circuit board with connection

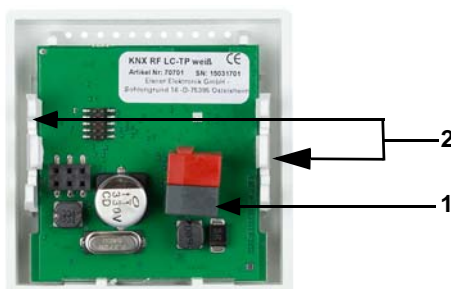


Fig. 2

- 1. KNX terminal BUS +/-
- 2. Catches

2.4. Assembly

1. First, install the box with the supply connection.
2. Then screw the base plate onto the socket and position the frame of the switch range on top of this.
3. Connect the bus lead +/- (black/red plug) to the terminals on the circuit board of the device.
4. Insert the device firmly onto the metal frame using the catches so that the device and the frame are fixed together.

2.5. Notes on mounting and commissioning

Never expose the device to water (e.g. rain) or dust. This can damage the electronics. You must not exceed a relative humidity of 95%. Avoid condensation.

After the bus voltage has been applied, the device will enter an initialisation phase lasting a few seconds. During this phase no information can be received or sent via the bus.

3. Addressing of the device at the bus

The equipment is delivered with the bus address 15.15.000. You can program a different address in the ETS by overwriting the address 15.15.000 or by teaching the device via the programming button.

4. Views and device operation

The display views can be switched by pressing any of the keys.

4.1. Views/Menus

The following display views are included with the device. The views appear when the right button is pressed in the sequence specified.

```
PA: 15.15.000
DA: 0102:
    03040507
```

Fig. 3

Address view (example)

PA: physical address of the device

DA: domain address of the RF line (default value until bus programming: FFFF: FFFFFFFF)

```
RF ← : 32 %
RF → : 24 %
TP ← : 24 %
TP → : 32 %
```

Fig. 4

Traffic view: Bus communication utilization percentage (example).

RF: KNX radio (radio frequency)

TP: KNX wired (twisted pair)

<-- received

--> sent

0% – no message transfer

```
RF←
15.08.002 00|00|001
15.08.002 00|00|001
15.15.002 00|00|002
15.15.002 00|00|002
```

Fig. 5

Traffic view (example)

The medium coupler shows the source addresses (left) and the target addresses (right) of the RF message received. The last six data records are shown.

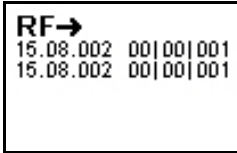


Fig. 6

Traffic view (example)

The medium coupler shows the target addresses (right) and the source addresses (left) of the RF message sent. The last six data records are shown.

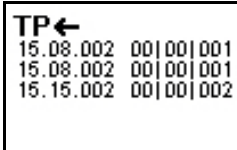


Fig. 7

Traffic view (example)

The medium coupler shows the source addresses (left) and the target addresses (right) of the TP message received. The last six data records are shown.

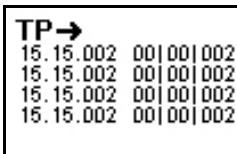


Fig. 8

Traffic view (example)

The medium coupler shows the target addresses (right) and the source addresses (left) of the TP message sent. The last six data records are shown.

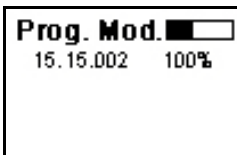


Fig. 9

Programming menu (example)

Menu for displaying the radio participants in the programming mode. Press the programming button of a KNX RF participant. The address of the participant and connection strength will be displayed. At 0%, the media coupler receives barely any radio signal. At 100%, the radio reception is the strongest. The status bar only indicates if the media coupler has completed a scan procedure.

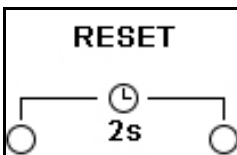


Fig. 10

Reset menu

In order to perform a reset on the device, press in this menu both buttons of the media coupler at the same time for 2 seconds. All the messages of the traffic menu will be reset. After the reset, the display will show the Elsner Elektronik logo and the device version number for a short period.

5. Setting the parameters in the ETS

5.1. Behaviour on bus restoration of power and after programming or reset:

The media coupler forwards all messages in accordance with the parameters set in the ETS.

5.2. Transfer TP->RF

Set the basic properties for RF Unicast, RF Multicast and RF Broadcast message data transfer. The message forwarding can be filtered, unfiltered, or completely blocked.

RF Unicast

TP -> RF	
TP -> RF Unicast (physically addressed) message forwarding	
Behaviour	<ul style="list-style-type: none"> • forward everything • block everything • <u>filter (normal)</u>
Confirm	<ul style="list-style-type: none"> • <u>if addressed or forwarded (normal)</u> • Always

If 'forwarded', all messages are forwarded to RF. If 'blocked', no messages are forwarded to RF. If 'filtered', it is checked based on the physical address if the received message is forwarded to RF.

'Always confirm' means that an acknowledgement is created for every received message (from TP). 'Confirm if addressed or forwarded' means that an acknowledgement will be created for the message received (from TP) only if forwarded to RF.

RF Multicast

TP -> RF Multicast (group addressed) message forwarding	
Behaviour	<ul style="list-style-type: none"> • forward everything • block everything • <u>filter (normal)</u>
Confirm	<ul style="list-style-type: none"> • <u>if forwarded (normal)</u> • Always

If 'forwarded', all messages are forwarded to RF. This setting should only serve testing purposes. If 'blocked', no message is forwarded to RF. If 'filtered', it is checked if the received message is forwarded to RF.

'Always confirm' means that an acknowledgement is created for every received message (from TP). 'Confirm if forwarded' means that an acknowledgement will be created for the message received (from TP) only if forwarded to RF.

RF Broadcast

TP -> RF Broadcast message forwarding	
Behaviour	<ul style="list-style-type: none"> • <u>forward (normal)</u> • block

If 'forwarded', all received broadcast messages are forwarded to RF. If 'blocked', no received broadcast message is forwarded to RF.

5.3. Transfer RF->TP

Set the basic properties for TP Unicast, TP Multicast and TP Broadcast message data transfer. The message forwarding can be filtered, unfiltered, or completely blocked.

TP Unicast

RF -> TP	
RF -> TP Unicast (physically addressed) message forwarding	
Behaviour	<ul style="list-style-type: none"> • forward everything • block everything • <u>filter (normal)</u>

If 'forwarded', all messages are forwarded to TP. If 'blocked', no message is forwarded to TP. If 'filtered', it is checked based on the physical address if the received message is forwarded to TP.

TP Multicast

RF -> TP Multicast (group addressed) message forwarding	
Behaviour	<ul style="list-style-type: none"> • forward everything • block everything • <u>filter (normal)</u>

If 'forwarded', all messages are forwarded to TP. This setting should only serve testing purposes. If 'blocked', no message is forwarded to TP. If 'filtered', it is checked if the received message is forwarded to TP.

TP Broadcast

RF -> TP Broadcast message forwarding	
Behaviour	<ul style="list-style-type: none"> • <u>forward (normal)</u> • block

If 'forwarded', all received broadcast messages are forwarded to TP. If 'blocked', no received broadcast message is forwarded to TP.