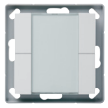
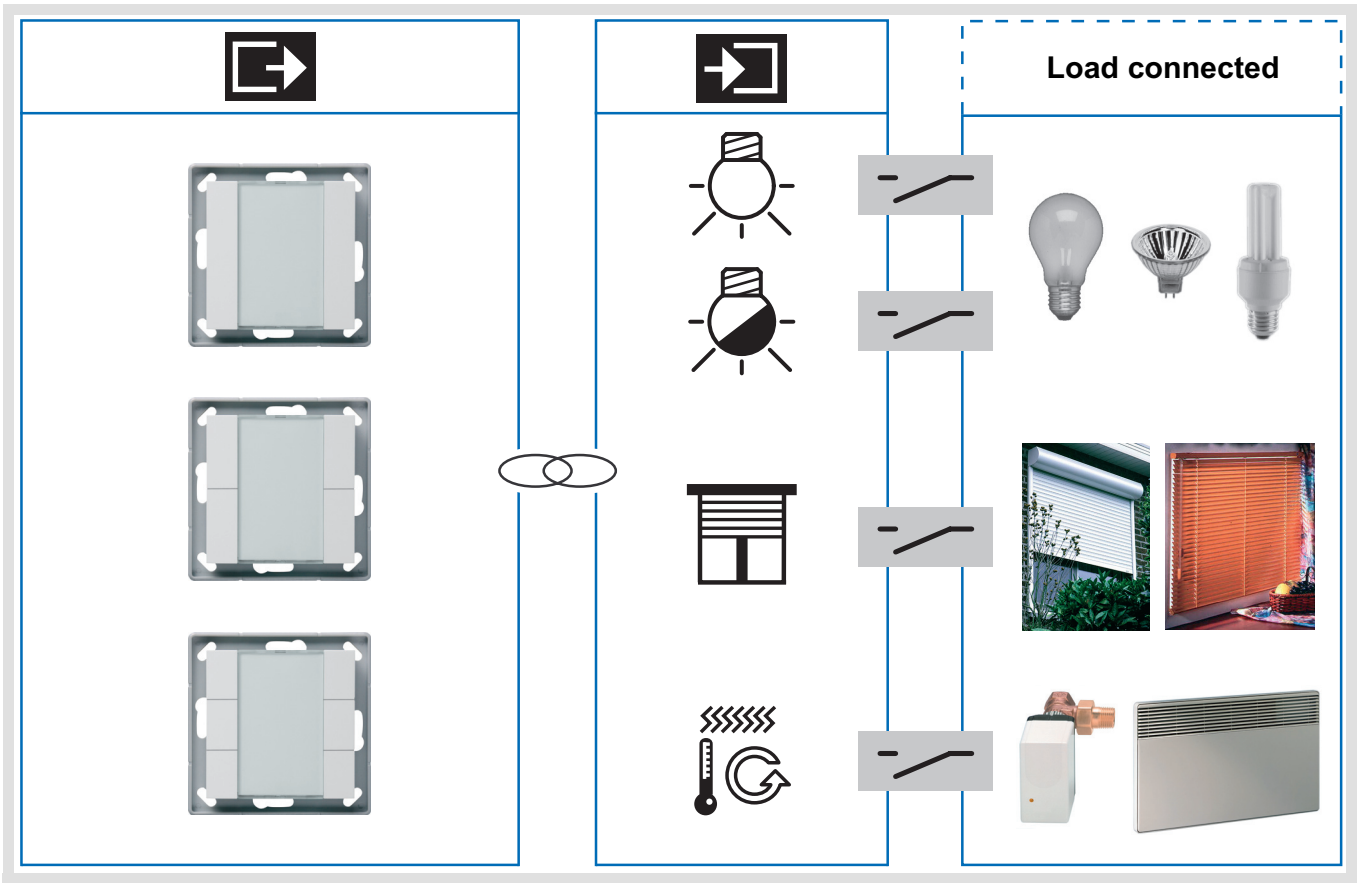
Operation with the tebis TX - TX100 link

Functions of the tebis RF pushbutton

Electrical/Mechanical characteristics: see user's instructions

	Product reference	Product designation	TX100 version	TP device RF device
	WYT32xF	KNX Tebis universal 2-keys RF pushbutton, battery powered	≥ 1.6.0	
	WYT34xF	KNX Tebis universal 4-keys RF pushbutton, battery powered	≥ 1.6.0	
	WYT36xF	KNX Tebis universal 6-keys RF pushbutton, battery powered	≥ 1.6.0	



Summary

1. Description of the functions of the tebis KNX RF Pushbuttons

■ ON/OFF, Dim, Shutters/Blinds, Heating/Cooling Setpoint selection

The Pushbuttons send commands to output devices so as to control lighting (ON/OFF, dim), shutters/blinds (up/down, slat angle/stop), heating/cooling (set point selection).

■ Timer

This function is used to switch on or off a switching output (lighting) for an adjustable period of time (time setting while establishing the link with the TX100).

■ Scene

This function is used to call and to store scenes for different kinds of outputs. Example of scene 1: Leaving the house (with centralised lighting control OFF, shutters on South side lowered to 3/4, the other shutters open, heating set to Economy (Absence)).

■ Breakdown of functions by product reference

Operation	WYT32xF, WYT34xF, WYT36xF
Number of inputs	**2**, **4**, **6** independent inputs
ON/OFF, Shutters/Blinds, Dim	✓
Timer	✓
Heating/Cooling Setpoint selection	✓
Scene	✓

✓: The product is equipped with this function

2. Configuration and parameterising of the Pushbutton functions

The Pushbuttons can send commands to the tebis TX plant to carry out the following functions:

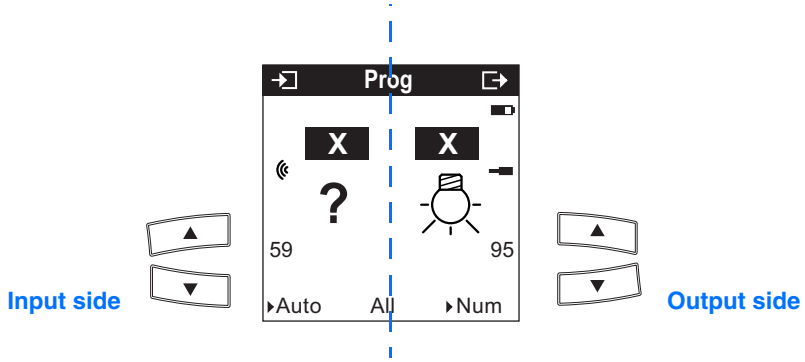
- Lighting control:
  Remote pushbutton (switch over every time when depressed), ON, OFF, ON/OFF (Press ➜ ON, Release ➜ OFF), Timer, Dimming on 1 or 2 pushbuttons.
- Roller shutter / Blind control:
  Up, Down, Stop, Blind slat angle, 1-button or 2-button control.
- Heating control:
  Comfort (Day), Economy (Absent), Reduction (Reduced), Frost-free, Timed Comfort.
- Scene controls (8 selecteble scenes per pushbutton).

These functions are set up in the standard configuration mode of the TX100 and linked with the appropriate output products.

Note: before carrying out a configuration, the pushbutton must be mounted on the WUT03 bus coupler.

2.1 Lighting control function

After push button numbering, the following functions can be selected for the output type (switching output).



X symbolizes a possible input or output number.

The inputs and outputs can easily be selected using the TX100's and keys.

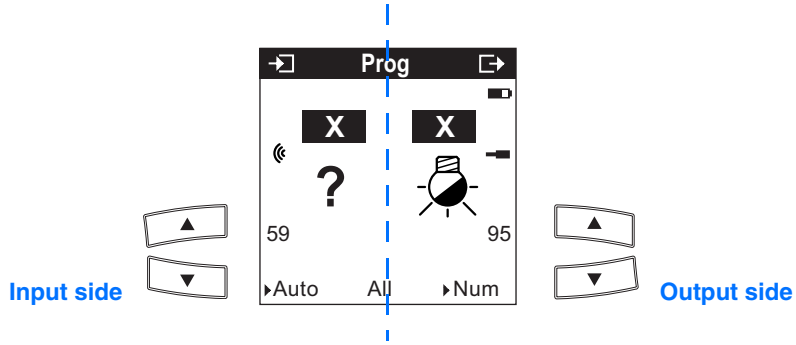
The key allows switching from the X input number zone to **?** function selection.

Key's possible functions		Description	Operation
?	Not used	Default value.	Selection of available pushbutton functions using the TX100's scroll keys.
	ON	The ON function switches the output channel (lighting) ON. For ex.: Central ON command.	Press on the key: Closing of the output contact. (No change after new key-press)
	OFF	The OFF function switches the output channel (lighting) OFF. For ex.: Central OFF command.	Press on the key: Opening of the output contact. (No change after new key-press).
	Toggle (toggle)	The toggle function will after each key press invert the status of the output circuit (lighting).	Press on the key: Status change of the output contact The status changes after each new key-press.
	Switch (Impulse output)	The switch function is required on the pushbutton to be able to carry out a pulse output. The switching output only closes as long as the key is pressed.	Press on the key: Closing of the output contact. Release the key: Opening of the output contact.
	Timer ON (Staircase timer)	The Timer ON function switches the output channel (lighting) to ON for an adjustable time. The ON timer duration is defined after link validation: * Setting range [0 s 24 h]: Not used, 1 s, 2 s, 3 s, 5 s, 10 s, 15 s, 20 s, 30 s, 45 s, 1 min, 1 min 15 s, 1 min 30 s, 2 min, 2 min 30 s, 3 min, 5 min, 15 min, 20 min, 30 min, 1 h, 2 h, 3 h, 5 h, 12 h, 24 h. The output automatically switches to OFF when the delay has expired.	Short (<0.5s) push button press: The output contact switches to ON for the set time. Long (>0.5 s) push button press: End of the current delay and opening of the output contact (Switching off). Pressing the key briefly (<0.5 s) one or more times within the first 10 s after switching on: Every time the key is pressed, the ON-switching time is increased by the time set for our TXA switching outputs. For example: ON duration 1 min within the first 10 s 5 key-presses (5+1) ➜ 6 min ON-switching time. Pressing the key briefly after the first 10 s of the ON-switching time: New start of the timer operation (retriggering).
	Timer OFF	The OFF Timer function switches the output channel (lighting) to OFF for an adjustable time. The OFF timer duration is defined after link validation: * Setting range [0 s 24 h]: Not used, 1 s, 2 s, 3 s, 5 s, 10 s, 15 s, 20 s, 30 s, 45 s, 1 min, 1 min 15 s, 1 min 30 s, 2 min, 2 min 30 s, 3 min, 5 min, 15 min, 20 min, 30 min, 1 h, 2 h, 3 h, 5 h, 12 h, 24 h. The output automatically switches to ON when the delay has expired.	Short (<0.5-s) key press: The output contact switches to OFF for the set time. Long (>0.5 s) push button press: Ending of the current Timer operation and closing of the output contact (switching ON). Pressing the key once or more times (<0.5 s) within the first 10 s after switching OFF: Every time the key is pressed, the OFF-switching time of our TXA switching outputs is increasesd by the time set. For example: OFF-switching time 1 min within the first 10 s 5 key-presses (5+1) ➜ 6 min OFF-switching time Pressing the key briefly after the first 10 s of the OFF-switching time: New start of the timer operation (retriggering).

* To be able to modify the ON-switching time, the link must be removed and restored afterwards. If several keys of the Timer function are linked, the time used is the time set with the last one.

2.2 Dimmer Lighting functions

After numbering the pushbutton, the following functions may be selected for the output type (dimming output).



X symbolizes a possible input or output number.

The inputs and outputs can easily be selected using the TX100's and keys.

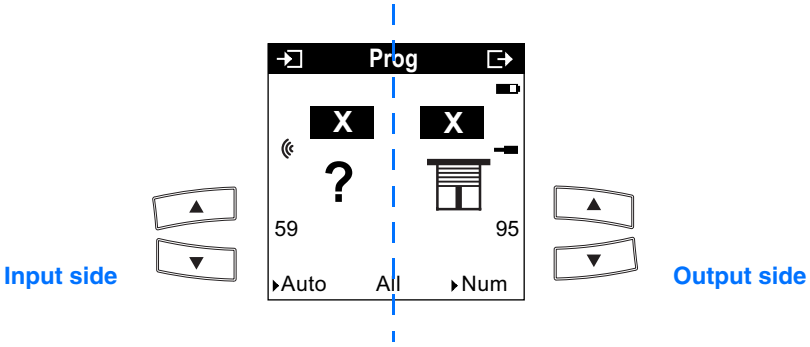
The key allows switching from the X input number zone to **?** function selection.

Key's possible functions		Description	Operation
?	Not used	Default value.	Selection of available pushbutton functions using the TX100's scroll keys.
	ON	The ON function switches on the lighting circuit. For ex.: Central ON command.	Press on the key: Switching ON (at the last value). (No change after new key-press)
	OFF	The OFF function switches off the lighting circuit. For ex.: Central OFF command.	Press on the key: Switching off. (No change after new key-press)
	Toggle (toggle)	The toggle function will after each key press invert the status of the lighting circuit. (ON ➜ OFF, OFF ➜ ON).	Press on the key: Output status toggle between switching ON (to the last brightness value) and switching OFF. The status is inverted after each new key-press.
	1 button	The 1-button Dimmer function allows dimming the light with one single pushbutton.	A short pushbutton press: Switching ON (at the last lighting value) or switching OFF. A long pushbutton press: Dimming up or down (dimming direction changes every time the key is pressed for a long time).
	2-buttons dimmer: Increase	The Increase Function allows increasing the output level.	A short pushbutton press: Switching on (at the last lighting value). A long pushbutton press: Increase.
	2-buttons dimmer: Reduction	The Reduction function allows decreasing the output level.	A short pushbutton press: Switching off. A long pushbutton press: Decrease.
	switch	The Switch function switches the lighting circuit ON or OFF.	Press on the key: Switching on (at the last lighting value). Release the key: Switching off.

Key's possible functions		Description	Operation
	Timer ON (toggle function like on a staircase timer)	The Timer ON function switches on the lighting circuit for an adjustable time. The OFF timer duration is defined after link validation: Setting range [0 s 24 h]: Not used, 1 s, 2 s, 3 s, 5 s, 10 s, 15 s, 20 s, 30 s, 45 s, 1 min, 1 min 15 s, 1 min 30 s, 2 min, 2 min 30 s, 3 min, 5 min, 15 min, 20 min, 30 min, 1 h, 2 h, 3 h, 5 h, 12 h, 24 h. The output switches to OFF when the delay has expired	Short (<0.5-s) key press: Switching on (at the last lighting value). The dimming output is switched OFF at the end of the timer delay. Another short key press: The timer operation starts again. The set time starts running again (retriggering). Long (>0.5 s) push button press: Stop of the current delay and switching OFF. Pressing the key once or more times (<0.5 s) within the first 10 s after switching OFF: Every time the key is pressed, the OFF-switching time of our TXA switching outputs is increasesd by the time set. For example: ON duration 1 min within the first 10 s 5 key-presses (5+1) ➜ 6 min ON-switching time Pressing the key briefly after the first 10 s of the ON-switching time: New start of the timer operation (retriggering).
	Timer OFF	The Timer OFF function switches the lighting circuit off for an adjustable time. The OFF timer duration is defined after link validation. Setting range [0 s 24 h]: Not used, 1 s, 2 s, 3 s, 5 s, 10 s, 15 s, 20 s, 30 s, 45 s, 1 min, 1 min 15 s, 1 min 30 s, 2 min, 2 min 30 s, 3 min, 5 min, 15 min, 20 min, 30 min, 1 h, 2 h, 3 h, 5 h, 12 h, 24 h. The output switches to ON when the delay has expired	Short (<0.5-s) key press: Switching off. The dimming output switches automatically to ON when the delay has expired (last dimming value). Another short key press during the OFF-switching time: The timer operation starts again. The set time starts running again (retriggering). Long (>0.5 s) push button press: Stop of the current delay and switching ON (last dimming value). Pressing the key once or more times (<0.5 s) within the first 10 s after switching OFF: Every time the key is pressed, the OFF-switching time of our TXA switching outputs is increasesd by the time set. For example: OFF-switching time 1 min within the first 10 s 5 key-presses (5+1) ➜ 6 min OFF-switching time Pressing the key briefly after the first 10 s of the OFF-switching time: New start of the timer operation (retriggering).

2.3 Shutters / Blinds control function

After push button numbering, one of the following functions can be selected to control output modules (shutters/blinds).



X symbolizes a possible input or output number.

The inputs and outputs can easily be selected using the TX100's and keys.

The key allows switching from the X input number zone to **?** function selection.

The table below describes the functionalities that can be obtained combining the Pushbuttons with the outputs:

Key's possible functions		Description	Operation
	Up/Stop	The Up/Stop function allows moving up or stopping a shutter or a blind, or inclining the slats of a blind.	Shutters mode*: Short (<0.5-s) key press: Stop Long (>0.5 s) push button press: Shutter Up Blinds mode*: Short (<0,5-s) key press: Stop or Blind slat angle Long (>0,5 s) push button press: Blind Up
	Down/Stop	The Down function allows moving down or stopping a shutter or a blind, or inclining the slats of a blind.	Shutters mode*: Short (<0.5-s) key press: Stop Duration of long key-press (>500 ms): Shutter Down Blinds mode*: Short (<0.5-s) key press: Stop or Blind slat angle Long (>0.5) s) push button press: Blind Down

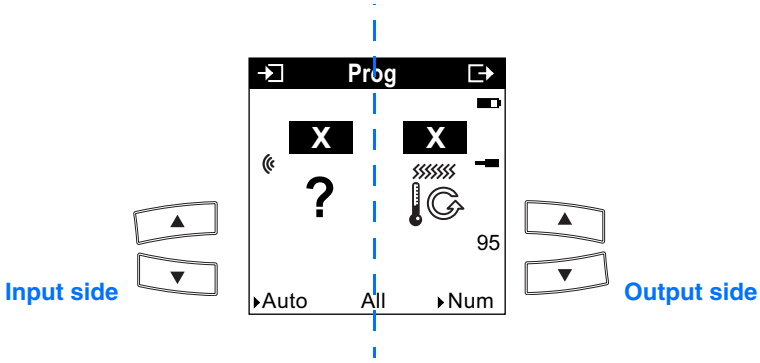
Key's possible functions		Description	Operation
	Up/Down/Stop	The Up/Down function allows moving up, down or stopping a shutter or a blind with one single pushbutton.	Only the functions of the Shutters mode are active, the slat angle function of a blind is not possible*. Repeated key press: closing of the Up/Down output contacts for a limited time in the order Up, Stop, Down.

* Note: The operating mode and the running times for Up and Down (closing of the outputs) can be found in the TX100 under >> Device management / Device information ➜ Select the device ➜ Param. << setting. To finish, realize a download.

2.4 Heating / Cooling setpoint selection function

The pushbuttons WY Txxx allow controlling the setpoints (Comfort, Reduced, etc.), e.g. TX460A, WYT61x. For the setpoint selection, the thermostat will be represented by the symbol displayed on the right side of the TX100 in Prog mode.

After push button numbering, one of the following functions can be selected to control output modules (thermostats).



X symbolizes a possible input or output number.

The inputs and outputs can easily be selected using the TX100's and keys.

The key allows switching from the **X** input number zone to **?** function selection

Also refer to the following table with the symbols of the operating modes for the various thermostats.

Key's possible functions		Description	Operation
?	Not used	Default value	Selection of available pushbutton functions using the TX100's scroll keys.
	Comfort - Presence	This function activates the Comfort mode of a thermostat.	Press on the key: Comfort mode activation. This activation is cancelled by any other mode activation.
	Reduced	This function activates the Reduced mode of a thermostat.	Press on the key: Reduced mode activation. This setpoint will be cancelled by any other mode activation command.

Key's possible functions		Description	Operation
	Timed Comfort	The Delayed Comfort function actives the Comfort setpoint for an adjustable time. The duration of the activation is selected after validation of the link: Setting range [0 s 24 h]: Not used, 1 s, 2 s, 3 s, 5 s, 10 s, 15 s, 20 s, 30 s, 45 s, 1 min, 1 min 15 s, 1 min 30 s, 2 min, 2 min 30 s, 3 min, 5 min, 15 min, 20 min, 30 min, 1 h, 2 h, 3 h, 5 h, 12 h, 24 h. Default value: 30 min.	Short (< 0.5-s) key press: Activation of the Comfort mode for the set time. Long (> 0.5 s) push button press: Back to the original mode. When the activation time has elapsed, the termostat switches back automatically to the original mode. This setpoint will be cancelled by any other mode activation command.
	Timed reduced	The Timed reduced function activates the Reduced mode for an adjustable time The OFF timer duration is defined after link validation: Setting range [0 s 24 h] Not used, 1 s, 2 s, 3 s, 5 s, 10 s, 15 s, 20 s, 30 s, 45 s, 1 min, 1 min 15 s, 1 min 30 s, 2 min, 2 min 30 s, 3 min, 5 min, 15 min, 20 min, 30 min, 1 h, 2 h, 3 h, 5 h, 12 h, 24 h. Default value: 30 min.	Short (> 0.5-s) key press: Activation of the Timed reduced mode for the set time. Long (> 0.5 s) push button press: Back to the original mode. When the activation time has elapsed, the termostat switches back automatically to the original mode. This setpoint will be cancelled by any other mode activation command.
	Eco - Absence	This function selects the Economy setpoint of a thermostat.	Press on the key: Activation of the Economy mode. This setpoint will be cancelled by any other mode activation command.
	Frost-free	The Frost-free function is used to select, when heating, the Frost-free function and, when cooling, the Equipment protection function.	Press on the key: Selection of the Frost-free or Equipment protection mode. This setpoint will be cancelled by any other mode activation command.

The following table shows, for each of the setpoints, the symbols used on the various thermostats.

Set point	Icon		
	WYT61X	TX460	TX320
Comfort			
Economy			
Reduced			
Frost-free			
Equipment protection			Function not available

2.5 Scene function

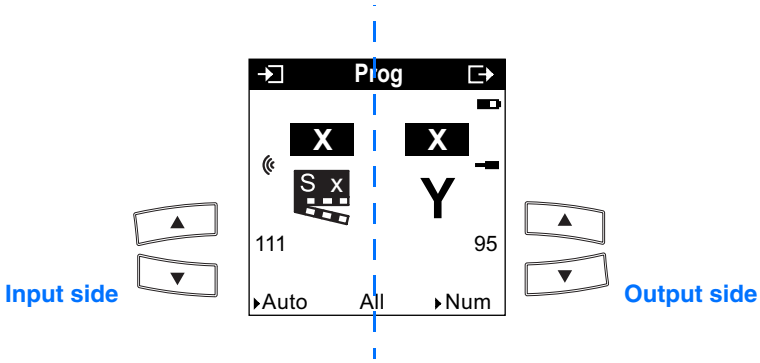
The Scene function allows calling and storing predefined output values.

The outputs can be of the same type or different types (lighting, shutters/blinds, heating, etc.).

Example of scene 1: Leaving the house (with centralised lighting control OFF, shutters on South side lowered to 3/4, the other shutters open, heating set to Economy (Absence)).

Example of scene 2: Shutters lowered, light on, heating set to Comfort.

To assign the Scene function to a key, select the symbol  (x represents a scene number between 1 and 8).



x represents a scene number between 1 and 8
X stands for a input or output number
Y represents the output type (switch, dim, shutter/blind or heating/cooling setpoint selection)

The table below describes possible link types.

Key's possible scene function	Operation	Description	Possible action on output	Output operation
?	Not used	Default value	Selection of available pushbutton functions using the TX100's scroll keys.	?
 to 	Scene 1 to 8	Various output types (lighting, shutters/blinds, heating setpoint selection, etc.) can be linked to all scenes (No. 1 to 8). Up to 8 scenes can be associated to each key.	ON/OFF 	Short (<0.5-s) key press: The devices linked with this scene set themselves to the values stored in the devices for this scene. Long (>6 s) push button press: The current values for the outputs (lighting, Ssutters status, heating setpoint, etc..) arestored in the actuator for this scene.
			Dim 	
			roller shutters Up / Down 	
			Heating/Cooling adjustment 	

3. Battery status and status LEDs configuration

Function of the indicator light
The indicator light lights up briefly after a key has been pressed:

- Brief lighting: the command was sent.
- Blinking 1 sec: the device is not configured.
- Fast blinking 1 sec or no indication: Battery too weak, it must be replaced as soon as possible.

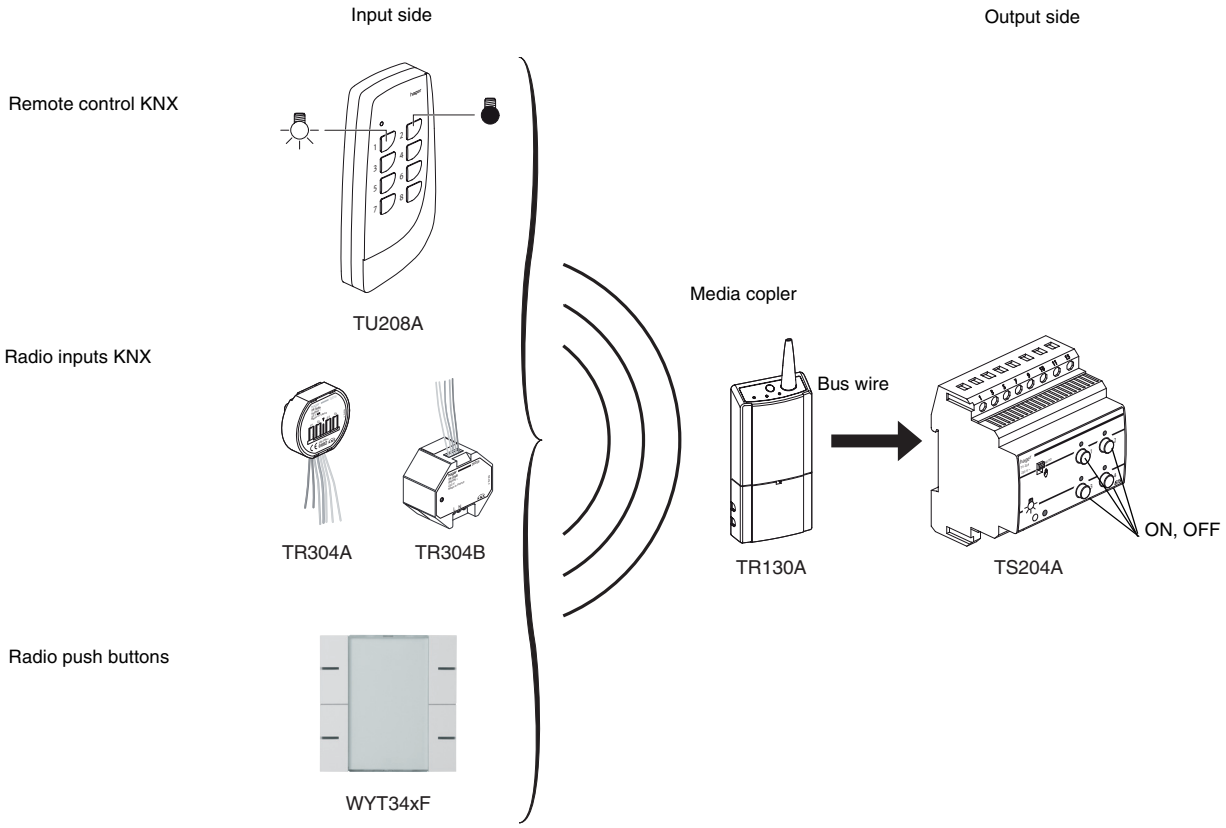
4. Expert mode programming

Expert mode allows integrating KNX RF products in an installation parameterised with ETS.

Extension with KNX 868 MHz RF products.
e.g. remote control: TU204A; TU208A; TU224A
Pushbutton interface: TR302A/B; TR304A/B
Wall-mounted pushbutton: TD1xx; TD2xx; TD3xx

Application
Control of 4 outputs of a TXA204A with the functions Central On (key 1) and Central Off (key 2) using the TU208A remote control.

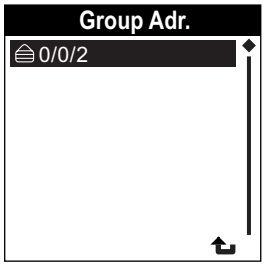
Example using the TU208A RF remote control.



Steps

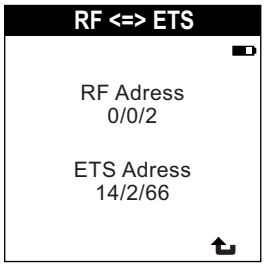
- Connect the media coupler TR130A with 230 V and with the EIB bus
- Insert new SM card in the TX100
- Switch on the TX100
- Answer Yes to the question Plant with TP devices
- Assign the media coupler as described on the display, minimum distance media coupler <-> TX100: 1 m
- Switch over to the Num mode (Num display key)
- Number key 1 of the remote control as described on the display and assign the function Light ON
- Number key 2 of the remote control as described on the display and assign the function Light ON
- Activate the Expert mode:
- Press the large key on the side of the TX100, select Expert... and confirm with - activate - press the side key again to leave this menu
- Switch over to the Prog mode and select Input (here 1)
- Press the Expert display key (central key underneath the display)
- The following display appears:

- confirm with
- The following display appears



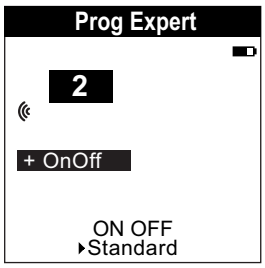
- Switch over to the RF <-> ETS menu with
- The following display appears:

- Press the key underneath ETS
- The following display appears:



- Write down the ETS group address and, in the ETS project, set up the link with the 4 switching objects of the TXA204A
- Press the right hand key underneath the display to exit the RF <-> ETS menu (2x)

- Press ✓ for a long time to exit the function
- Proceed the same way for the other inputs
- Press the central display key to switch over to the Standard mode



- Back to the Auto mode (press the central display key; press the left-hand display key)
- Download of the TXA204A with the ETS
- TX100 can be switched off

The remote control controls now the 4 outputs of the TXA204A with the On and Off functions.

Note:
The project data or the RF KNX products are stored on the Smart Media card in the TX100. The data or this card are required in case of changes at the plant. This is why the card must be archived - the data can also be read by a standard card reader and stored on a fixed disk.

4.1 ON/OFF function

This function is used to switch On and Off switching and dimming outputs

Tebis Tx		**ETS WDL361A application**			Function
Icon	Object name	Object designation	Length	Flags	
	IOnOff	Key Status indication ON/OFF	1 bit	CRW-U	When the status LED is configured for Status indication in the product information (refer to 4.1), this object allows switching the LED On and Off.
	OnOff	Key ON/OFF	1 bit	CR-TU	According to the defined function, a 1, a 0 or alternately a 1 and a 0 will be output. (Refer also to 2.2).

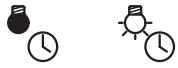
4.2 Dimming function

This function allows dimming / switching lighting circuits. With a short key press, the Pushbutton outputs an On or an Off command via the OnOff object. With a long key press, the Pushbutton outputs a dimming Up or dimming Down command via the DimCrl object.

Tebis Tx		**ETS WDL361A application**			Function
Icon	Object name	Object designation	Length	Flags	
	IOnOff	Key Status indication ON/OFF	1 bit	CRW-U	When the status LED is configured for Status indication in the product information (refer to 4.1), this object allows switching the LED On and Off.
	OnOff	Key ON/OFF	1 bit	CR-TU	A short pushbutton press: If the value of the IOnOff object is 1, a 0 is sent on the Bus and conversely.
	DimmCtrl	Key Dim	4 bit	CR-TU	A long pushbutton press: The dimming Up command or the dimming Down command is sent on the bus. The dimming direction changes with every long key press.
	OnOff	Key ON/OFF	1 bit	CR-TU	A short pushbutton press:  , a 1  , a 0 is sent.
	DimmCtrl	Key Dim	4 bit	CR-TU	A long pushbutton press: During setting:  a dim Up command.  a dim Down command. is sent.

4.3 Timer function

This function allows starting the Timer operation.
In standard programming mode with the TX100, the duration of the delay is defined after link validation. The defined delay is transferred to the output module when downloading the TX100 programming.
The delay cannot be set in Expert mode; for that, a standard link first has to be set up between an input with the Timer function and an output. When the link is broken, the delay downloaded to the output remains stored in memory.
In Timer ON and Timer OFF operation, the delay is initiated by the emission of a 1 to the Timer object. The action to be performed, output module switched to ON or OFF for the set time, is stored in the output module. To save the function in the output, you must first create a link with a parameterised input with the desired ON or OFF function. The selected function remains stored in memory, even after link breakage.

Tebis Tx		**ETS WDL361A application**			Function
Icon	Object name	Object designation	Length	Flags	
	IOnOff	Key Status indication ON/OFF	1 bit	CRW-U	When the status LED is configured for Status indication in the product information (refer to 4.1), this object allows switching the LED On and Off.
	Timer	Key Timer	1 bit	CR-TU	A short key-press sends a 1 via the Timer object. A long key-press sends a 0 via the Timer object.

4.4 Shutters / blinds control function

This function controls shutters/blinds. A long key-press sends raising or lowering commands to the bus via the Up/Down object. With a short key press, the Pushbutton outputs a stop or slat angle command via the Stop/Angle object.

Tebis Tx		**ETS WDL361A application**			Function
Icon	Object name	Object designation	Length	Flags	
	IOnOff	Key Status indication ON/OFF	1 bit	CRW-U	When the status LED is configured for Status indication in the product information (refer to 4.1), this object allows switching the LED On and Off.
	StepStop	Key Slat angle/stop	1 bit	CR-TU	Every key-press sends alternately 0 and 1 via the StepStop and UpDown objects.
	UpDown	Key Shutters/Blinds	1 bit	CR-TU	
	StepStop	Key Slat angle/stop	1 bit	CR-TU	With a short key press, the Pushbutton outputs a 1 via the StepStop object.
	UpDown	Key Shutters/Blinds	1 bit	CR-TU	With a long key press, the Pushbutton outputs, with the setting  a 0.  a 1.

4.5 Heating setpoint selection function

This function is used to select the setpoint for heating/air-conditioning.
The 1-octet heating setpoint object sends the following values.

Values	Product designation	Icon
0	Auto	
1	Comfort	
2	Economy	
3	Reduced (night)	
4	Frost-free	

Tebis Tx		ETS WDL361A application			Function
Icon	Object name	Object designation	Length	Flags	
	HvacMod	Key Setpoint selection	1 bit	CR-TU	Depending on the selected function, the Auto, Comfort, Economy, Reduced or Frost-free commands are sent on the bus (refer to the following table). In case of double symbols, switching between the two setpoints is possible.

4.6 Scene control function

A short key-press sends a Scene object with a value of between 0 and 31 (value 0 = scene 1, value 31 = scene 32) to the bus. The command is sent when the pushbutton is released.
With a long key press (>6s), the Pushbutton sends a value between 128 and 159 [(scene number-1) + 128] on the bus.

Construction of the 1-octet scene object:

Bit no.							
7	6	5	4	3	2	1	0
Store	X	Scene number (0 means Scene 1)					

X= Not significant

Tebis Tx		**ETS WDL361A application**			Function
Icon	Object name	Object designation	Length	Flags	
	Scene	Key Scene	1 byte	CR-TU	A short key-press sends the selected scene call on the bus via the Scene object. A key-press longer than 6 s sends the storage command for the selected scene on the bus.