

Apricum



MECps640

KNX Line/Area Coupler/Repeater
with integrated 640 mA KNX Power Supply

Technical and Application Description

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Content

| | | |
|----------|---|-----------|
| 1 | Product Description | 4 |
| 1.1 | Front Panel | 5 |
| 1.2 | LED Indication | 6 |
| 1.3 | LED Indication of Special Functions | 7 |
| 1.4 | Commissioning | 8 |
| 1.5 | Important Notes | 9 |
| 1.5.1 | Installation and Commissioning | 9 |
| 1.5.2 | Mounting and Safety | 9 |
| 1.5.3 | Maintenance | 9 |
| 1.6 | Feature Summary | 10 |
| 2 | Operational Description | 11 |
| 2.1 | TP Coupler Application | 11 |
| 2.2 | TP Repeater Application | 12 |
| 2.3 | KNX Network Installation | 13 |
| 2.3.1 | Individual Address | 13 |
| 2.3.2 | KNX Topology | 14 |
| 2.4 | Programming | 15 |
| 2.4.1 | Programming Button | 15 |
| 2.4.2 | Individual Address Assignment | 15 |
| 2.5 | Special Functions | 16 |
| 2.5.1 | Manual Function | 16 |
| 2.5.2 | KNX Bus Reset | 16 |
| 2.5.3 | Factory Reset | 17 |
| 3 | ETS Database Parameters Coupler | 18 |
| 3.1 | General | 18 |
| 3.2 | Main Line | 19 |
| 3.3 | Subline | 21 |
| 4 | ETS Database Parameters Repeater | 23 |
| 4.1 | General | 23 |
| 4.2 | Main Line | 24 |
| 4.3 | Subline | 25 |
| 5 | State of Delivery | 26 |
| 5.1 | Default Factory Settings | 26 |
| 5.2 | Technical Datasheet | 27 |

1 Product Description

Having a very small footprint of only 2 units (36 mm), the combined KNX system device MECps640 merges the functionalities of two different system devices. Additional to coupling two TP lines and providing KNX line coupler functionality, MECps640 has an integrated KNX Power Supply to generate a 640 mA output. With this choked output, the KNX TP Line that is connected to MECps640 on secondary side (subline) is powered by a voltage of 30V DC. MECps640 can be used as a line coupler, area coupler or line repeater.

To provide a bi-directional data connection between two KNX TP lines or areas, MECps640 works as a KNX line/area coupler in the KNX network. KNX TP main line and KNX TP subline are coupled having a galvanic isolation in between. The choked output is overload-proof and short circuit protected. Extended frames and long telegrams with up to 240 bytes APDU length are supported. The LED display indicates states of the device and the bus lines. On button press, the device can be reset. Also, the subline can be reset on button press.

Using the TP Coupler application, MECps640 can be used as KNX TP line coupler to connect different TP Lines, Areas and Segments. Telegram filtering is accomplished according to the installation place in the hierarchy (Physical[ly addressed] Telegrams) and according to the built in filter tables for group communication (Group [oriented] Telegrams). For detailed diagnosis, all operational modes/states are shown by a duo-LED display. Programming on main line from the subline can be suppressed. Telegram repetition on both TP lines can be reduced.

Using the TP Repeater application, MECps640 is able to extend a KNX TP line providing unfiltered data transfer and galvanic isolation between segments. Up to four line segments can form a single KNX TP line by connecting three MECps640 line repeaters.

To ease commissioning and troubleshooting, special routing/repetition/confirmation ETS settings and a configurable Manual Function for short-time telegram filter switch-off are available. E.g. "transmit all group telegrams" can be activated by a single button press. After the pre-set time period, MECps640 switches back to normal operation automatically. Another feature to increase the data throughput is the ability to send IACKs on own telegrams.



In this document, individually addressed telegrams are named Physical Telegrams.



In this document, group-oriented telegrams are named Group Telegrams.

1.1 Front Panel

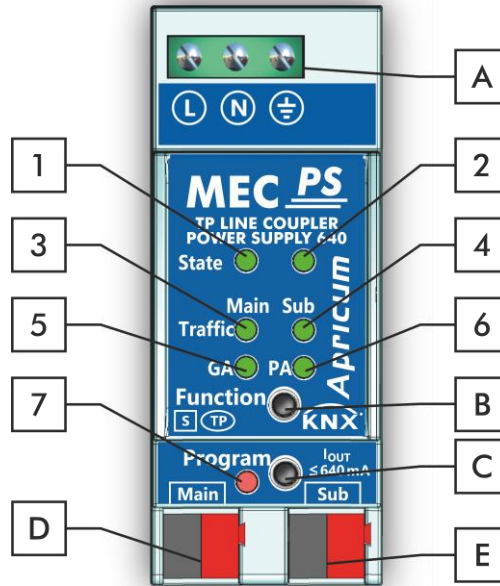


Figure 1: Front View

Table 1: Front Panel Elements

| LEDs | | Buttons / Connectors | |
|------|---------------------------------------|----------------------|----------------------------|
| 1 | State 1 (Main line) | A | Supply Voltage Terminals |
| 2 | State 2 (Subline) | B | Function Button |
| 3 | Telegram Traffic KNX TP (Main Line) | C | Programming Button |
| 4 | Telegram Traffic KNX TP (Subline) | D | KNX TP Main Line Connector |
| 5 | Group Address Routing* | E | KNX TP Subline Connector |
| 6 | Individual (Physical) Address Routing | | |
| 7 | Programming LED | | |

* only group telegrams with main groups 0...13

1.2 LED Indication

Following overview table gives a description of the LED display during normal operation.

Table 2: LEDs Colors

| Number | LED | Color | Explanation / Range |
|--------|--|----------------|---|
| 1 | State 1 (Main line) | green | Main Line OK |
| | | orange | Manual Function active |
| | | red | KNX bus reset of subline |
| 2 | State 2 (Subline) | green | Subline OK / Output current < 640 mA |
| | | orange | Output current is 640 mA...900 mA |
| | | red | Output current > 900 mA or KNX bus reset |
| 3 | Telegram Traffic KNX TP (Main line) | blinking green | Telegram traffic extent indicated by blinking |
| | | blinking red | Transmission error |
| | | < off > | No telegram traffic |
| 4 | Telegram Traffic KNX TP (Subline) | blinking green | Telegram traffic extent indicated by blinking |
| | | blinking red | Transmission error |
| | | < off > | No telegram traffic |
| 5 | Group Address Routing | green | Filter active |
| | | orange | Route all |
| | | red | Block all |
| | | < off > | Routing of Group Telegrams is different on main line and subline |
| 6 | Individual (Physical) Address Routing* | green | Filter active |
| | | orange | Route all |
| | | red | Block all |
| | | < off > | Routing of Physical telegrams is different on main line and subline |
| 7 | Programming LED | red | Programming Mode active |
| | | < off > | Programming Mode not active |

* when used as Line Couper without Individual Address x.y.0, LED 6 (PA) works not like described here

1.3 LED Indication of Special Functions

The LED display during an active special function is described here.

Table 3: LED Status Display for Manual Function

| Number | LED | Color | Comment |
|--------|----------------------------|-------------------------------------|---------|
| 1 | State 1 (Main line) | orange | |
| 2 | State 2 (Subline) | green | |
| 5 | Group Address Routing | green: filter | |
| 6 | Individual Address Routing | orange: route all red: block all | |




Table 4: KNX Bus Reset

| Number | LED | Color | Comment |
|--------|----------------------------|-------|---------|
| 1 | State 1 (Main line) | red | |
| 2 | State 2 (Subline) | red | |
| 5 | Group Address Routing | <off> | |
| 6 | Individual Address Routing | <off> | |


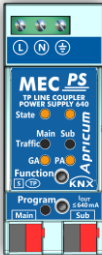


Table 5: LED Status Display for Factory Reset after first Button Press

| Number | LED | Color | Comment |
|--------|----------------------------|-------------------------------------|---------|
| 1 | State 1 (Main line) | orange | |
| 2 | State 2 (Subline) | orange | |
| 5 | Group Address Routing | green: filter | |
| 6 | Individual Address Routing | orange: route all red: block all | |



1.4 Commissioning

Please note for commissioning with default settings:

- All telegrams are blocked because the filter table is not defined
- The Manual Function switch-off time is 60 min
- Individual Address is 15.15.0

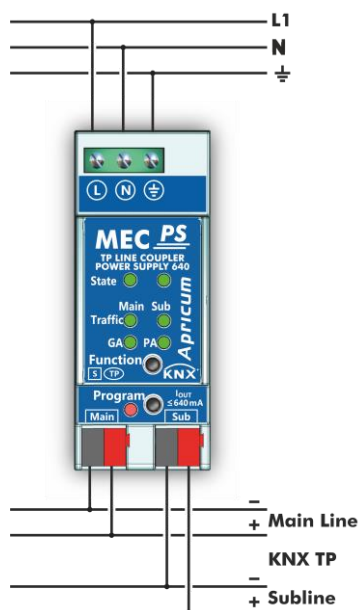


Figure 2: Connection Scheme



Please also read chapter 1.5 Important Notes before putting the device into operation.

1.5 Important Notes

Please read carefully before first use and installation:

1.5.1 Installation and Commissioning

- In the case of damage (at storage, transport) no repairs may be carried out by unauthorized persons
- After connection to the KNX bus system, the device works with its default settings
- The device may only be installed and put into operation by a qualified electrician or authorized person
- For planning and construction of electric installations the appropriate specifications, guidelines and regulations in force of the respective country have to be complied
- For configuring, use the ETS (or ETS Inside)

1.5.2 Mounting and Safety

- For mounting use an appropriate equipment according to IEC60715
- Installation only in distribution boards and enclosed housings
- Installation only on a 35 mm DIN rail (TH35)
- Terminals and metal parts under current must be completely covered against touching
- Contact protection must be provided through the control cabinet
- It must be not possible to remove the cover without aid of a tool
- Connect the KNX bus line as for common KNX bus connections with a KNX bus cable, to be stripped and plugged into a KNX TP connector
- Do not damage electrical insulations during connecting
- Installation only in dry locations

1.5.3 Maintenance

- Accessibility of the device for operation and visual inspection must be provided
- The housing must not be opened
- Protect the device from moisture, dirt and damage
- The device needs no maintenance
- If necessary, the device can be cleaned with a dry cloth

1.6 Feature Summary

- MECps640 favorably replaces two devices, a TP line coupler and a KNX Power Supply.
- For adding a new line to an existing system only one device is necessary.
- The ultra-slim MECps640 unit has only 2 modules (36 mm).
- Cost reduction due to less space requirement.
- MECps640 supports the extended frame format and is able to process long telegrams up to 240 bytes APDU length. (With all MEC couplers and UIM interfaces long messages e.g. for energy metering applications and visualization purposes can be processed.)
- Settings to increase the data throughput / decrease a high bus traffic are featured.
- IACK sending on sent out messages is ETS configurable.
- Repetition is configurable for both Physical Telegrams and Group Telegrams.
- It is possible to switch off telegram filtering by only pressing a button on the device front panel. Then, filtering is suspended for an ETS configurable time period.
- Suspending telegram filtering eases commissioning, debugging, and diagnostics. When filtering is suspended, temporary access to other lines becomes possible. This is necessary for running fast diagnostics on site.
- Automatic switching back to run-time telegram filtering after configurable suspension period (see Manual Mode). This avoids forgetting the reactivation of filtering.
- Subline is overload-proof and short circuit protected
- Device reset by on-device push button
- Device and bus line status indicated by a six-duo-LED-display.
- Internal supply via externally-connected 230 V AC.
- ETS database entries are available for ETS5 and later.

2 Operational Description

In KNX network installations, MECps640 supplies the KNX TP line that is connected as subline and simultaneously, can be used as line coupler or line repeater. Depending on the selected application, MECps640 operates with its default settings after connecting to mains supply. Setting a correct Individual Address is necessary. Only Individual Addresses x.y.0 are allowed.

2.1 TP Coupler Application

When MECps640 receives telegrams that use Individual Addresses as destination addresses (for example during commissioning), it compares the receivers' addresses with its own address and decides on that comparison whether it has to route the telegrams or not.

When MECps640 receives telegrams that use group addresses as destination addresses, it reacts in accordance with the parameter settings. During normal operation (with Group Telegram routing set to filter), MECps640 only routes telegrams whose group addresses are entered in its filter table.

If a telegram is routed by MECps640 without receiving the corresponding acknowledgement, i.e. due to a missing receiver or to a transmission error, the telegram will be repeated up to three times (depending on the ETS setting). With the parameters „Repetitions if errors ...“, this function can be configured separately for each line and both kinds of telegrams. It is recommended to use the default parameter setting.

If not configured as Line Coupler, the ETS application program “TP Coupler” has to be downloaded to the device. Under the ETS Information tab, the application can be changed. Updating the application program version can also be done here.

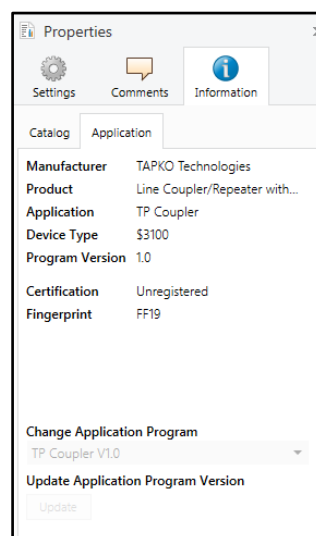


Figure 3: TP Coupler Application Program

2.2 TP Repeater Application

Irrespective of in which line it is processed, any received telegram is routed. Line repeaters make no use of a filter table.

If a telegram is routed by MECps640 without receiving the corresponding acknowledgement, i.e. due to a missing receiver or to a transmission error, the telegram will be repeated up to three times (depending on the ETS setting). With the parameters „Repetitions if errors...“, this function can be configured separately for each line and both kinds of telegrams. It is recommended to use the default parameter setting.

If not configured as Line Repeater, the ETS application program “TP Repeater” has to be downloaded to the device. Under the ETS Information tab, the application can be changed. Updating the application program version can also be done here.

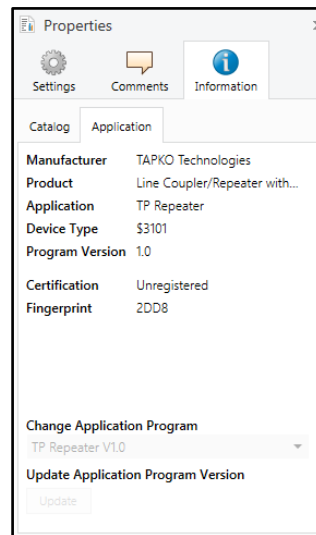


Figure 4: TP Repeater Application Program

2.3 KNX Network Installation

2.3.1 Individual Address

For line coupler functionality in a KNX network MECps640 has to use the correct Individual Address of a line coupler (x.y.0, $1 \leq x \text{ \& } y \leq 15$). In ETS up to 225 addresses can be defined (from 1.1.0 to 15.15.0).

For area coupler functionality in a KNX network MECps640 has to use the correct Individual Address of an area coupler (x.0.0, $1 \leq x \leq 15$). In ETS up to 15 areas can be defined.

If MECps640 is used in a KNX system for both purposes, it is necessary to ensure that the MECps640 used as a line coupler has a line coupler address assigned from a free addressing area. Following figure illustrates the correct line coupler topology.

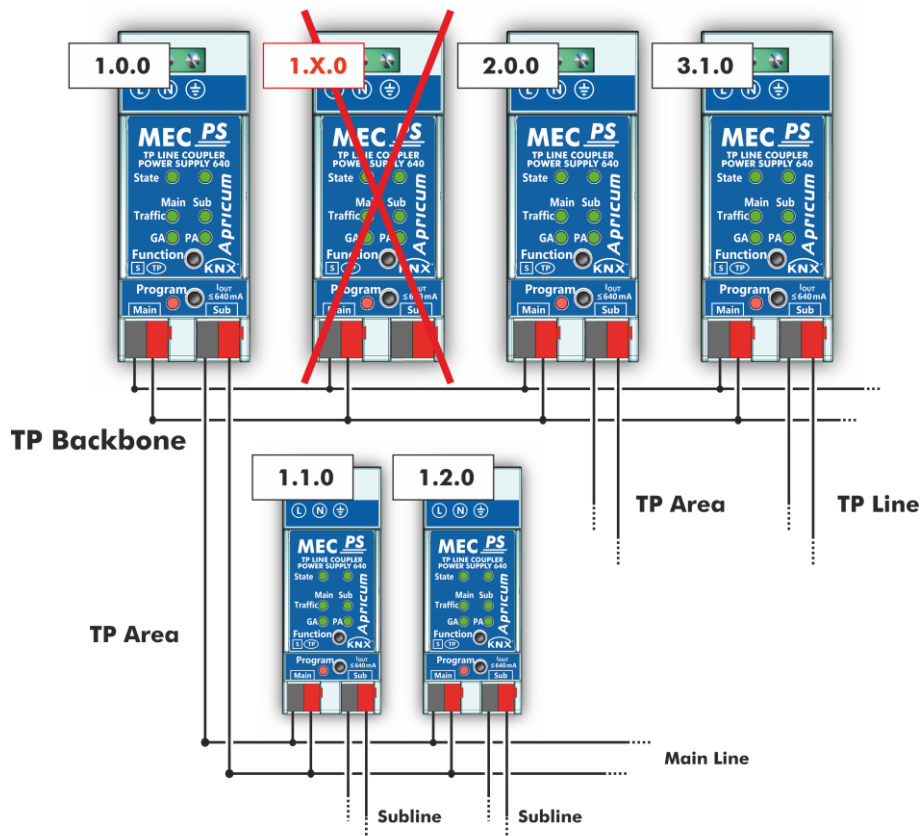


Figure 5: Line Coupler Network

Example: If an area coupler with address 1.0.0 already exists on the backbone no line coupler with address 1.x.0, $1 \leq x \leq 15$ can be added here. Even if no line coupler with address 1.1.0 exists on the subline of the 1.0.0 area coupler. Vice versa, if a line coupler with address 1.1.0 already exists in the installation no area coupler with address 1.0.0 can be added.

2.3.2 KNX Topology

Up to 15 lines can be connected to an area line, shortly called Area. Up to 64 bus devices find place on the same line. With usage of line repeaters, such line can be extended to 255 bus devices having four line segments forming the single KNX TP line. But it is common practice to insert a new line instead of extending the original one when exceeding 64 bus devices.

The free tree structure of the KNX topology prevents problems caused by circling telegrams and heavy bus load. To maintain this condition, interconnections between lines or line segments are strictly forbidden.

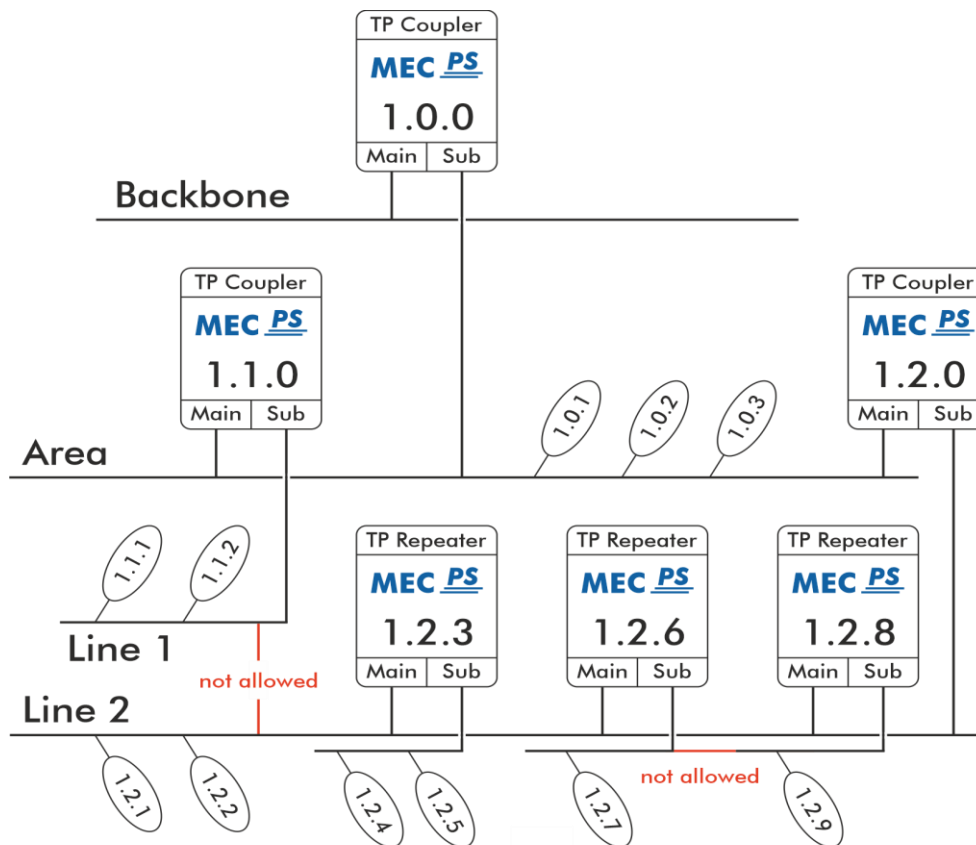


Figure 6: Linecoupler Network Topology



Each line and each segment must be powered separately.



Using repeaters on backbone and main lines is not allowed.



Interconnections are not allowed.

2.4 Programming

2.4.1 Programming Button

To download Individual Address and/or ETS application, the Programming Mode must be activated. Successive pressing the Programming Button switches Programming Mode on and off. LED 7 lighting red indicates Programming Mode is active.

2.4.2 Individual Address Assignment

To make a download and configure the device, an interface connection (IP, USB) to the KNX bus system is required. When Programming Mode is activated, the ETS is able to start the download.



To program devices of a line different to which the device used as ETS Current Interface is connected, a correct topology is mandatory.

The Individual Address can be assigned to the device by setting the desired address in the properties window of the ETS. When the ETS download is complete, the device restarts itself.

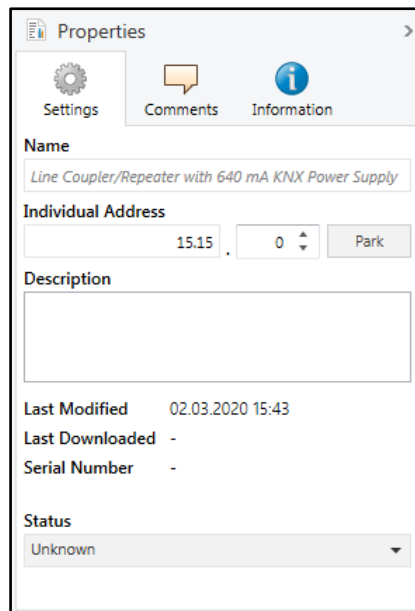


Figure 7: ETS Properties Windows



The device is supplied with the Individual Address 15.15.0 (Factory Default Setting).



The KNX product database entry (available for ETS5 and higher) can be downloaded from the company website and from the KNX Online Catalog.

2.5 Special Functions

The Function Button activates MECps640's special functions. Manual Function and Factory Reset can be activated. Device settings of MECps640 can be reset to manufacturer default values with the Factory Reset function. The status of an active special function is indicated by the LED display (see chapter 1.3 LED Indication of Special Functions).

Table 6: Activation of Special Functions

| Step | Manual Function | KNX Bus Reset | Factory Reset |
|------|------------------------------------|--|-------------------------------------|
| 1 | Hold Function button for 3 seconds | Short press of Function button for three times | Hold Function button for 15 seconds |
| 2 | LED 1 now is orange | LEDs 2 now is red | LEDs 1/2 now are orange |
| 3 | | Subline restarts | Hold Function button for 3 seconds |
| 4 | | | Device restarts |

2.5.1 Manual Function

During normal operation a rather short press (3 sec) activates and deactivates the Manual Function. LED 5 and LED 6 show the current filtering states.

When the Manual Function is active, either all Physical Telegrams or all Group Telegrams or both pass the MECps640 without filtering. After the Switch-off time period has elapsed, MECps640 automatically switches back to normal operation. To configure the Manual Function and set the Switch-off time use the General parameter tab like shown in chapters 3.1 and 4.1. After switching back from Manual Function to normal operation the latest downloaded parameter setting / filter table entries are active again.

2.5.2 KNX Bus Reset

To reset the secondary KNX bus line (Subline), pressing 3x the Function Button (shortly and in a row) activates the KNX Bus Reset function.

During the bus reset, the device disconnects the entire bus line from the supplying output and induces a short circuit for some seconds. LED 1 (State 1) and LED 2 (State 2) light up red and go off after the reset process is accomplished. Other LEDs are off. The devices connected to the subline restart during the reset process.

2.5.3 Factory Reset

A long press (15 sec) of the Function Button soon followed by a short press (3 sec) executes the Factory Reset. After the first press, the LED display lights like described in Table 5: LED Status Display for Factory Reset after first Button Press. After the second press, all parameters (incl. Individual Address) will be set to factory default. Subsequently, LEDs show the normal operation display again.

3 ETS Database Parameters Coupler

All screen shots are related to the MECps640 database R1-0 in ETS5.

3.1 General

Figure 8: General Tab Parameters

Table 7: General Tab Parameter Settings

| ETS Parameter | Settings [Factory Default] | Comment |
|-------------------------------------|--|---|
| Manual Function | disabled pass all telegrams pass all Physical telegrams pass all Group telegrams [pass all telegrams] | Configuration setting for telegram routing during Manual Function is active. |
| Switch-off time for Manual Function | 10 min, 1 hour, 4 hours, 8 hours [1 hour] | After expiry of this time period the Manual Function is switched off automatically. |

3.2 Main Line

Setting “transmit all” is intended only for testing use. Please do not use for normal operation.



If the parameter “Send confirmation on own telegrams” is set to “yes”, MECip-Sec systematically sends an ACK on any own routed telegram. For example, since repeaters do not use filter tables, it is useful to have an ACK sent along with routed telegrams.

Figure 9: Main Line Tab Parameters

Table 8: Main Line Tab Parameter Settings

| ETS Parameter | Settings [Factory Default] | Comment | |
|--|---|--|---|
| Telegram routing | Group: filter, Physical: block Group and Physical: filter Group: route, Physical: filter Group and Physical: route configure [Group and Physical: filter] | block: | no telegrams are routed. |
| | | filter: | telegrams entered in the filter table are routed. |
| | | route: | all telegrams are routed. |
| | | configure: | the following parameters must be set manually. |
| Group telegrams: Main group 0...13 | transmit all (not recommended) block filter [filter] | Group telegrams (main group 0...13) are all routed. Group telegrams (main group 0...13) are all blocked. Group telegrams (main group 0...13) are routed if entered in the filter table. | |
| Group telegrams: Main group 14...31 | transmit all (not recommended) block filter [filter] | Group telegrams (main group 14...31) are all routed. Group telegrams (main group 14...31) are all blocked. Group telegrams (main group 14...31) are routed if entered in the filter table. | |

| ETS Parameter | Settings [Factory Default] | Comment |
|--|--|--|
| Physical telegrams | transmit all (not recommended) block filter [filter] | <ul style="list-style-type: none"> Physical telegrams are all routed. Physical telegrams are all blocked. Depending on the Individual Address Physical telegrams are routed. |
| Physical telegrams: Repetition if errors on main line | no up to 3 repetitions only one repetition [up to 3 repetitions] | After main line transmission error (e.g. due to missing receiver) Physical telegrams <ul style="list-style-type: none"> are not repeated. are repeated max. 3 times. are repeated once. |
| Group telegrams: Repetition if errors on main line | no up to 3 repetitions only one repetition [up to 3 repetitions] | After main line transmission error (e.g. due to missing receiver) Group telegrams <ul style="list-style-type: none"> are not repeated. are repeated max. 3 times. are repeated once. |
| Telegram confirmation on main line | if routed always [if routed] | <ul style="list-style-type: none"> Routed telegrams to the subline are confirmed by an ACK on the main line. Each telegram on the mainline is confirmed by an ACK. |
| Send confirmation on own telegrams | yes no [no] | <ul style="list-style-type: none"> Telegrams sent out to the mainline are confirmed by added ACK. No ACK confirmation. |

3.3 Subline

Setting “transmit all” is intended only for testing use. Please do not use for normal operation.



If the parameter “Send confirmation on own telegrams” is set to “yes”, MECps640 systematically sends an ACK on any own routed telegram. For example, since repeaters do not use filter tables, it is useful to have an ACK sent along with routed telegrams.

Figure 10: Subline Tab Parameters

Table 9-1: Subline Tab Parameter Settings

| ETS Parameter | Settings [Factory Default] | Comment | |
|--|---|--|---|
| Telegram routing | Group: filter, Physical: block Group and Physical: filter Group: route, Physical: filter Group and Physical: route configure [Group and Physical: filter] | block: | no telegrams are routed. |
| | | filter: | telegrams entered in the filter table are routed. |
| | | route: | all telegrams are routed. |
| | | configure: | the following parameters must be set manually. |
| Group telegrams: Main group 0...13 | transmit all (not recommended) block filter [filter] | Group telegrams (main group 0...13) are all routed. Group telegrams (main group 0...13) are all blocked. Group telegrams (main group 0...13) are routed if entered in the filter table. | |
| Group telegrams: Main group 14...31 | transmit all (not recommended) block filter [filter] | Group telegrams (main group 14...31) are all routed. Group telegrams (main group 14...31) are all blocked. Group telegrams (main group 14...31) are routed if entered in the filter table. | |

| ETS Parameter | Settings [Factory Default] | Comment |
|--|--|--|
| Physical telegrams | transmit all (not recommended) block filter [filter] | <ul style="list-style-type: none"> Physical telegrams are all routed. Physical telegrams are all blocked. Depending on the Individual Address Physical telegrams are routed. |
| Physical telegrams: Repetition if errors on subline | no up to 3 repetitions only one repetition [up to 3 repetitions] | After subline transmission error (e.g. due to missing receiver) Physical telegrams <ul style="list-style-type: none"> are not repeated. are repeated max. 3 times. are repeated once. |
| Group telegrams: Repetition if errors on subline | no up to 3 repetitions only one repetition [up to 3 repetitions] | After subline transmission error (e.g. due to missing receiver) Group telegrams <ul style="list-style-type: none"> are not repeated. are repeated max. 3 times. are repeated once. |
| Telegram confirmation on subline | if routed always [if routed] | <ul style="list-style-type: none"> Routed telegrams to main line are confirmed by an ACK on the subline. Each telegram on the subline is confirmed by an ACK. |
| Send confirmation on own telegrams | yes no [no] | <ul style="list-style-type: none"> Telegrams sent out to the subline are confirmed by added ACK. No ACK confirmation. |
| Configuration from subline | allow block [allow] | If blocked an ETS download to the MECps640 can occur only via main line. |

4 ETS Database Parameters Repeater

All screen shots are related to the MECps640 database file R1-0 in ETS5.

4.1 General

| 15.15.1 Line Coupler/Repeater with 640 mA KNX Power Supply > General | | |
|--|-------------------------------------|--------------------|
| General | Manual Function | pass all telegrams |
| Main line | Switch-off time for Manual Function | 1 hour |
| Subline | | |

Figure 11: General Tab Parameters

Table 10: General Tab Parameter Settings

| ETS Parameter | Settings [Factory Default] | Comment |
|-------------------------------------|--|---|
| Manual Function | disabled pass all telegrams pass all Physical telegrams pass all Group telegrams [pass all telegrams] | Configuration setting for telegram routing during Manual Function is active. |
| Switch-off time for Manual Function | 10 min, 1 hour, 4 hours, 8 hours [1 hour] | After expiry of this time period the Manual Function is switched off automatically. |

4.2 Main Line

Setting “transmit all” is intended only for testing use. Please do not use for normal operation.



If the parameter “Send confirmation on own telegrams” is set to “yes”, MECps640 systematically sends an ACK on any own routed telegram. Example: Since repeaters do not use filter tables, it is useful to have an ACK sent along with routed telegrams.

Figure 12: Main Line Tab Parameters

Table 11: Main Line Tab Parameter Settings

| ETS Parameter | Settings [Factory Default] | Comment |
|---|---|--|
| Telegram routing | Group and Physical: route configure [Group and Physical: route] | route: all telegrams are routed. |
| | | configure: the following parameters must be set manually. |
| Physical telegrams | transmit all block [transmit all] | <ul style="list-style-type: none"> Physical telegrams are all routed. Physical telegrams are all blocked. |
| Physical telegrams: Repetition if errors on main line | no up to 3 repetitions only one repetition [only one repetition] | After main line transmission error (e.g. due to missing receiver) Physical telegrams <ul style="list-style-type: none"> are not repeated. are repeated max. 3 times. are repeated once. |
| Group telegrams: Repetition if errors on main line | no up to 3 repetitions only one repetition [only one repetition] | After main line transmission error (e.g. due to missing receiver) Group telegrams <ul style="list-style-type: none"> are not repeated. are repeated max. 3 times. are repeated once. |
| Telegram confirmation on main line | if routed always [always] | <ul style="list-style-type: none"> Routed telegrams to the subline are confirmed by an ACK on the main line. Each telegram on the mainline is confirmed by an ACK. |
| Send confirmation on own telegrams | yes no [yes] | <ul style="list-style-type: none"> Telegrams sent out to the mainline are confirmed by added ACK. No ACK confirmation. |

4.3 Subline

Setting “transmit all” is intended only for testing use. Please do not use for normal operation.

Figure 13: Subline Tab Parameters

Table 12: Subline (KNX TP) Tab Parameter Settings

| ETS Parameter | Settings [Factory Default] | Comment | | | | |
|---|---|---|--------|---------------------------|------------|--|
| Telegram routing | Group and Physical: route configure [Group and Physical: route] | <table border="0"> <tr> <td>route:</td> <td>all telegrams are routed.</td> </tr> <tr> <td>configure:</td> <td>the following parameters must be set manually.</td> </tr> </table> | route: | all telegrams are routed. | configure: | the following parameters must be set manually. |
| route: | all telegrams are routed. | | | | | |
| configure: | the following parameters must be set manually. | | | | | |
| Physical telegrams | transmit all block [transmit all] | <ul style="list-style-type: none"> Physical telegrams are all routed. Physical telegrams are all blocked. | | | | |
| Physical telegrams: Repetition if errors on subline | no up to 3 repetitions only one repetition [only one repetition] | <p>After subline transmission error (e.g. due to missing receiver) Physical telegrams</p> <ul style="list-style-type: none"> are not repeated. are repeated max. 3 times. are repeated once. | | | | |
| Group telegrams: Repetition if errors on subline | no up to 3 repetitions only one repetition [only one repetition] | <p>After subline transmission error (e.g. due to missing receiver) Group telegrams</p> <ul style="list-style-type: none"> are not repeated. are repeated max. 3 times. are repeated once. | | | | |
| Telegram confirmation on subline | if routed always [always] | <ul style="list-style-type: none"> Routed telegrams to main line are confirmed by an ACK on the subline. Each telegram on the subline is confirmed by an ACK. | | | | |
| Send confirmation on own telegrams | yes no [yes] | <ul style="list-style-type: none"> Telegrams sent out to the subline are confirmed by added ACK. No ACK confirmation. | | | | |

5 State of Delivery

5.1 Default Factory Settings

Table 13: Default Factory Setting

| General | |
|--------------------|---------|
| Individual Address | 15.15.0 |

| Main line | |
|---|--------------------------------|
| Group telegrams (main group 0...13) | filter (filter table is empty) |
| Group telegrams (main group 14...31) | route all |
| Physical telegrams | filter |
| Physical: Repetition if errors on main line | up to 3 repetitions |
| Group: Repetition if errors on main line | up to 3 repetitions |
| Telegram confirmations on main line | if routed |
| Send confirmation on own telegrams | no |

| Subline | |
|---|--------------------------------|
| Group telegrams (main group 0...13) | filter (filter table is empty) |
| Group telegrams (main group 14...31) | route all |
| Physical telegrams | filter |
| Physical: Repetition if errors on subline | up to 3 repetitions |
| Group: Repetition if errors on subline | up to 3 repetitions |
| Telegram confirmations on subline | if routed |
| Send confirmation on own telegrams | no |
| Configuration from subline | allow |

5.2 Technical Datasheet

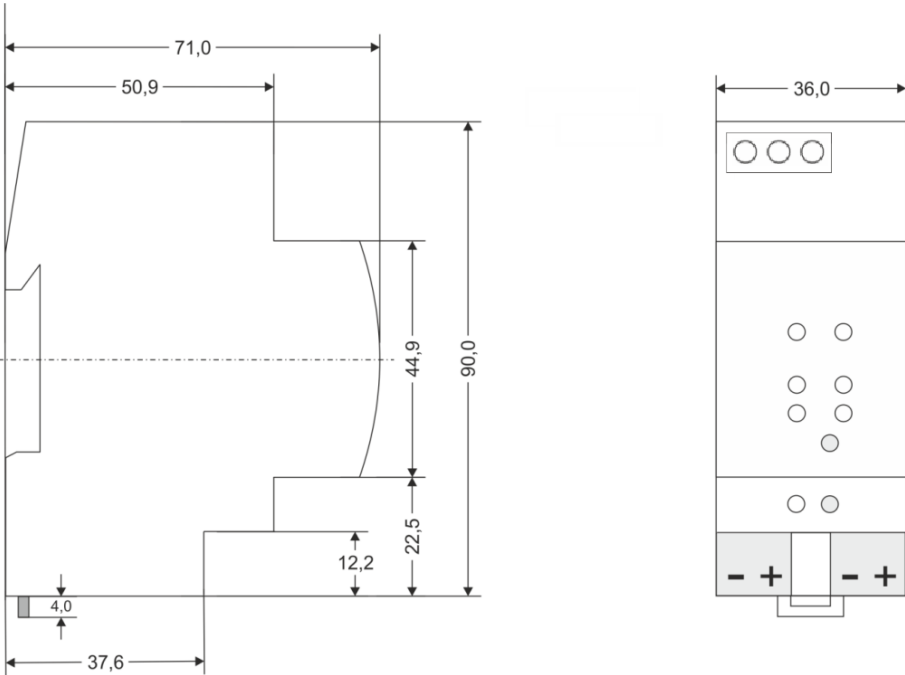
| | |
|---|--|
| Marking/Design | MECps640 |
| Mains voltage | 230 V AC $\pm 15\%$ @ 50 Hz |
| Leakage loss (open-circuited) | 0.9 W |
| Leakage loss (normal operation) | 4.4 W |
| Power consumption (normal operation) | 23.2 W |
| Power consumption (max., overload) | 39.2 W |
| Mains failure bridging time | > 100 ms |
| KNX output voltage | 28...31 V DC (SELV) |
| Rated current | 640 mA |
| Maximum current (total output) | 1.2 A |
| Efficiency at nominal load | 81 % |
| Disconnection time after failure | 10 s |
| Connections | <p>Supply input: Screw terminals, for 0.3...2.5 mm² (torque 0.4 Nm)</p> <p>KNX TP main line: KNX TP connector (red/black), screwless, for single-core cable \varnothing 0.6...0.8 mm</p> <p>KNX TP subline: KNX TP connector (red/black), screwless, for single-core cable \varnothing 0.6...0.8 mm</p> |
| LED Display elements | <p>State 1</p> <p>State 2</p> <p>Traffic (Main and Sub)</p> <p>Routing (GA and PA)</p> <p>Programming LED</p> |
| Control elements | <p>Function Button</p> <p>Programming Button</p> |
| Mounting | 35 mm top-hat rail (TH35) according to IEC60715 |
| Protection type | IP20 according to IEC60529 |
| Pollution degree | 2 according to IEC60664-1 |
| Protection class | II according to IEC61140 |
| Overvoltage category | III according to IEC60664-1 |
| Approbation | KNX-certified according to ISO/IEC14543-3 |

| | |
|------------------------------|--|
| CE Marking | In compliance with directives 2014/35/EU (LVD), 2014/30/EU (EMC), 2011/65/EU (RoHS) |
| Standards | EN50581, EN61000-6-2, EN61000-6-3, EN61558-1, EN61558-2-16, EN IEC 63044-5-1, EN IEC 63044-5-2, EN IEC 63044-5-3 |
| Housing color | Plastic PA66 housing, grey |
| Housing dimensions | H = 90 mm, W = 36 mm (2 modules), D = 71 mm |
| Mounting depth | 64 mm |
| Weight | 188 g |
| Operating temperature | -5...45 °C |
| Storage temperature | -20...60 °C |
| Ambient humidity | 5...93 %, non-condensing |

5.3 Technical Drawings

All dimensions shown here are specified in mm.

Space consumption on a DIN rail is 2 modules at 18 mm.



Dimensions in mm
Tolerance: -0,5 mm/DIN 16742

Figure 14: Dimension drawings

MECps640

Application: KNX Line/Area Coupler/Repeater
with integrated 640 mA KNX Power Supply

Doctype: Technical and Application Description

Release Number / Release Date: R1.0 / July 2020

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