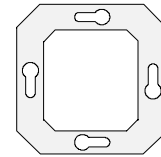


4-gang standard push button sensor 'TSM'



Sensor

Product name 4-gang standard push button sensor 'TSM'	
Design: flush-mounted (UP)	
Article. no. 2074 TSM	
ETS search path: Push button / Push button 4-gang / 4-gang standard push button sensor 'TSM'	
Issue: 21.09.2005	
Functional description:	
<p>The 4-gang standard push button sensor 'TSM' is plugged onto a flush-mounted bus coupling unit (BCU) (cf. connection diagram). After a press on the key, the push button sensor will transmit software-dependent telegrams to the KNX / EIB. These may be telegrams for switching, pushbutton operation, dimming or for shutter control. It is also possible to program value-transmitting functions such as dimming value transmitter or light-scene extension units A blue operation LED can serve as orientation lighting.</p>	
Layout:	<div data-bbox="167 907 651 1579" data-label="Diagram"> </div>
Dimensions:	<p>Width: 70 mm (without frame)</p> <p>Height: 70 mm (without frame)</p> <p>Depth: 7 mm (without PEI)</p>
Controls:	<p>A: 4 rockers (keys 1 to 8: key-press on upper and lower half of respective rocker)</p> <p>The device is operated with the corresponding push button sensor module covers. The covers must be ordered separately: 4 x FD..904 TSA..</p> <p>Covers with article nos. FD..90x TSA NA.. can be labelled. For labelling, commercial-grade foils can be printed with the JUNG inscription software and inserted into the keys.</p> <p>B: 4 status LEDs (red), one per rocker</p> <p>C: 1 operation LED (blue)</p>
Technical Data	
Type of protection:	IP 20
Safety class:	III
Mark of approval:	KNX / EIB
Ambient temperature:	-5 °C ... +45 °C
Storage / transport temperature:	-25 °C ... +70 °C (storage above +45 °C reduces the lifetime)
Mounting position:	any
Minimum distances:	none
Type of fastening:	plugging onto flush-mounted (BCU 1)
KNX / EIB supply	
Voltage:	21 – 32 V DC (SELV) via flush-mounted BCU
Power consumption:	typically 150 mW
Connection:	2 x 5-pole pin contact strip
External supply	---

Response to bus voltage failure

Bus voltage only:

object values are deleted, LEDs extinguished

Response on return of bus voltage

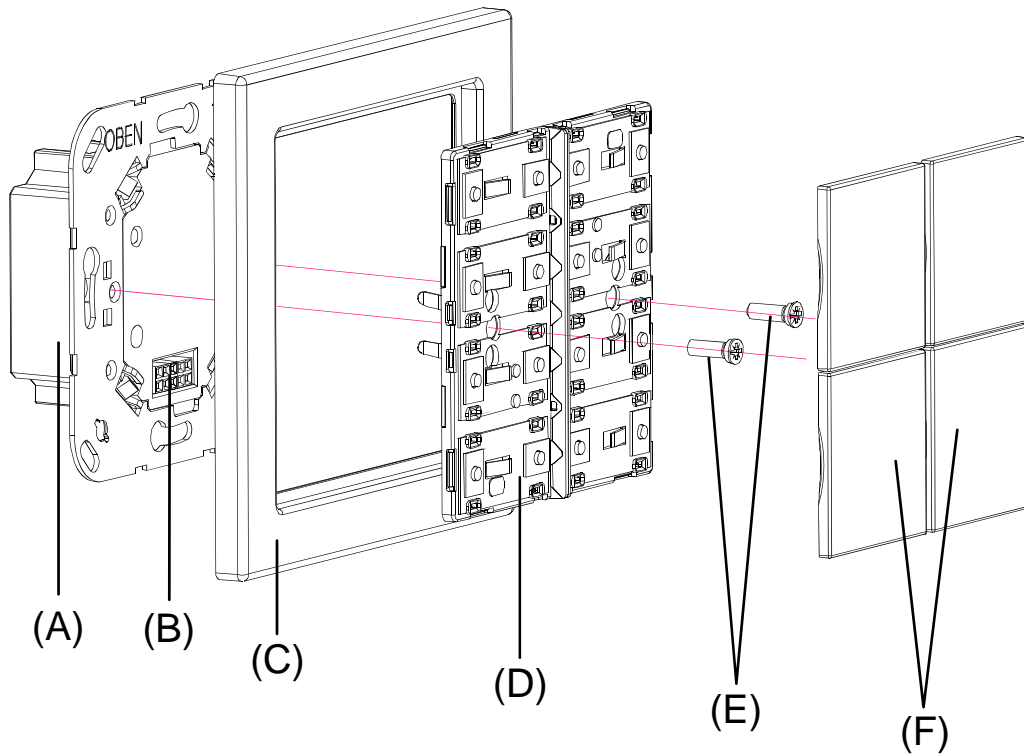
Bus voltage only:

no reaction

Input:

Output:

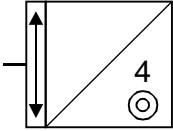
Connection and terminals:




Fitting:

- Connect the KNX/EIB bus coupling unit (A) to the KNX/EIB and install in a flush-mounting box. If possible, program the bus coupler beforehand with the physical address.
- Plug the 4-gang standard push button sensor 'TSM' (D) together with decorative frame (C) on the KNX/EIB bus coupling unit in such a way that both devices are interconnected via user interface (B).
- Fasten the 4-gang standard push button sensor 'TSM' with the plastic screws (E) supplied with the device to the KNX/EIB bus coupling unit. The screws serve as a protection against removal or theft. Tighten the plastic screws without using force. Important: Use only the plastic screws supplied with the device. Metal screws are not admissible. Risk of irreparable damage to the device caused by electrostatic discharge.
- The covers must be ordered separately: The covers must be snapped one after another onto the 4-gang standard push button sensor 'TSM'. Make sure the covers are fitted in correct position (marking TOP on the inside). The covers are installed permanently by snapping them onto the device.


Hardware remarks

Software description			
ETS search path:		ETS symbol:	
Push button / Push button 4-gang / 4-gang standard push button sensor 'TSM'			
PEI type	0E _{Hex}	14 _{Dec}	Serial synchronous interface
Applications:			
No.	Summarized description:	Name:	Version:
1	Switching, status	Switching, status 102E01	0.1
2	Switching, acknowledgement	Switching, acknowledgement 102F01	0.1
3	Dimming	Dimming 102D01	0.1
4	Shutter	Shutter 102C01	0.1
5	Value transmitter	Value transmitter 101D01	0.1


Application:		1. Switching, status 102E01		
Executable from mask version:		1.0		
Number of addresses (max):		13	dynamic table handling:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Number of assignments (max):		13	maximum length of table:	26
Communication objects:		4		
Object	Function	Name	Type	Flag
<input checked="" type="checkbox"/> 0	Switching	Rocker 1	1 bit	C, W, T
<input checked="" type="checkbox"/> 1	Switching	Rocker 2	1 bit	C, W, T
<input checked="" type="checkbox"/> 2	Switching	Rocker 3	1 bit	C, W, T
<input checked="" type="checkbox"/> 3	Switching	Rocker 4	1 bit	C, W, T
Object description				
Objects:				
<input checked="" type="checkbox"/> 0 - 3	Switching:	1-bit object for the transmission of switching telegrams (ON, OFF)		
Scope of functions				
<ul style="list-style-type: none"> • Function of operating LED and of status LED parameterizable • Command on key press parameterizable (ON, OFF) 				

Parameters		
Description:	Values:	Remarks:
 General		
Operation LED	OFF ON	Defines the status of the operation LED.
Function status LED	OFF ON	Defines the status of the status LED.
Command on pressing of keys 1/3/5/7	OFF ON	Defines the command transmitted on pressing of key 1/3/5/7.
Command on pressing of keys 2/4/6/8	OFF ON	Defines the command transmitted on pressing of key 2/4/6/8.
Software remarks <ul style="list-style-type: none"> The status LED indicates the current status of the switching object. If a key is pressed (e.g. ON) and if the push button sensor does <u>not</u> get a positive acknowledgement (IACK) from an addressed actuator, the object status is updated, but the corresponding status LED is <u>not</u> lit up. 		






Application:		2. Switching, acknowledgement 102F01		
Executable from mask version:		1.0		
Number of addresses (max):		10	dynamic table handling:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Number of assignments (max):		10	maximum length of table:	20
Communication objects:		4		
Object	Function	Name	Type	Flag
<input checked="" type="checkbox"/> 0	Switching	Rocker 1	1 bit	C, W, T
<input checked="" type="checkbox"/> 1	Switching	Rocker 2	1 bit	C, W, T
<input checked="" type="checkbox"/> 2	Switching	Rocker 3	1 bit	C, W, T
<input checked="" type="checkbox"/> 3	Switching	Rocker 4	1 bit	C, W, T
Object description				
Objects:				
<input checked="" type="checkbox"/> 0 – 3	Switching:	1-bit object for the transmission of switching telegrams (ON, OFF)		
Scope of functions				
<ul style="list-style-type: none"> • Function of operating LED and of status LED parameterizable • Command on key press parameterizable (ON, OFF) 				

Parameters										
Description:	Values:	Remarks:								
 General										
Operation LED	OFF ON	Defines the status of the operation LED.								
Function status LED	OFF ON	Defines the status of the status LED.								
LED ON-time for rocker 1 thru 4	<table border="0"> <tr> <td>0.75 s</td> <td>4.5 s</td> </tr> <tr> <td>1.5 s</td> <td>6.0 s</td> </tr> <tr> <td>2.25 s</td> <td>10 s</td> </tr> <tr> <td>3.0 s</td> <td>15 s</td> </tr> </table>	0.75 s	4.5 s	1.5 s	6.0 s	2.25 s	10 s	3.0 s	15 s	Defines the time during which the status LED is on in case of a positive acknowledgement of receipt from an addressed actuator.
0.75 s	4.5 s									
1.5 s	6.0 s									
2.25 s	10 s									
3.0 s	15 s									
Command on pressing of keys 1/3/5/7	OFF ON	Defines the command transmitted on pressing of key 1/3/5/7.								
Command on pressing of keys 2/4/6/8	OFF ON	Defines the command transmitted on pressing of key 2/4/6/8.								
Software remarks <ul style="list-style-type: none"> The status LED is on for a parameterizable time in case of a positive acknowledgement from an addressed actuator. If a key is pressed (e.g. ON) and if the push button sensor does <u>not</u> get a positive acknowledgement (IACK) from an addressed actuator, the object status is updated, but the corresponding status LED is <u>not</u> lit up. 										







Application:		3. Dimming 102D01		
Executable from mask version:		1.0		
Number of addresses (max):		12	dynamic table handling:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Number of assignments (max):		12	maximum length of table:	24
Communication objects:		8		
Object	Function	Name	Type	Flag
<input checked="" type="checkbox"/> 0	Switching	Rocker 1	1 bit	C, W, T
<input checked="" type="checkbox"/> 1	Switching	Rocker 2	1 bit	C, W, T
<input checked="" type="checkbox"/> 2	Switching	Rocker 3	1 bit	C, W, T
<input checked="" type="checkbox"/> 3	Switching	Rocker 4	1 bit	C, W, T
<input type="checkbox"/> 4	Dimming	Rocker 1	4 bit	C, T
<input type="checkbox"/> 5	Dimming	Rocker 2	4 bit	C, T
<input type="checkbox"/> 6	Dimming	Rocker 3	4 bit	C, T
<input type="checkbox"/> 7	Dimming	Rocker 4	4 bit	C, T
Object description				
Objects:				
<input checked="" type="checkbox"/> 0 – 3	Switching:	1-bit object for the transmission of switching telegrams (ON, OFF)		
<input type="checkbox"/> 4 – 7	Dimming:	4-bit object for change of relative brightness between 0 and 100 %		
Scope of functions				
<ul style="list-style-type: none"> Function of operating LED and of status LED parameterizable 				




Parameters		
Description:	Values:	Remarks:
 General		
Operation LED	OFF ON	Defines the status of the operation LED.
Function status LED	OFF ON	Defines the status of the status LED.
Software remarks <ul style="list-style-type: none"> The status LED indicates the current status of the switching object. If a key is pressed (e.g. ON) and if the push button sensor does <u>not</u> get a positive acknowledgement (IACK) from an addressed actuator, the object status is updated and the corresponding status LED is lit up. 		

Application:		4. Shutter 102C01		
Executable from mask version:		1.0		
Number of addresses (max):		12	dynamic table handling:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Number of assignments (max):		12	maximum length of table:	24
Communication objects:		8		
Object	Function	Name	Type	Flag
<input type="checkbox"/> 0	Short-time operation	Rocker 1	1 bit	C, W, T
<input type="checkbox"/> 1	Short-time operation	Rocker 2	1 bit	C, W, T
<input type="checkbox"/> 2	Short-time operation	Rocker 3	1 bit	C, W, T
<input type="checkbox"/> 3	Short-time operation	Rocker 4	1 bit	C, W, T
<input type="checkbox"/> 4	Long-time operation	Rocker 1	1 bit	C, W, T
<input type="checkbox"/> 5	Long-time operation	Rocker 2	1 bit	C, W, T
<input type="checkbox"/> 6	Long-time operation	Rocker 3	1 bit	C, W, T
<input type="checkbox"/> 7	Long-time operation	Rocker 4	1 bit	C, W, T
Object description				
Objects:				
<input type="checkbox"/> 0 – 3	Short-time operation:	1-bit object for short-time operation of a shutter		
<input type="checkbox"/> 4 – 7	Long-time operation	1-bit object for long-time operation of a shutter		
Important: Unused communication objects must be projected with dummy group addresses. Otherwise risk of malfunctions.				
Scope of functions				
<ul style="list-style-type: none"> • Function of operation LED parameterizable • Time between two telegrams (time between STEP and MOVE) presettable 				

Parameters		
Description:	Values:	Remarks:
 General		
Operation LED	OFF ON	Defines the status of the operation LED.
 Rocker 1		
Time between two telegrams, base	130 ms (fixed)	Defines the time base between two telegrams. (Time between STEP and MOVE) Time = base • factor
Time between two telegrams, factor (3...127)	3...127; 3	Defines the time factor between two telegrams. (Time between STEP and MOVE) Time = base • factor Presetting: 130 ms • 3 = 390 ms
 Rocker 2		
See rocker 1		
 Rocker 3		
See rocker 1		
 Rocker 4		
See rocker 1		

Application:		5. Value transmitter 101D01		
Executable from mask version:		1.0		
Number of addresses (max):		1	dynamic table handling:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Number of assignments (max):		1	maximum length of table:	2
Communication objects:		1		
Object	Function	Name	Type	Flag
<input type="checkbox"/> 0	Value / light-scene	Rockers	1 byte	C, T
Object description				
Objects:				
<input type="checkbox"/> 0	Value / light-scene	1-byte object for transmitting value telegrams of for recalling light-scenes		
Scope of functions				
<ul style="list-style-type: none"> • Function of operating LED and of status LED parameterizable • Mode of operation (value transmitter / light-scene recall with / without storage function) freely selectable • Values (1 byte) or light-scene numbers (1...8) for all keys individually parameterizable 				

Parameters		
Description:	Values:	Remarks:
 General		
Operation LED	OFF ON	Defines the status of the operation LED.
Function status LED	OFF ON	Defines the status of the status LED.
Mode of operation	Value transmitter Light-scene recall without storage function Light-scene recall with storage function	Defines the function of the push button sensor.
 Rocker 1 with "Mode of operation = value transmitter"		
Wert (0...255) upper key	0 ... 255; 1	Defines the value transmitted when the upper key is pressed.
Value (0...255) lower key	0 ... 255; 4	Defines the value transmitted when the lower key is pressed.
 Rocker 1 with "Mode of operation = light-scene recall with / without storage function"		
Light-scene (1...8) Upper key	1 ... 8; 1	Defines the value transmitted when the upper key is pressed.
Light-scene (1...8) Lower key	1 ... 8; 4	Defines the value transmitted when the lower key is pressed.
 Rocker 2 with "Mode of operation = value transmitter"		
Value (0...255) left key	0 ... 255; 2	Defines the value transmitted when the upper key is pressed.
Value (0...255) right key	0 ... 255; 5	Defines the value transmitted when the lower key is pressed.
 Rocker 2 with "Mode of operation = light-scene recall with / without storage function"		
Light-scene (1...8) Upper key	1 ... 8; 2	Defines the value transmitted when the upper key is pressed.
Light-scene (1...8) Lower key	1 ... 8; 5	Defines the value transmitted when the lower key is pressed.
 Rocker 3 with "Mode of operation = value transmitter"		
Wert (0...255) upper key	0 ... 255; 3	Defines the value transmitted when the upper key is pressed.
Value (0...255) lower key	0 ... 255; 6	Defines the value transmitted when the lower key is pressed.

 Rocker 3 with "Mode of operation = light-scene recall with / without storage function"		
Light-scene (1...8) Upper key	1 ... 8; 3	Defines the value transmitted when the upper key is pressed.
Light-scene (1...8) Lower key	1 ... 8; 6	Defines the value transmitted when the lower key is pressed.
 Rocker 4 with "Mode of operation = value transmitter"		
Wert (0...255) upper key	0 ... 255; 4	Defines the value transmitted when the upper key is pressed.
Value (0...255) lower key	0 ... 255; 8	Defines the value transmitted when the lower key is pressed.
 Rocker 4 with "Mode of operation = light-scene recall with / without storage function"		
Light-scene (1...8) Upper key	1 ... 8; 4	Defines the value transmitted when the upper key is pressed.
Light-scene (1...8) Lower key	1 ... 8; 8	Defines the value transmitted when the lower key is pressed.
Software remarks <ul style="list-style-type: none"> • Light-scene extension unit: When a key is pressed for more than 1 s, the parameterized light-scene is recalled and the pertaining status LED switched on for about 1 s. If a key is pressed during a light-scene recall with storage function for more than 5 s, a storage telegram corresponding to the parameterized light-scene will be transmitted and the status LED is lit up for 4 s. Pressing a key with storage function for a time between 1 s and 5 s is without effect. The status LED lights up after a key-press only in conjunction with a positive acknowledgement (IACK) from an addressed actuator. • Value transmitter: The status LED lights up after a key-press only in conjunction with a positive acknowledgement (IACK) from an addressed actuator. 		