Compact KNX Line Coupler TP/TP
User manual

Product:
LC00B01KNX

Description:
KNX Line Coupler TP/TP

Document
Version**:** **1.0**
Date:
02/10/2018

Eelectron SpA, Via Monteverdi 6,
I-20025 Legnano (MI), Italia
Tel: +39 0331.500802 Fax:+39 0331.564826
E-mail: info@eelectron.com Web:www.eelectron.com

C.F. e P.IVA 11666760159
Capitale sociale: 800.000,00€ interamente versato
Tribunale di Milano 359157-8760-07
CCIAA Milano 148549

INDEX

Any information contained in this manual may be changed without notice.

This manual can be freely downloaded from the website: www.eelectron.com

Disclaimer:
Despite the correctness of the data contained within this document has been verified, it is not possible to exclude the presence of errors or typos; Eelectron therefore assumes no responsibility in this regard. Any corrections that will be necessary will be included in the updates of this manual

Symbol for relevant information

Important warning symbol

Eelectron SpA, Via Monteverdi 6,
I-20025 Legnano (MI), Italia
Tel: +39 0331.500802 Fax:+39 0331.564826
E-mail: info@eelectron.com Web:www.eelectron.com

C.F. e P.IVA 11666760159
Capitale sociale: 800.000,00€ interamente versato
Tribunale di Milano 359157-8760-07
CCIAA Milano 148549

Preamble

This manual is intended for use by installers and describes the installation functions and methods of the KNX Line Coupler.

Product definition

Product name: KNX Line Coupler TP-TP
Use: System device
Design: RMD (rail-mounted device)

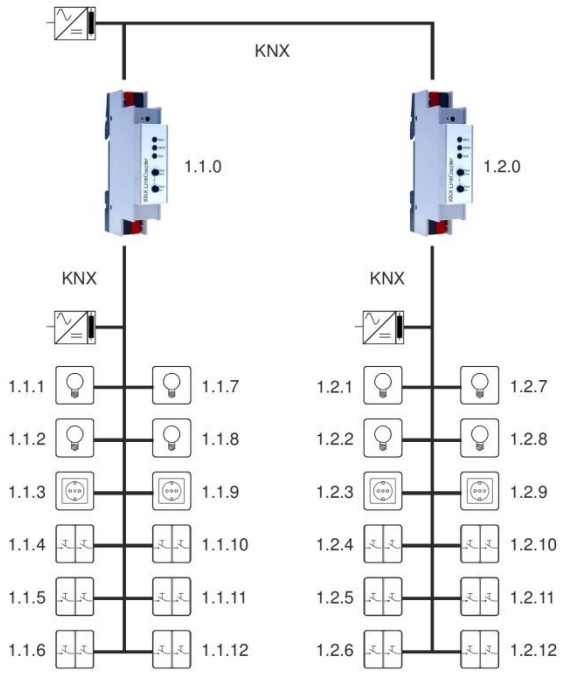
Application

The KNX LineCoupler LC00B01KNX is a KNX line coupler in a compact design. It connects two KNX bus segments (for example, a KNX line with a KNX area).
The device has a filter table (8k bytes) and ensures a galvanic separation between the lines. The coupler supports KNX longframes and is compatible with the ETS® software (ETS3 or higher).
The buttons on the front side allow to deactivate the telegram filters for test purposes. The LEDs indicate operating conditions as well as communication errors on the KNX bus.
The power is supplied via the KNX bus (main line).

Coupler function

The KNX LineCoupler LC00B01KNX operates as a line or backbone coupler.
In both cases, KNX TP is used as a backbone.
The following table shows the application possibilities of the KNX LineCoupler LC00B01KNX compared to the IP based topology:

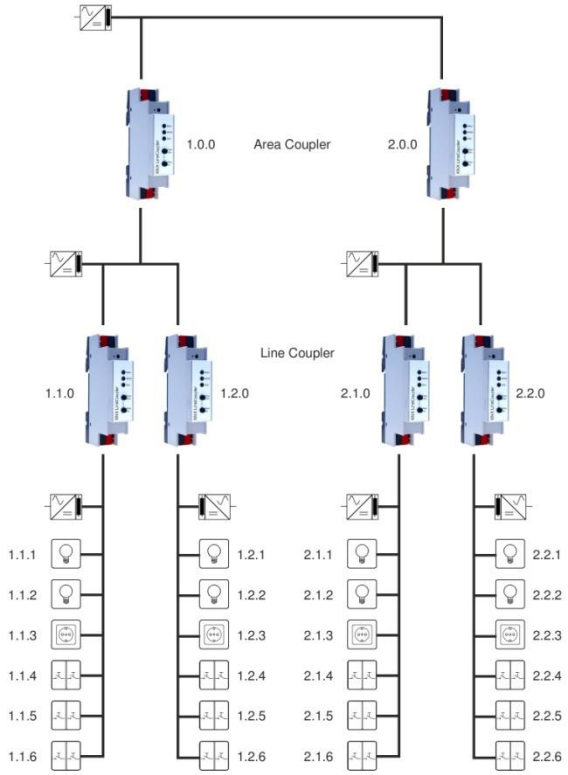
	Classical Topology (without IP)	IP coupling of areas (IP area coupl.)	IP coupling of lines (IP line coupler)
Area (Backbone)	TP	IP	IP
Coupling	KNX Line Coupler (max. 15 Pcs.)	KNX IP Router (max. 15 Pcs.)	Directly via LAN switch
Main line	TP	TP	IP
Coupling	KNX Line Coupler (max. 15x15 Pcs.)	KNX Line Coupler (max. 15x15 Pcs.)	KNX IP Router (max. 225 Pcs.)
Line	TP	TP	TP



KNX LineCoupler LC00B01KNX as line coupler

The individual address assigned to the KNX LineCoupler LC00B01KNX determines whether the device operates as a line or area coupler.
If the individual address is in the form of x.y.0 (x, y: 1..15), the device operates as a line coupler.

If it is in the form of x.0.0 (x: 1..15), the router acts as a backbone coupler.

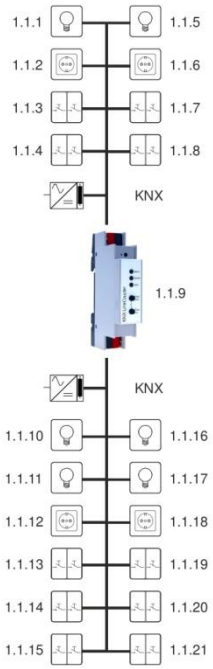


KNX LineCoupler LC00B01KNX as area and line coupler

The KNX LineCoupler LC00B01KNX has a filter table and thus contributes to reducing the bus load. The filter table (8kB) supports the extended group address range and is automatically generated by the ETS.

Repeater Function

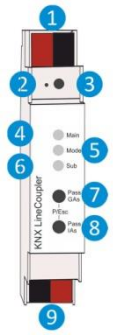
The KNX LineCoupler LC00B01KNX can also be used as a repeater. In this case, the individual address has the form x.y.z, where z must not be equal to 0. The filter settings in the parameter dialog of the ETS are ineffective in repeater mode.



KNX LineCoupler LC00B01KNX as repeater

Installation and Connection

The KNX LineCoupler LC00B01KNX is designed for installation on a DIN rail with a width of 1 unit (18mm). It features the following controls and displays:



1 KNX Bus Connector
2 LED for Programming Mode (red)
3 Button for Programming Mode
4 KNX LED (main line, red/green)
5 Mode LED (red/green)
6 KNX LED (sub line, red/green)
7 Button Pass GAs
8 Button Pass IAs
9 KNX bus connector (sub line)

An external power supply is not necessary as the device is powered by the KNX bus.

> **!** The device is not working without bus power (main line).

KNX Programming mode

The KNX programming mode is activated/deactivated either by pressing the flushed KNX programming button ❸ or by simultaneously pressing the buttons ❼ and ❽.

Manual operation and Status display

The KNX LED ❹ lights up green if the device is successfully powered by the KNX bus.
The LED indicates telegrams on the KNX bus by flickering.
Communication failures (e.g. repetitions of telegram or telegram fragments) are indicated by a short change of the LED color to red.
Overview of the different indications of the KNX LED ❹:

LED Status	**Meaning**
LED lights green	KNX bus voltage available.
LED flickers green	Telegram traffic on the KNX bus
LED shortly red	Communication failures on the KNX bus

The KNX sub line LED ❻ lights up green when the device is ready for operation (supplied by the main line) and the KNX bus voltage is present on the sub line. If the LED is flickering, telegram traffic takes place on the sub line.
Errors in the communication (such as telegram repeats or telegram fragments) are indicated by a short-time color change to red.
Overview of the different indications of KNX sub line LED ❻:

LED Status	**Meaning**
LED lights green	The device has an active Ethernet link and valid IP settings.
LED flashes green	Telegram traffic on the KNX bus (sub line)
LED turns red short	Communication error on the KNX Bus (sub line)

For testing purposes (for example, during commissioning) the configured routing settings (filter or block) can be bypassed via manual operation.
With the button “Pass GAs” ❼ the forwarding of group addressed telegrams can be activated.
With the button “Pass IAs” ❽ the forwarding of individually addressed telegrams can be activated.
This is visualized with a single flash of the Mode LED ❺ (orange).
If both modes are activated the Mode LED ❺ flashes two times.
Pressing button “Pass GAs” ❼ or button “Pass IAs” ❽ again these settings can be selected and deselected on demand. Via the Escape function (Esc) the manual operation can be stopped by simultaneously pressing the buttons “Pass GAs” ❼ and “Pass IAs” ❽.
If neither programming mode nor manual mode are active the LED ❺ can visualize configuration errors (for details see table below).

Overview of the different indications of the Mode LED ❺:

LED Status	Meaning
LED lights green	Device is working in standard operation mode.
LED lights red	Programming mode is active
LED flashes 1x orange	Programming mode is not active. Manual operation is active. Forwarding IA or GA
LED flashes 2x orange	Programming mode is not active. Manual operation is active. Forwarding IA or GA
LED flashes red	Programming mode is not active. Manual operation is not active. The device is not properly loaded e.g. after an interrupted download.

Factory default settings

Factory default configuration:
Individual device address: 15.15.0

Routing (sub line -> main line):
Individual addressed telegrams: Filter
Group addressed telegrams: Lock
Routing (main line -> sub line):
Individual addressed telegrams: Filter
Group addressed telegrams: Lock

Reset to factory device settings

It is possible to reset the device to its factory settings:

- Separate the KNX Bus connector ❶ from device
- Press the KNX programming button ❸ and keep it pressed down
- Reconnect the KNX Bus connector ❶ of device
- Keep the KNX programming button ❸ pressed for at least another 6 seconds
- A short flashing of the programming LEDs (❷) visualizes the successful reset of the device to factory default settings.

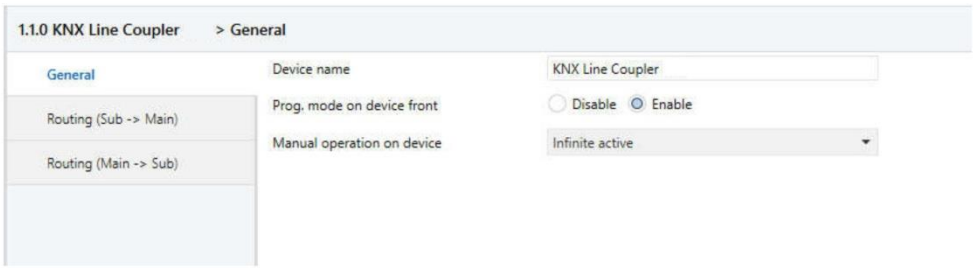
ETS database

The ETS database (for ETS 4.2 or higher) can be downloaded from the product website at www.eelectron.com

ETS parameter dialog

The following parameters can be set using the ETS.

General



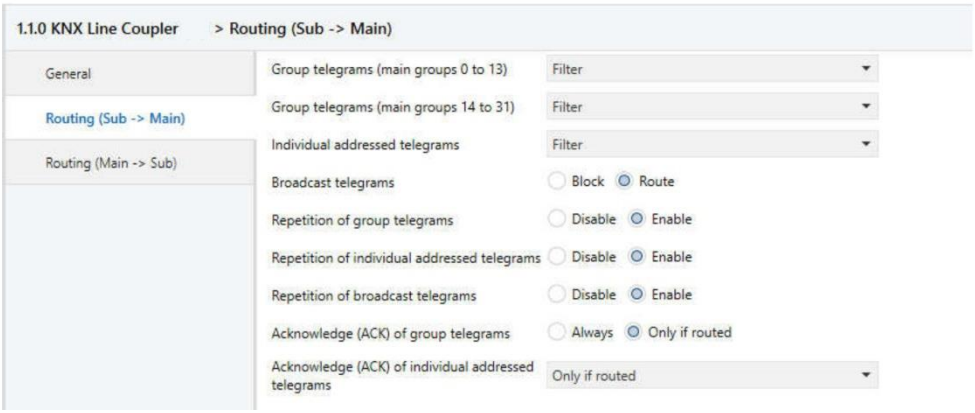
Programming mode on device front

If this parameter is activated, the programming mode on the device front can be activated by simultaneously pressing the buttons ❼ and ❽. The flushed programming button ❸ is always active and is not influenced by this parameter.

Manual operation on device

This parameter sets the duration of the manual mode. Upon completion the normal display mode is restored.

Routing (sub line -> main line)



Group telegrams (main group 0 to 13)

Block	No group telegrams of this main group are routed to main line.
Route	All group telegrams of this main group are routed to IP independent of the filter table. This setting is for test purposes only.
Filter	The filter table is used to check whether or not the received group telegram should be routed to main line.

Group telegrams (main group 14 to 31)

Block	No group telegrams of main groups 14 to 31 are routed to main line.
Route	All group telegrams of main groups 14 to 31 are routed to main line. This setting is for test purposes only.
Filter	The filter table is used to check whether or not the received group telegram should be routed to main line.

Individually addressed telegrams

Block	No individually addressed telegrams are routed to main line.
Route	All individually addressed telegrams are routed to main line. This setting is for test purposes only.
Filter	The individual address is used to check whether the received individually addressed telegram should be routed to main line.

Broadcast telegrams

Block	No received broadcast telegrams are routed to main line.
Route	All received broadcast telegrams are routed to main line.

Resending of group telegrams

Disable	The received group telegram is not resent to the main line in case of a fault.
Enable	The received group telegram is resent up to three times in case of a fault.

Resending of individually addressed telegrams

Disable	The received individually addressed telegram is not resent to the main line in case of a fault.
Enable	The received individually addressed telegram is resent up to three times in case of a fault.

Resending of broadcast telegrams

Disable	The received broadcast telegram is not resent to the main line in case of a fault.
Enable	The received broadcast telegram is resent up to three times in case of a fault.

Acknowledge (ACK) of group telegrams

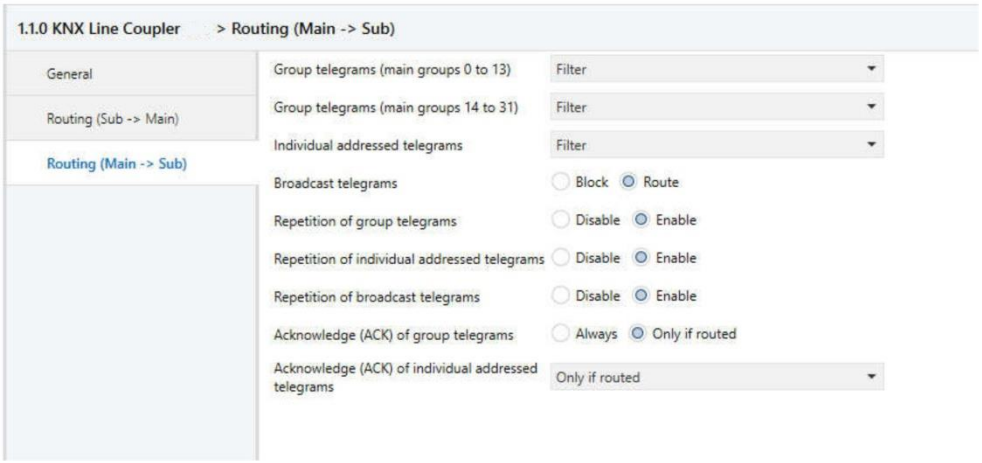
Always	A acknowledge is generated for every received group telegram (from the sub line).
Only if routed	A acknowledge is only generated for received group telegrams (from the sub line) if they are routed to main line.

Acknowledge (ACK) of individually addressed telegrams

Always	A acknowledge is generated for every received individual addressed telegram (from the sub line).
Only if routed	A acknowledge is only generated for received individually addressed group telegrams (from the sub line) if they are routed to main line.
Answer with NACK	Every received individually addressed telegram (from KNX) is responded to with NACK (Not acknowledge). This means that communication with individually addressed telegrams on the corresponding KNX line is not possible. Group communication (group telegrams) is not affected. This setting can be used to block attempts at manipulation.

When using “Answer with NACK” an access to the device via KNX sub line is no longer possible. The configuration must be performed via the main line.

Routing (main line -> sub line)



Group telegrams (main group 0 to 13)

Block	No group telegrams of these main groups are routed to the sub line.
Route	All group telegrams of this main group are routed to the sub line independent of the filter table. This setting is for test purposes only.
Filter	The filter table is used to check whether the received group telegram should be routed to the sub line.

Group telegrams (main group 14 to 31)

Block	No group telegrams of main groups 14 to 31 are routed to the sub line.
Route	All group telegrams of the main groups 14 to 31 are routed to the sub line. This setting is for test purposes only.
Filter	The filter table is used to check whether the received group telegram should be routed to the sub line.

Individually addressed telegrams

Block	No individually addressed telegrams are routed to the sub line.
Route	All individually addressed telegrams are routed to the sub line. This setting is for test purposes only.
Filter	The individual address is used to check whether the received individually addressed telegram should be routed to the sub line.

Broadcast telegrams

Block	No received broadcast telegrams are routed to the sub line.
Route	All received broadcast telegrams are routed to the sub line.

Resending of group telegrams

Disabled	The received group telegram is not resent to the sub line in case of a fault.
Enabled	The received group telegram is resent up to three times in case of a fault.

Resending of individually addressed telegrams

Disabled	The received individually addressed telegram is not resent to the sub line in case of a fault.
Enabled	The received individually addressed telegram is resent up to three times in case of a fault.

Resending of broadcast telegrams

Disabled	The received broadcast telegram is not resent to the sub line in case of a fault.
Enabled	The received broadcast telegram is resent up to three times in case of a fault.

Acknowledge (ACK) of group telegrams

Always	A acknowledge is generated for every received group telegram (from the main line).
Only if routed	A acknowledge is only generated for received group telegrams (from the main line) if they are routed to the sub line.

Acknowledge (ACK) of individually addressed telegrams

Always	A acknowledge is generated for every received individual addressed telegram (from the main line).
Only if routed	A acknowledge is only generated for received individually addressed group telegrams (from the main line) if they are routed to the sub line.
Answer with NACK	Every received individually addressed telegram (from the main line) is responded to with NACK (Not acknowledge). This means that communication with individually addressed telegrams on the corresponding KNX line is not possible. Group communication (group telegrams) is not affected. This setting can be used to block attempts at manipulation.

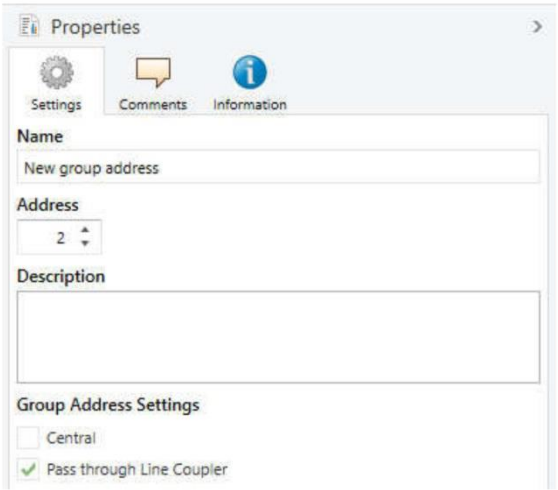
When using “Answer with NACK” an access to the device via KNX main line is no longer possible. The configuration must be performed via the sub line.

Filter table

The filter table is automatically created by the ETS. The group addresses of the telegrams which shall be forwarded via the coupler are added to the filter table. The contents of the filter table can be displayed via the preview:

Preview of the filter table

The filter table can be extended by manually adding group addresses.
This requires activating "Pass through Line Coupler)" in the property window of the corresponding group address.



Eelectron SpA

Via Monteverdi 6,
I-20025 Legnano MI, Italia

Tel: +39 0331.500802
Fax: +39 0331.564826
E-mail: info@eelectron.com
Web: www.eelectron.com