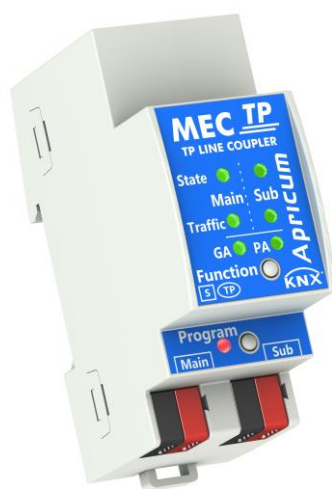


APRICUM



MECtp

KNX Line/Area Coupler/Repeater

Technical & Application Description

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1 Product Description

The KNX TP Media Coupler MECtp provides a bi-directional data connection between two KNX TP lines or areas and 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. Extended frames and long telegrams with up to 240 bytes APDU length are supported.

Using the TP Coupler application, MECtp can be used as KNX TP line coupler to connect different TP lines, but also as a KNX TP area coupler to connect different TP areas or installation systems via a TP Backbone. 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. Number of repetitions on both KNX TP lines can be reduced.

Using the TP Repeater application, MECtp 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 MECtp line repeaters. Each line segment requires its own KNX power supply unit.

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 set time period, MECtp switches back to normal operation automatically. Another feature to increase the data throughput is the ability to send IACKs on own telegrams.

1.1 Front Panel

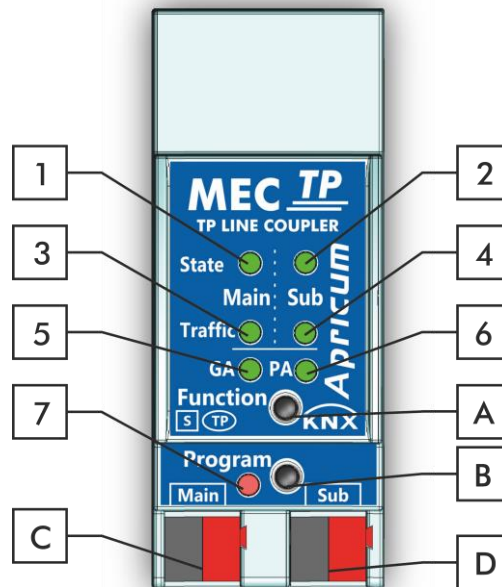


Figure 1: Front View

Table 1: Front Panel Elements

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

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

1.2 LED Indication

Following table gives a general description of the LED display indication intended for normal operation. Constellations of LED lighting during active special functions are further described in next chapter.

Table 2: Normal LED Display

Number	LED	Colour	Explanation / Range
1	Bus State KNX TP (Main line)	green	Main Line OK
		orange	Manual Function active
2	Bus State KNX TP (Subline)	green	Subline OK
		< off >	Subline not connected
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 table 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	Filtering 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

1.3 LED Indication of Special Functions

During an active special function, only LEDs described here are lighting. Other LEDs are off.

Table 3: LED Status Display for Manual Function

Number	LED	Colour	Comment
1	Bus State KNX TP (Main line)	orange	
2	Bus State KNX TP (Subline)	green	LED is <off> if not connected
5	Group Address Routing	green: filter	
6	Individual Address Routing	orange: route all red: block all	





Table 4: LED Status Display for Factory Reset after first Button Press

Number	LED	Colour	Comment
1	Bus State KNX TP (Main line)	orange	
2	Bus State KNX TP (Subline)	orange	LED lights red if not connected
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 120 min
- Individual Address is 15.15.0

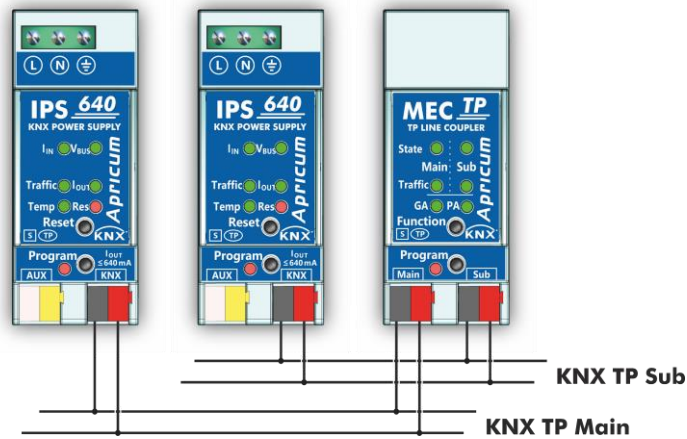


Figure 2: Connection Scheme



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

1.5 Important Notes

It is recommended to participate the standardized courses of a KNX-certified training center before installing, programming, and commissioning a KNX system. Here, the participant gains the necessary knowledge and skills, also required for troubleshooting, by practical exercises.

Please read this chapter 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
- **Warning: Do not connect to 230 V. The device is supplied by the KNX bus and does not require any additional external power supply**
- 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 on a 35 mm DIN rail (TH35)
- 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

- MECtp supports extended frames and 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.)
- IACK sending on sent out messages is ETS configurable.
- When there is no IACK response on the subline, MECtp is able to repeat messages up to three times. Repetition can be configured for both Physical Telegrams and Group Telegrams via ETS.
- For an ETS configurable time period, it is possible to switch off telegram filtering by only pressing a button on the device front panel. Without additional ETS download filtering is suspended. This is necessary for running fast diagnostics on site.
- Suspending telegram filtering eases commissioning and debugging. When filtering is suspended, temporary access to other lines becomes possible.
- Automatic function for switching back to run-time telegram filtering after configurable suspension period (see Manual Mode). This avoids forgetting the reactivation of filtering.
- In networks with high busload the internal amount of communication buffers are capable of smoothing peaks in the communication load course.
- MECtp's ETS database entries are available for ETS4 and later.

2 Operational Description

In network installations MECtp can be used as KNX TP area/line coupler or KNX TP line repeater. After connecting the main line, MECtp operates with its default settings. Setting the correct Individual Address is necessary. Only Individual Addresses x.y.0 are allowed.

2.1 TP Coupler Application

When MECtp receives telegrams (for example during commissioning) that use Individual Addresses as destination addresses, it compares the Individual Addresses of the receiver with its own Individual Address and decides on that whether it has to route the telegrams or not. When MECtp 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), MECtp only routes telegrams whose group addresses are entered in its filter table.

If a telegram is routed by MECtp 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 already configured as “Line Coupler”, the ETS application program “TP Coupler” has to be downloaded to the device. Under the Information tab the configuration setting can be changed by the drop-down menu “Change Application Program”. After changing the configuration setting the filter table entries can be added manually. Updating the application program version can also be done here.

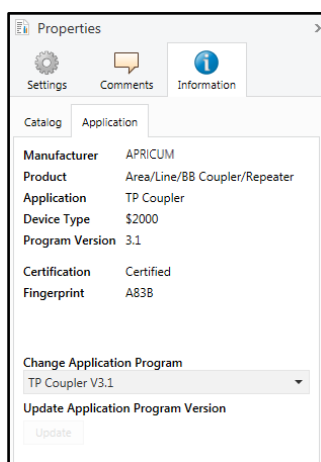


Figure 3: TP Coupler Application Program

2.2 TP Repeater Application

Any received telegram is routed to all lines irrespective of in which line it is processed. Line repeaters make no use of a filter table. It is therefore not important whether the telegram is generated within a line or whether it is sent from an upper line to a lower line via a coupler.

If a telegram is routed by MECtp 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 already configured as Line/Area/BB Repeater, the ETS application program “TP repeater” has to be downloaded to the device. Under the Information tab the configuration setting can be changed by the drop-down menu “Change Application Program”. After changing the configuration setting the filter table entries can be added manually. Updating the application program can also be done here.

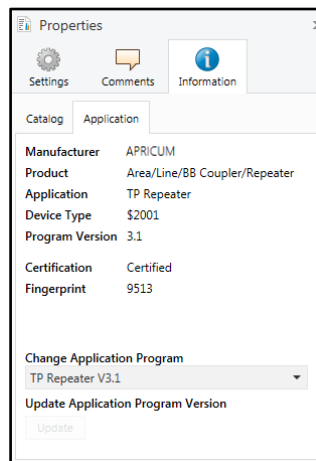


Figure 4: TP Repeater Application Program

2.3 KNX Network Installation

2.3.1 Individual Address

For line coupler functionality in a KNX network MECtp 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 MECtp 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 MECtp is used in a KNX system for both purposes, it is only necessary to ensure that the MECtp used as a line coupler has a line coupler address assigned from a free addressing area. Following figure illustrates the MECtp router topology for KNX lines and KNX areas.

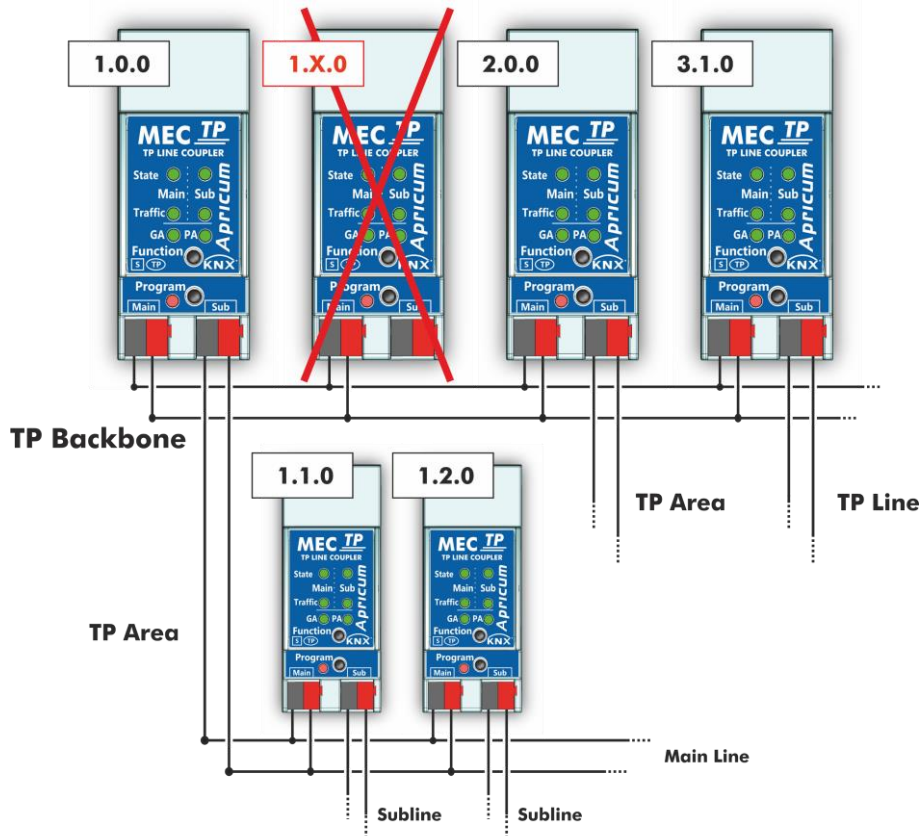


Figure 5: MECtp Network

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

Via a line/area coupler up to 15 lines can be connected to a main line called an area. It is possible to have up to 64 bus devices on one line. With use of line repeaters a line can theoretically be extended to 255 bus devices. This means up to four line segments form a single KNX TP line. But it is common practice on exceeding 64 bus devices to insert a new line instead of extending the originating one.

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

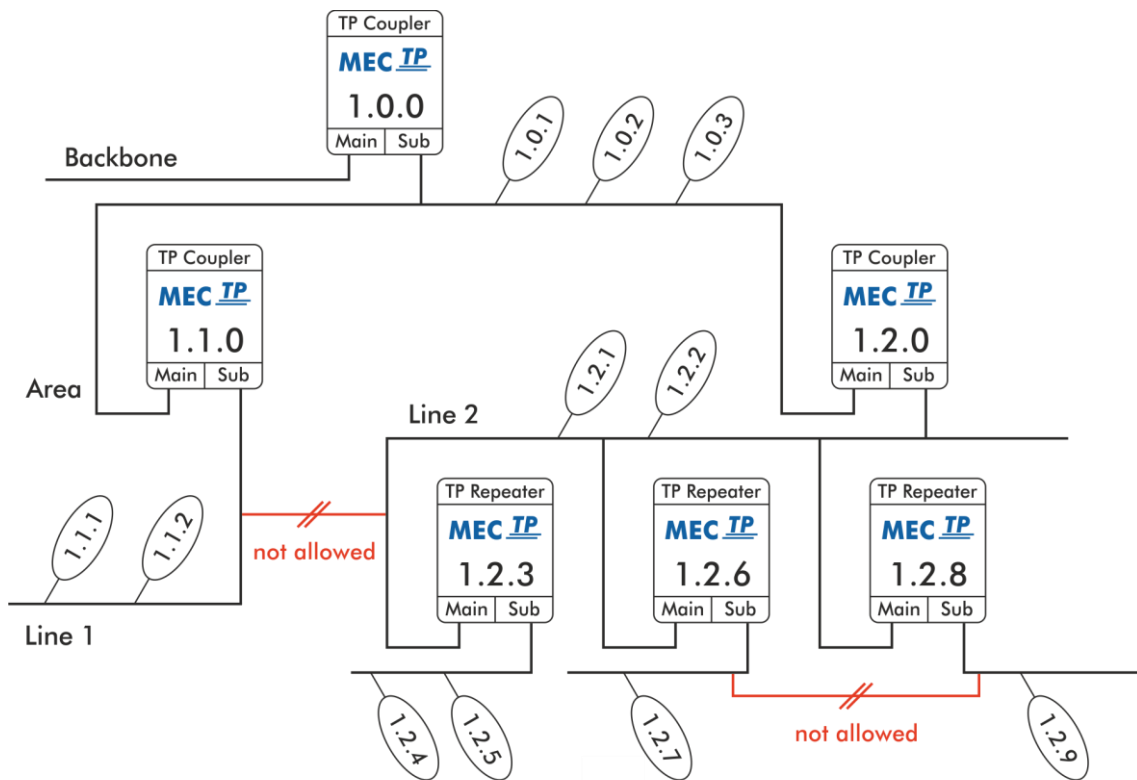


Figure 6: MECtp Network Topology



Each line segment requires its own KNX power supply unit.



Using repeaters on and main lines is not allowed.



Interconnections are not allowed

2.4 Programming

2.4.1 Programming Button

To download the desired Individual Address or an ETS setting the Programming Mode must be activated. Successive pressing the Programming Button will turn on and off the Programming Mode. LED 7 lighting in red colour indicates Programming Mode is active. When Programming Mode is activated, the ETS is able to download the Individual Address.

2.4.2 Individual Address Assignment

To configure the device an interface connection (IP, USB) to the KNX bus system is required. The device is supplied with the Individual Address 15.15.0. The KNX product database entry (available for ETS3.0d and higher) can be downloaded from the Apricum website and from the KNX Online Catalog.

The Individual Address can be assigned to the device by setting the desired address in the properties window of the ETS. After starting the ETS download and then pressing the Programming Button the device restarts itself.

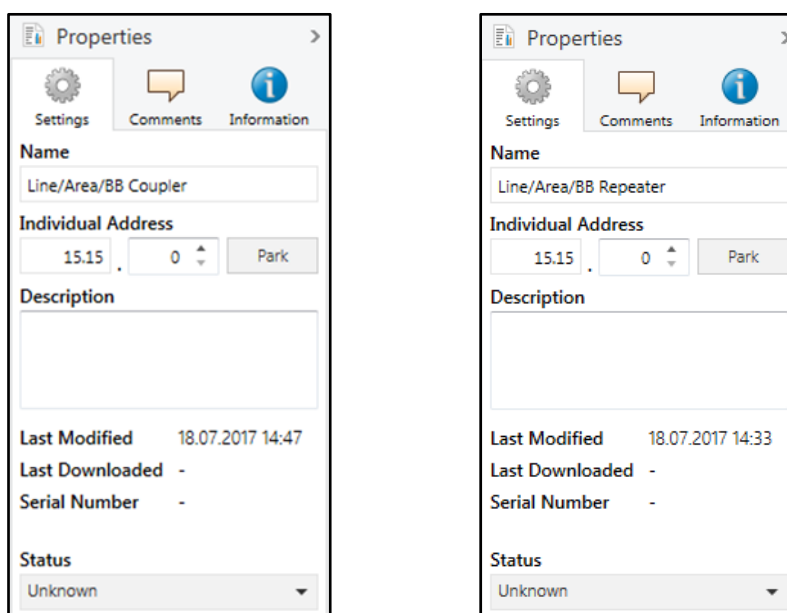


Figure 7: ETS Properties Window

2.5 Special Functions

The Function Button activates MECtp special functions Manual Function and Factory Reset. With the Manual Function, the device switches to a special filter setting and with the Factory Reset, MECtp can be reset to its manufacturer default state. The active special function status is indicated by the LED display (see chapter LED Indication of Special Functions).

2.5.1 Manual Function

During normal operation, a rather short press (3 sec) activates and deactivates the Manual Function. LED 1 indicates the status. 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 can pass the MECtp without filtering. When the Switch-off time has elapsed, MECtp automatically switches back to normal operation. To configure the Manual Function and set the Switch-off time, use the parameter tab General like shown in chapter General. After switching back from Manual Function to normal operation, the latest downloaded filter parameter settings plus filter table entries become active again.

Table 5: Activation of Manual Functions

Step	Manual Function
1	Hold Function button for 3 seconds
2	LED 1 now is orange indicating Manual Function is on
3	After switch-off, normal operation is indicated by LED 1 lighting green

2.5.2 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 4: LED Status Display for Factory Reset after first Function Button Press. After the second press, all parameters (incl. Individual Address) will be set to factory default.

Table 6: Activation of Factory Reset

Step	Factory Reset
1	Hold Function button for 15 seconds
2	LEDs 1/2 now are orange
3	Hold Function button for 3 seconds
4	Device restarts

3 ETS Database Parameters Coupler

3.1 General

15.15.0 Line/Area/BB Coupler > General

General	Manual Function	pass all telegrams
Main line	Switch-off time for Manual Function	1 hour
Subline		

Figure 8: General Tab Parameters

Table 7: General Tab Parameter Settings

ETS Parameter	Setting [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 when the 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

For Group Telegrams and Physical Telegrams the setting “transmit all” is intended only for testing purposes. Please do not use for normal operation.



If the parameter “Send confirmation on own telegrams” is set to “yes”, the MECtp systematically sends an ACK on any own routed telegram.

Figure 9: Main Line Tab Parameters

Table 8: Main Line Tab Parameter Settings

ETS Parameter	Setting [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]	<ul style="list-style-type: none"> • 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]	<ul style="list-style-type: none"> • 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	Setting [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

For Group Telegrams and Physical Telegrams the setting “transmit all” is intended only for testing purposes. Please do not use for normal operation.

15.15.0 Area/Line/BB Coupler > Subline

General	Telegram routing	configure
Main line	Group telegrams: Main group 0...13	filter
Subline	Group telegrams: Main group 14...31	filter
	Physical telegrams	filter
	Physical telegrams: Repetition if errors on subline	up to 3 repetitions
	Group telegrams: Repetition if errors on subline	up to 3 repetitions
	Telegram confirmation on subline	<input checked="" type="radio"/> if routed <input type="radio"/> always
	Send confirmation on own telegrams	<input type="radio"/> yes <input checked="" type="radio"/> no
	Configuration from subline	<input checked="" type="radio"/> allow <input type="radio"/> block

Figure 10: Subline Tab Parameters

Table 9-1: Subline Tab Parameter Settings

ETS Parameter	Setting [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]	<ul style="list-style-type: none"> 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.
		<ul style="list-style-type: none"> 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.
		<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.
Group telegrams: Main group 14...31	transmit all (not recommended) block filter [filter]	<ul style="list-style-type: none"> 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.
		<ul style="list-style-type: none"> 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.
		<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	transmit all (not recommended) block filter [filter]	<ul style="list-style-type: none"> 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.
		<ul style="list-style-type: none"> 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.
		<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.

ETS Parameter	Setting [Factory Default]	Comment
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 MECtp can occur only via main line.

4 ETS Database Parameters Repeater

4.1 General

Figure 11: General Tab Parameters

Table 10: General Tab Parameter Settings

ETS Parameter	Setting [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 when the 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

For Group Telegrams and Physical Telegrams the setting “transmit all” is intended only for testing purposes. Please do not use for normal operation.



If the parameter “Send confirmation on own telegrams” is set to “yes”, the MECtp systematically sends an ACK on any own routed telegram. Since the repeater does not use a filter table, 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	Setting [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 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. 				

ETS Parameter	Setting [Factory Default]	Comment
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

For Group Telegrams and Physical Telegrams the setting “transmit all” is intended only for testing purposes. Please do not use for normal operation.

Figure 13: Subline Tab Parameters

Table 12-1: Subline (KNX TP) Tab Parameter Settings

ETS Parameter	Setting [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 subline	no up to 3 repetitions only one repetition [only one repetition]	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 [only one repetition]	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 [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 Technical

5.1 State of Delivery


Table 13: Factory Default Setting


General	
Individual Address	15.15.0
Main line (Main line to 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 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 (Subline to 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 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	MECtp
Current consumption	< 10 mA
Connections	KNX TP main line: KNX TP connector (red/black), screwless, for single-core cable Ø 0.6...0.8 mm KNX TP subline: KNX TP connector (red/black), screwless, for single-core cable Ø 0.6...0.8 mm
LED Display elements	State (Main and Sub) Traffic (Main and Sub) Routing (GA and PA) Programming LED
Control elements	Function Button Programming Button
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	III 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	EN IEC 61000-6-2, EN IEC 61000-6-3, EN IEC 63000, EN IEC 63044-5-1, EN IEC 63044-5-2, EN IEC 63044-5-3
Voltage supply	KNX: 21...30V DC (SELV)
Housing colour	Plastic PA66 housing, grey
Housing dimensions	H = 90 mm, W = 36 mm (2 modules), D = 71 mm
Mounting depth	64 mm
Weight	62 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.

 The total device width is 2 modules at 18 mm.

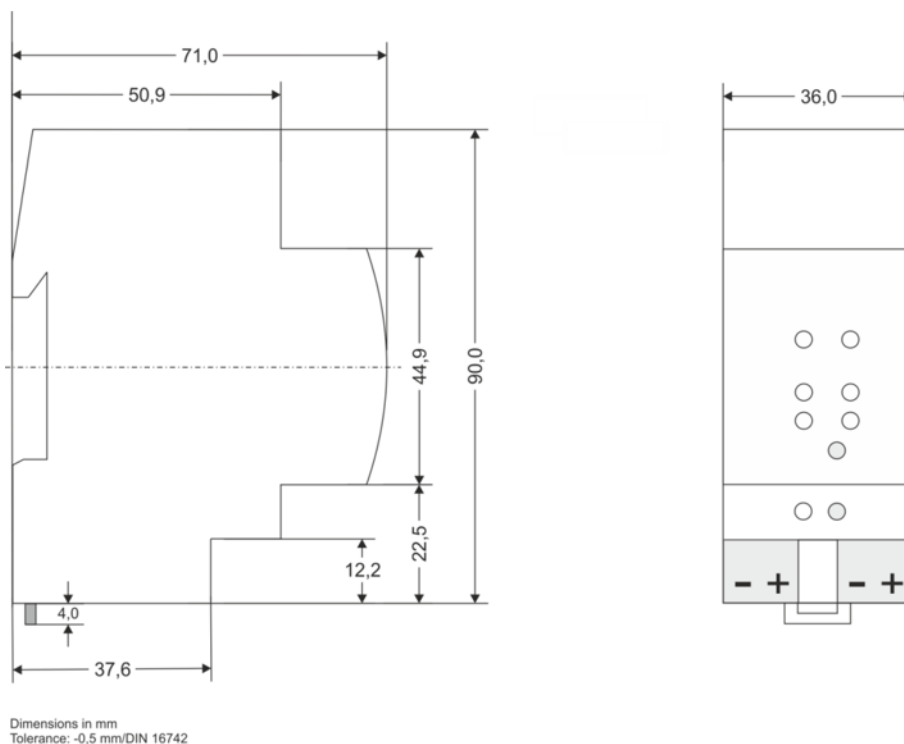


Figure 14: Dimension drawings

MECtp

Product:

KNX Line/Area Coupler/Repeater

Doctype:

Technical & Application Description

Release Number / Release Date:

R3.7 / November 2022

TAD is intended for:

(y = a,b,c, ...)

Firmware	5.2
Databases	R3-2y
ETS version	ETS4 and higher

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<https://www.apricum.com/mectp>

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