

CHORUS

GEWISS

KNX field/line coupler



GW 90708A

Technical Manual

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1 Introduction

This manual describes the functions of the **KNX field/line coupler** (GW 90708A) device and how they are set and configured with the aid of the ETS configuration software.

The GW90708A device has two separate ETS application programmes based on the function to be performed:

- Coupler →KNX Line coupler S 1.0
- Repeater →KNX Line repeater S 1.0

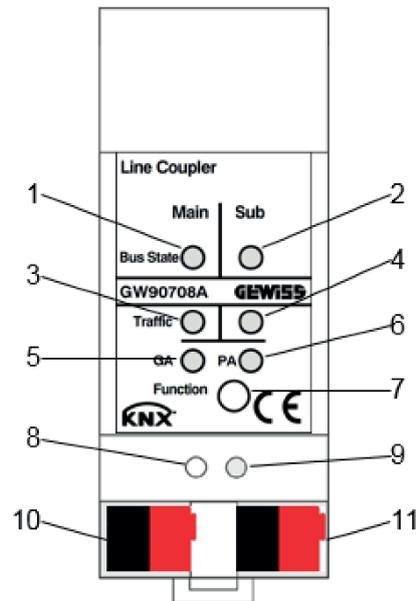
This manual describes the parameters relative to both application programmes.

2 Application

The KNX field line coupler (from DIN rail) is used to connect a main KNX-TP line with a secondary KNX-TP line, providing galvanic insulation between the two.

The device filters the traffic between the two lines (coupler) or forwards packs from the main line to the secondary one (repeater). The coupler can be used to connect a line to a main line or a main line to a backbone line.

The device is equipped with:



1. Main line status LED
 - off → main line error or device not connected to the bus
 - fixed green → main line functioning
 - fixed green and red → manual function active
2. Sub line status LED
 - off → sub line error or line not connected to the bus
 - fixed green → sub line functioning
3. Main line data traffic status LED
 - off → no data traffic on the main line
 - flashing green → data traffic in progress on the main line
 - flashing red → data transmission error on the main line
4. Sub line data traffic status LED
 - off → no data traffic on the sub line
 - flashing green → data traffic in progress on the sub line
 - flashing red → data transmission error on the sub line
5. Status LED for forwarding telegrams with group addresses
 - off → different telegram forwarding rules between main and sub line
 - fixed green → telegram forwarding according to the filter table
 - fixed green and red → transmit all telegrams
 - fixed red → block telegrams
6. Status LED for forwarding telegrams with physical addresses
 - off → different telegram forwarding rules between main and sub line
 - fixed green → telegram forwarding according to the filter table
 - fixed green and yellow → transmit all telegrams
 - fixed yellow → block telegrams

7. Manual function key

Press the button key for at least 3 seconds to activate the manual function (defined by the ETS parameter in the menu). The green and red main line status LEDs (1) turn on to indicate activation of the function.

With the manual function active, press the button key for at least 3 seconds to reset normal operation.

NOTE: Once normal operation is reset, the last configuration downloaded from ETS is reloaded.

The manual function button key can also be used to reset the factory parameters (resetting the factory parameters and address 15.15.0):

- Press the button key for at least 15 seconds; the main line status LED (1), the sub line status LED (2) and the status LED for forwarding telegrams with group addresses (5) turn on green and red, whereas the status LED for forwarding telegrams with physical addresses (6) turns on yellow and green
- Release the button key and press it again for at least 3 seconds until the LEDs turn off briefly and then turn on again according to the configuration set for normal device operation. Reset of parameters and physical address completed

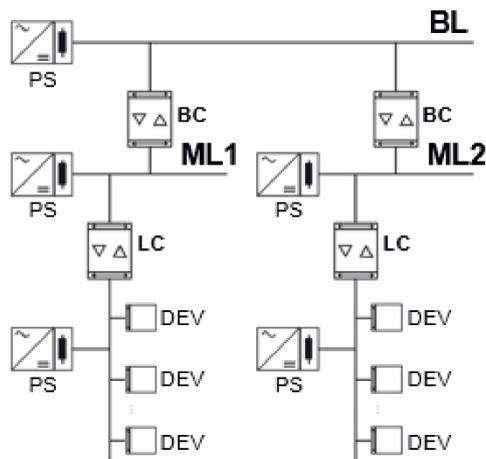
8. LED for programming

9. Button key for programming

10. Connection terminal for the main line

11. Connection terminal for the sub line

2.1 Line/area coupling



Line coupler (LC)

Physical address X.Y.0.

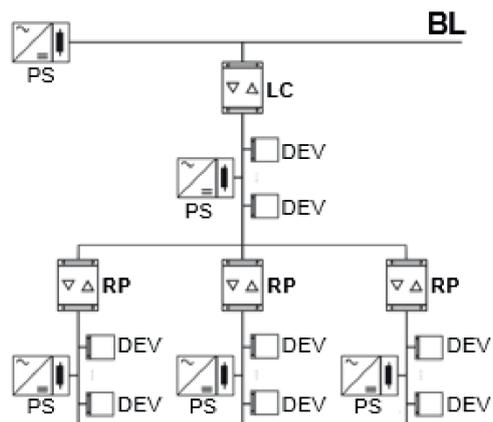
Connection of a main line (ML) with a field line. Logically, the coupler belongs to the field line.

Area coupler (BC)

Physical address X.0.0.

Connection of a main line (ML) with a backbone line (BL). Logically, the coupler belongs to the main line.

2.2 Repeater



Line repeater (RP)

Physical address X.Y.Z.

Transmission and repetition of telegrams on a line without a filter. Division of a line into max. 4 independent line segments with max. 3 repeaters connected in parallel for each line. Each line segment requires its own KNX power supply (PS).

3 "General" Menu (Coupler)

The **General** menu contains the parameters used to define the manual function of the local button key.

The basic structure of the menu is as follows:

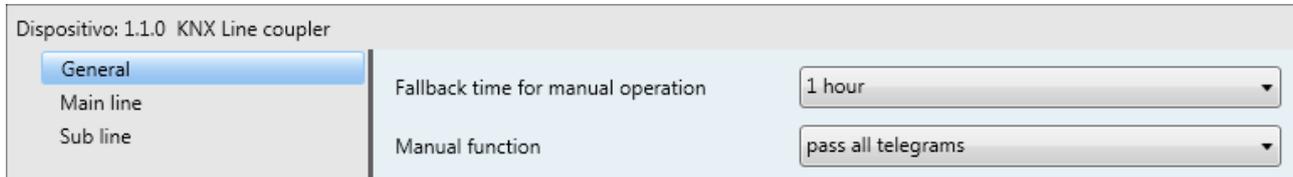


Fig. 3.1

3.1 Parameters

➤ 3.1.1 Fallback time for manual operation

The manual function activated by the device's local button key can be deactivated by pressing the button key or automatically after the preset time defined via the parameter "**Fallback time for manual operation**" elapses. The values that can be set are:

- 10 min
- **1 hour (default value)**
- 4 hours
- 8 hours

➤ 3.1.2 Manual function

This parameter can be used to define the manual function activated by the button key; the manual function makes it possible to temporarily change the telegram forwarding rules. The parameter may have the following values:

- disabled
- **pass all telegrams (default value)**
- pass physical telegrams
- pass group telegrams

4 "Main line" menu (Coupler)

The **Main line** menu contains the parameters used to define the rules for forwarding telegrams from the main line to the sub line.

The basic structure of the menu is as follows:

Fig. 4.1

4.1 Parameters

➤ 4.1.1 Configuration

This parameter can be used to select the rule for forwarding telegrams from the main line to the sub line from a preset list of rules; based on the selection made, the subsequent parameters are configured as a result; The values that can be set are:

- groups: filter physical: block
- **groups, physical: filter** (default value)
- groups: route, physical: filter
- groups, physical: route
- configure

by selecting **configure**, all the other parameters present in the configuration menu will be configurable. If any of the other values is selected, the parameters can be consulted but their value is preset and cannot be changed.

➤ 4.1.2 Group telegrams

This parameter is used to define the rule for forwarding telegrams whose recipient has a group and main group address between 0 and 13 (e.g. 0/x/x, 1/x/x ... 13/x/x); The values that can be set are:

- transmit all (for testing only)
all telegrams are forwarded
- block
no telegrams are forwarded
- **filter** (default value)
only the telegrams with an address present in the filter table are forwarded; remember that ETS automatically generates the filter tables for each coupler

➤ 4.1.3 Main group telegrams 14/15

This parameter is used to define the rule for forwarding telegrams whose recipient has a group and main group address 14 or 15 (e.g. 14/x/x, 15/x/x); The values that can be set are:

- **transmit all (default value)**
all telegrams are forwarded
- block
no telegrams are forwarded

➤ 4.1.4 Physical telegrams

This parameter is used to define the rule for forwarding telegrams whose recipient has a physical address (telegrams that are used during point-point communication, for example when programming a device); The values that can be set are:

- transmit all (for testing only)
all telegrams are forwarded
- block
no telegrams are forwarded
- **filter (default value)**
only the telegrams with an address present in the filter table are forwarded; remember that ETS automatically generates the filter tables for each coupler

➤ 4.1.5 Physical: Repetition if errors on main line

This parameter is used to enable the repetition of telegrams generated by the coupler if there is a transmission error on the main line (e.g. due to a receiver failure); in particular, this parameter refers to telegrams whose recipient has a physical address. The values that can be set are:

- no
no repetition in case of an error
- **normal (default value)**
in case of an error, the telegram is repeated up to a maximum of 3 attempts
- reduced
in case of an error, the telegram is repeated only once

➤ 4.1.6 Group: Repetition if errors on main line

This parameter is used to enable the repetition of telegrams generated by the coupler if there is a transmission error on the main line (e.g. due to a receiver failure); in particular, this parameter refers to telegrams whose recipient has a group address. The values that can be set are:

- no
no repetition in case of an error
- **normal (default value)**
in case of an error, the telegram is repeated up to a maximum of 3 attempts
- reduced
in case of an error, the telegram is repeated only once

➤ **4.1.7 Telegram confirmations on main line**

This parameter defines the rule for confirming telegrams (ACK) transmitted on the main line. The values that can be set are:

- **if routed (default value)**
the device sends the confirmation telegram for only the telegrams transmitted on the main line that are forwarded on the sub line
- **always**
the device sends the confirmation telegram for all telegrams on the main line, regardless if they are forwarded or not

➤ **4.1.8 Send confirmation on own telegrams**

This parameter is used to enable the function for automatically sending the confirmation telegram (ACK) for the telegrams sent by the device on the main line. The values that can be set are:

- **no (default value)**
when the device sends a telegram on the main line, it does not send the confirmation telegram (ACK) for that telegram; the telegram will be confirmed possibly by the devices on the main line
- **yes**
when the device sends a telegram on the main line, it also automatically sends the confirmation telegram (ACK) for that telegram, which does not need to be confirmed by the devices on the main line

5 "Sub line" Menu (Coupler)

The **Sub line** menu contains the parameters used to define the rules for forwarding telegrams from the sub line to the main line.

The basic structure of the menu is as follows:

Parameter	Value
Configuration	configure
Group telegrams	filter
Sub group telegrams 14 / 15	transmit all
Physical telegrams	filter
Physical: Repetition if errors on sub line	normal
Group: Repetition if errors on sub line	normal
Telegram confirmations on line	if routed
Send confirmation on own telegrams	no

Fig. 5.1

5.1 Parameters

➤ 5.1.1 Configuration

This parameter can be used to select the rule for forwarding telegrams from the sub line to the main line from a preset list of rules; based on the selection made, the subsequent parameters are configured as a result; The values that can be set are:

- groups: filter physical: block
- **groups, physical: filter** (default value)
- groups: route, physical: filter
- groups, physical: route
- configure

by selecting **configure**, all the other parameters present in the configuration menu will be configurable. If any of the other values is selected, the parameters can be consulted but their value is preset and cannot be changed.

➤ 5.1.2 Group telegrams

This parameter is used to define the rule for forwarding telegrams whose recipient has a group and main group address between 0 and 13 (e.g. 0/x/x, 1/x/x ... 13/x/x); The values that can be set are:

- transmit all (for testing only)
all telegrams are forwarded
- block
no telegrams are forwarded
- **filter (default value)**
only the telegrams with an address present in the filter table are forwarded; remember that ETS automatically generates the filter tables for each coupler

➤ 5.1.3 Sub group telegrams 14/15

This parameter is used to define the rule for forwarding telegrams whose recipient has a group and main group address 14 or 15 (e.g. 14/x/x, 15/x/x); The values that can be set are:

- **transmit all (default value)**
all telegrams are forwarded
- block
no telegrams are forwarded

➤ 5.1.4 Physical telegrams

This parameter is used to define the rule for forwarding telegrams whose recipient has a physical address (telegrams that are used during point-point communication, for example when programming a device); The values that can be set are:

- transmit all (for testing only)
all telegrams are forwarded
- block
no telegrams are forwarded
- **filter (default value)**
only the telegrams with an address present in the filter table are forwarded; remember that ETS automatically generates the filter tables for each coupler

➤ 5.1.5 Physical: Repetition if errors on sub line

This parameter is used to enable the repetition of telegrams generated by the coupler if there is a transmission error on the sub line (e.g. due to a receiver failure); in particular, this parameter refers to telegrams whose recipient has a physical address. The values that can be set are:

- no
no repetition in case of an error
- **normal (default value)**
in case of an error, the telegram is repeated up to a maximum of 3 attempts
- limited
in case of an error, the telegram is repeated only once

➤ **5.1.6 Group: Repetition if errors on sub line**

This parameter is used to enable the repetition of telegrams generated by the coupler if there is a transmission error on the sub line (e.g. due to a receiver failure); in particular, this parameter refers to telegrams whose recipient has a group address. The values that can be set are:

- **no**
no repetition in case of an error
- **normal (default value)**
in case of an error, the telegram is repeated up to a maximum of 3 attempts
- **reduced**
in case of an error, the telegram is repeated only once

➤ **5.1.7 Telegram confirmations on line**

This parameter defines the rule for confirming telegrams (ACK) transmitted on the sub line. The values that can be set are:

- **if routed (default value)**
the device sends the confirmation telegram for only the telegrams transmitted on the sub line that are forwarded on the main line
- **always**
the device sends the confirmation telegram for all telegrams on the sub line, regardless if they are forwarded or not

➤ **5.1.8 Send confirmation on own telegrams**

This parameter is used to enable the function for automatically sending the confirmation telegram (ACK) for the telegrams sent by the device on the sub line. The values that can be set are:

- **no (default value)**
when the device sends a telegram on the sub line, it does not send the confirmation telegram (ACK) for that telegram; the telegram will be confirmed possibly by the devices on the sub line
- **yes**
when the device sends a telegram on the sub line, it also automatically sends the confirmation telegram (ACK) for that telegram, which does not need to be confirmed by the devices on the sub line

6 “General” menu (Repeater)

The **General** menu contains the parameters used to define the manual function of the local button key.

The basic structure of the menu is as follows:

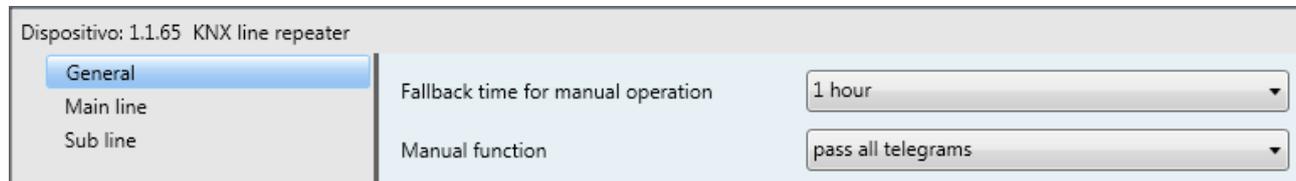


Fig. 6.1

6.1 Parameters

➤ 6.1.1 Fallback time for manual operation

The manual function activated by the device's local button key can be deactivated by pressing the button key or automatically after the preset time defined via the parameter “**Fallback time for manual operation**” elapses. The values that can be set are:

- 10 min
- **1 hour (default value)**
- 4 hours
- 8 hours

➤ 6.1.2 Manual function

This parameter can be used to define the manual function activated by the button key; the manual function makes it possible to temporarily change the telegram forwarding rules. The parameter may have the following values:

- disabled
- **pass all telegrams (default value)**
- pass physical telegrams
- pass group telegrams

7 "Main line" menu (Repeater)

The **Main line** menu contains the parameters used to define the rules for forwarding telegrams from the main line to the sub line.

The basic structure of the menu is as follows:

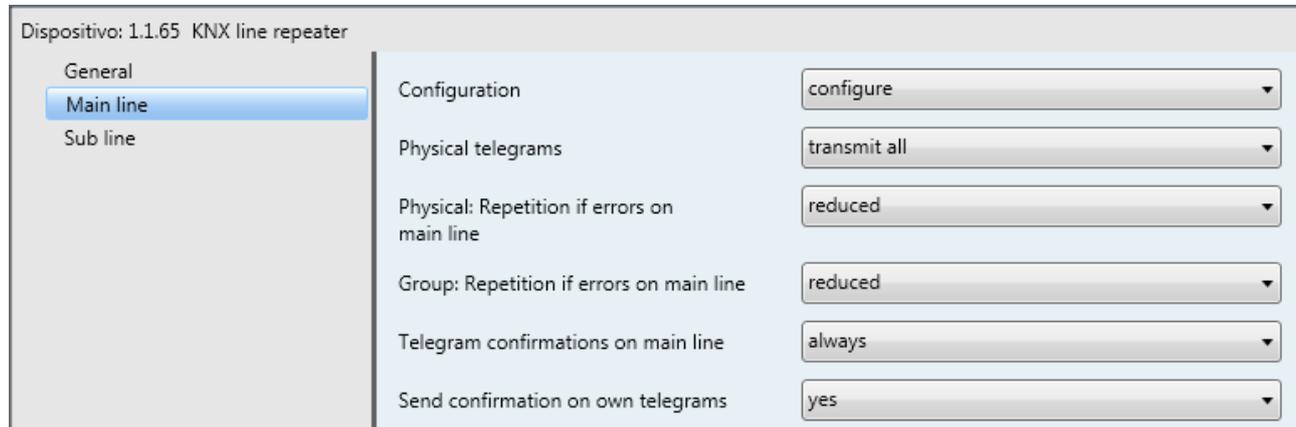


Fig. 7.1

7.1 Parameters

➤ 7.1.1 Configuration

This parameter can be used to select the rule for forwarding telegrams from the main line to the sub line from a preset list of rules; based on the selection made, the subsequent parameters are configured as a result; The values that can be set are:

- **group, physical: route** (default value)
- configure

by selecting **configure**, all the other parameters present in the configuration menu will be configurable. Selecting **group, physical: route**, the parameters can be consulted but their value is preset and cannot be changed.

➤ 7.1.2 Physical telegrams

This parameter is used to define the rule for forwarding telegrams whose recipient has a physical address (telegrams that are used during point-point communication, for example when programming a device); The values that can be set are:

- **transmit all** (default value)
all telegrams are forwarded
- block
no telegrams are forwarded

NOTE: The telegrams whose recipient has a group address are always forwarded.

➤ **7.1.3 Physical: Repetition if errors on main line**

This parameter is used to enable the repetition of telegrams generated by the repeater if there is a transmission error on the main line (e.g. due to a receiver failure); in particular, this parameter refers to telegrams whose recipient has a physical address. The values that can be set are:

- no
no repetition in case of an error
- normal
in case of an error, the telegram is repeated up to a maximum of 3 attempts
- **reduced (default value)**
in case of an error, the telegram is repeated only once

➤ **7.1.4 Group: Repetition if errors on main line**

This parameter is used to enable the repetition of telegrams generated by the repeater if there is a transmission error on the main line (e.g. due to a receiver failure); in particular, this parameter refers to telegrams whose recipient has a group address. The values that can be set are:

- no
no repetition in case of an error
- normal
in case of an error, the telegram is repeated up to a maximum of 3 attempts
- **reduced (default value)**
in case of an error, the telegram is repeated only once

➤ **7.1.5 Telegram confirmations on main line**

This parameter defines the rule for confirming telegrams (ACK) transmitted on the main line. The values that can be set are:

- if routed
the device sends the confirmation telegram for only the telegrams transmitted on the main line that are forwarded on the sub line
- **always (default value)**
the device sends the confirmation telegram for all telegrams on the main line, regardless if they are forwarded or not

➤ **7.1.6 Send confirmation on own telegrams**

This parameter is used to enable the function for automatically sending the confirmation telegram (ACK) for the telegrams sent by the device on the main line. The values that can be set are:

- no
when the device sends a telegram on the main line, it does not send the confirmation telegram (ACK) for that telegram; the telegram will be confirmed possibly by the devices on the main line
- **yes (default value)**
when the device sends a telegram on the main line, it also automatically sends the confirmation telegram (ACK) for that telegram, which does not need to be confirmed by the devices on the main line

8 "Sub line" menu (*Repeater*)

The **Sub line** menu contains the parameters used to define the rules for forwarding telegrams from the sub line to the main line.

The basic structure of the menu is as follows:

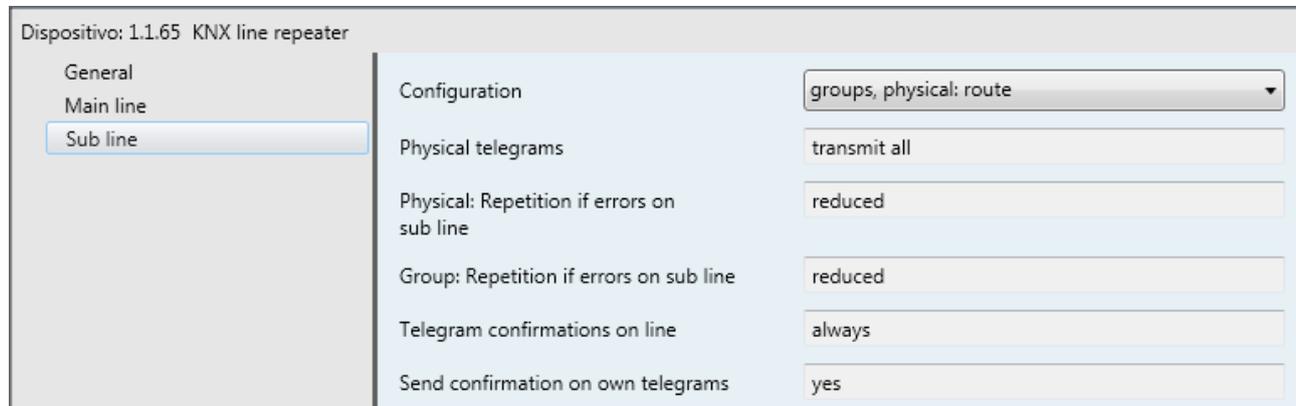


Fig. 8.1

8.1 Parameters

➤ 8.1.1 Configuration

This parameter can be used to select the rule for forwarding telegrams from the sub line to the main line from a preset list of rules; based on the selection made, the subsequent parameters are configured as a result; The values that can be set are:

- **group, physical: route** (default value)
- configure

by selecting **configure**, all the other parameters present in the configuration menu will be configurable. Selecting **group, physical: route**, the parameters can be consulted but their value is preset and cannot be changed.

➤ 8.1.2 Physical telegrams

This parameter is used to define the rule for forwarding telegrams whose recipient has a physical address (telegrams that are used during point-point communication, for example when programming a device); The values that can be set are:

- **transmit all** (default value)
all telegrams are forwarded
- block
no telegrams are forwarded

The telegrams whose recipient has a group address are always forwarded.

➤ **8.1.3 Physical: Repetition if errors on sub line**

This parameter is used to enable the repetition of telegrams generated by the repeater if there is a transmission error on the sub line (e.g. due to a receiver failure); in particular, this parameter refers to telegrams whose recipient has a physical address. The values that can be set are:

- no
no repetition in case of an error
- normal
in case of an error, the telegram is repeated up to a maximum of 3 attempts
- **reduced (default value)**
in case of an error, the telegram is repeated only once

➤ **8.1.4 Group: Repetition if errors on sub line**

This parameter is used to enable the repetition of telegrams generated by the repeater if there is a transmission error on the sub line (e.g. due to a receiver failure); in particular, this parameter refers to telegrams whose recipient has a group address. The values that can be set are:

- no
no repetition in case of an error
- normal
in case of an error, the telegram is repeated up to a maximum of 3 attempts
- **reduced (default value)**
in case of an error, the telegram is repeated only once

➤ **8.1.5 Telegram confirmations on line**

This parameter defines the rule for confirming telegrams (ACK) transmitted on the sub line. The values that can be set are:

- if routed
the device sends the confirmation telegram for only the telegrams transmitted on the sub line that are forwarded on the sub line
- **always (default value)**
the device sends the confirmation telegram for all telegrams on the sub line, regardless if they are forwarded or not

➤ **8.1.6 Send confirmation on own telegrams**

This parameter is used to enable the function for automatically sending the confirmation telegram (ACK) for the telegrams sent by the device on the sub line. The values that can be set are:

- no
when the device sends a telegram on the sub line, it does not send the confirmation telegram (ACK) for that telegram; the telegram will be confirmed possibly by the devices on the sub line
- **yes (default value)**
when the device sends a telegram on the sub line, it also automatically sends the confirmation telegram (ACK) for that telegram, which does not need to be confirmed by the devices on the sub line

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