1-fold Busch-triton® switch sensor, FM

Type: 6321-xx

The switch sensor application module is placed on a flush-mounted bus coupler or a flush-mounted switch actuator/sensor.

The 1-fold switch sensor can send e.g. switching, dimming or shutter control telegrams to EIB actuators.

Under the operating element there is an LED which can flash red or green.

The operating element has a labelling field with backlighting.

A flush-mounted bus coupler or a flush-mounted switch/actuator sensor are required.

Technical Data

Power supply	– EIB	24 VDC, via the bus line
Operating and display elements	– 1 rocker with 2 switch contacts	red / green
	– 1 backlit labelling field	
Connections	– Flush-mounted bus coupler or flush-mounted switch actuator/sensor	10-pole plug connector
Type of protection	– IP 20, EN 60 529 mounted on the bus coupler	
Ambient temperature range	– Operation	- 5 °C ... 45 °C
	– Storage	-25 °C ... 55 °C
	– Transport	-25 °C ... 70 °C
Design	– Busch-triton®	
Colour	– amber obsidian palladium titanium platinum bronze studio white, matt alabaster/studio white hansa blue cobalt blue diamond black alpine white light grey champagne metallic	
Mounting	– latched onto the flush-mounted bus coupler	
Dimensions	– 84.5 x 90 mm (H x W)	
Weight	– 0.04 kg	
Certification	– EIB-certified	
CE norm	– in accordance with the EMC guideline and the low voltage guideline	

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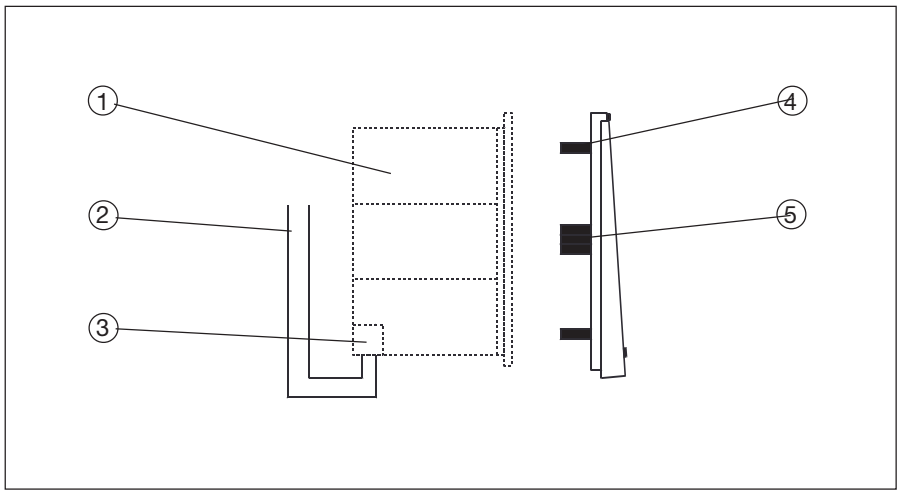
Application programs	Number of communication objects	Max. number of group addresses	Max. number of associations
For **bus coupler FM**:			
Switch LED /4	3	8	9
Switch Edge Flexible allocation /4	4	8	8
Switch Dim LED /4	4	8	8
Shutter LED /1	4	8	8
Value (EIS 6) LED /4	3	8	8
For **Switch actuator/ -sensor**:			
Switch Logic Priority Status Stairc.fct /2	4	7	8
For 1-fold **switch-/dimmactuator, FM:***			
Switch Dim Shutter Flex. allaocation Logic Status /3	10	16	21

* A detailed description of the applications for the flush-mounted, compact devices can be found in the technical manual, chapter “Sensor/actuator combinations, FM”

Circuit diagram



1 Flush-mounted bus coupler
2 Bus cable
3 Bus terminal
4 Application module
5 10-pole plug

Note

When installing two Busch-triton® switch sensors horizontally, a distance of 112 mm is recommended (using 2 flush-type spacers e.g. 2 x Kaiser spacers 91).

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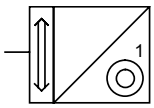
Switch LED /4



Selection in ETS2

– ABB
  └Push Button triton
    └Push button, single

Switch

The switch sensor toggles between “On” and “Off” telegrams, regardless of whether the left or right side of the rocker is operated.

LED

With the parameters “Function of the LED” and “Colour of the LED”, it can be determined whether the LED is switched off, displays the value of the object "LED" or as an orientation light always glows the same colour.

If the LED is to be used as an orientation light, the ETS2 does not display the "LED" communication object.

Via the object “Backlighting/LED”, the LED and the backlighting of the text field can be switched on or off.

Communication objects

No.	Type	Object name	Function
0	1 bit	Rocker	Telegr. switch
1	1 bit	LED	Change colour
2	1 bit	Backlighting/ LED	Switch

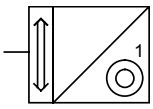
Parameters
The default setting for the values is **printed in bold type.**

– Function of the LED	LED off **LED indicates object value** orientation light
only for display of object value:	
– Colour of the LED	**"0" = green, "1" = red** "0" = red, "1" = green
only for orientation light:	
– Colour of the LED	**green** red

1-fold Busch-triton® switch sensor, FM

Type: 6321-xx

Switch Edge
Flexible allocation /4



Selection in ETS2

– ABB
  └Push Button triton
    └Push button, single

Switch

The switch sensor has two communication objects “Object A” and “Object B” that can send switching telegrams.

Edge

With the parameters “Reaction to close left contact”, “Reaction to open left contact” and the corresponding parameters for the right contact, it can be determined when the push button sends “On” or “Off” telegrams.

Flexible allocation

With this parameter setting, it can be freely determined which communication object is used for sending switching telegrams.

With the parameters “Function of the LED” and “Colour of the LED”, it can be determined whether the LED is switched off, displays the value of the object "LED" or as an orientation light always glows the same colour.

If the LED is to be used as an orientation light, the ETS2 does not display the "LED" communication object.

Via the object “Backlighting/ LED”, the LED and the backlighting of the text field can be switched on or off.

Communication objects

No.	Type	Object name	Function
0	1 bit	Object A	Telegr. switch
1	1 bit	Object B	Telegr. switch
2	1 bit	LED	Change colour
3	1 bit	Backlighting/ LED	Switch

Parameters
The default setting for the values is **printed in bold type.**

– Function of the LED	LED off **LED indicates value of object** orientation light
only for display of object value:	
– Colour of the LED	**"0" = green, "1" = red** "0" = red, "1" = green
only for orientation light:	
– Colour of the LED	**green** red
Separate for left and right rocker:	
– Reaction to close … contact	no reaction **defined switching** toggle
does not apply if “no reaction” is selected:	
– "Close … contact" allocated to	**Object A** Object B
only for “defined switching”:	
– Value of object	**ON** OFF
– Reaction to open … contact	**no reaction** defined switching toggle
does not apply if “no reaction” is selected:	
– "Open … contact" allocated to	**Object A** Object B
only for “defined switching”:	
– Value of object	**ON** OFF

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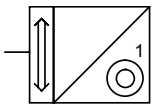
Switch Dim LED /4



Selection in ETS2

– ABB
  └Push Button triton
    └Push button, single

Switch

When the push button is pressed for a short period, the switch sensor sends alternately “On” or “Off” telegrams.

Dim

When the push button is pressed for a long period, the switch sensor sends dimming telegrams. Via the parameter “Dimming direction”, it can be determined which side of the rocker is pressed to dim up or down.

When the push button is released, a “Stop dimming” telegram is sent.

LED

With the parameters “Function of the LED” and “Colour of the LED”, it can be determined whether the LED is switched off, displays the value of the object "LED" or as an orientation light always glows the same colour.

If the LED is to be used as an orientation light, the ETS2 does not display the "LED" communication object.

Via the object “Backlighting/LED”, the LED and the backlighting of the text field can be switched on or off.

Communication objects

No.	Type	Object name	Function
0	1 bit	Rocker -short	Telegr. switch
1	4 bit	Rocker -long	Telegr. relative dimming
2	1 bit	LED	Change colour
3	1 bit	Backlighting/ LED	Switch

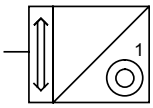
Parameters
The default setting for the values is **printed in bold type.**

– Function of the LED	LED off **LED indicates value of object** orientation light
only for display of object value:	
– Colour of the LED	**"0" = green, "1" = red** "0" = red, "1" = green
only for orientation light:	
– Colour of the LED	**green** red
– Dimming direction	**left brighter / right darker** left darker / right brighter

1-fold Busch-triton® switch sensor, FM

Type: 6321-xx

Shutter LED /1



Selection in ETS2

– ABB
  └Push Button triton
    └Push button, single

Shutter

In the default setting “shutter sensor”. the push button sends a “Move shutter up/down” telegram if it is pressed for a long period. When it is pressed for a short period, it sends an “Adjust lamella / stop” telegram.

Via the parameter “Shutter direction”, it can be established which side of the rocker is operated for upwards or downwards movement.

LED

With the parameters “Function of the LED” and “Colour of the LED”, it can be determined whether the LED is switched off, displays the value of the object "LED" or as an orientation light always glows the same colour.

If the LED is to be used as an orientation light, the ETS2 does not display the "LED" communication object.

Via the object “Backlighting/LED”, the LED and the backlighting of the text field can be switched on or off.

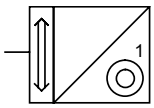
Communication objects

No.	Type	Object name	Function
0	1 bit	Rocker -long	Telegr. move shutter Up-Down
1	1 bit	Rocker -short	Telegr. lamella adj. / stop
2	1 bit	LED	Change colour
3	1 bit	Backlighting/ LED	Switch

Parameters
The default setting for the values is **printed in bold type.**

– Function of the LED	LED off **LED indicates value of object** orientation light
only for display of object value:	
– Colour of the LED	**"0" = green, "1" = red** "0" = red, "1" = green
only for orientation light:	
– Colour of the LED	**green** red
– Shutter direction	**left up / right down** left down / right up

Value (EIS 6) LED /4



Selection in ETS2

– ABB
  └Push Button triton
    └Push button, single

Value (EIS 6)

When the rocker is pressed, the switch sensor sends 1 byte value telegrams to the bus. The values for the left and right contact can be set separately in a range of 0 to 255.

LED

With the parameters “Function of the LED” and “Colour of the LED”, it can be determined whether the LED is switched off, indicates the value of the object "LED" or as an orientation light always lights up in the same colour.

If the LED is to be used to display the object value, the size of the object (1 bit or 1 byte) can be selected in the parameter setting.

If the LED is used as an orientation light, the ETS2 does not display the "LED" communication object.

Via the object “Backlighting/ LED”, the LED and the backlighting of the text field can be switched on or off.

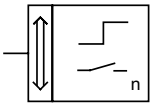
Communication objects

No.	Type	Object name	Function
0	1 byte	Rocker	Telegr. value
1	1 bit	LED	Change colour
2	1 bit	Backlighting/ LED	Switch

Parameters
The default setting for the values is **printed in bold type.**

– Function of the LED	LED off **LED indicates value of object** orientation light
only for display of object value:	
– Size of LED object	**1 bit** 8 bit (1 byte)
– Colour of the LED	**"0" = green, "1 …" = red** "0" = red, "1 …" = green
only for orientation light:	
– Colour of the LED	**green** red
– Left push button - value on pressing (0-255)	**255**
– Right push button - value on pressing (0-255)	**0**

Switch Logic Priority Status Stairc.fct /2



Selection in ETS2

– ABB
  └Push Button triton
    └Push button, single for 1SA

The application program is specifically for the 1-fold *triton*® switch sensor application module in connection with the flush-mounted switch actuator/ sensor.

Switch

In the default setting, the output switches on when it receives a telegram with the value “1” and switches off on receipt of a telegram with the value “0”. If the parameter “Switch function” is set to “normally closed contact”, the relay closes when it receives a telegram with the value “0” and opens on receipt of a telegram with the value “1”.

If the rocker of the application module is pressed once, the communication object no. 0 sends an “On” telegram. If it is pressed again, the object sends an “Off” telegram.

Logic

Using the parameter “Logical connection”, it is possible to specify an AND or an OR connection. In both cases the ETS2 program displays an additional communication object for the output. The output then links the value of communication objects 0 and 1 and switches the relay according to the result.

Priority

If the parameter “Additional function …” is set to “Priority”, the ETS2 program displays a further communication object. With the 2 bit communication object, the actuator can be positively driven by a primary control (e.g. application controller). There are three different states:

– The priority object has the value “3”. The value of the switching object is not important. The output is switched on through priority control.
– The priority object has the value “2”. The value of the switching object is not important. The output is switched off through priority control.
– The priority object has the value “1” or “0”. The output is not priority controlled. It is operated via the switching object.

If the actuator is priority controlled, changes to the 1 bit object are stored, even if the current switching state has not been directly changed as a result. When the priority controlled operation has finished, a priority operation takes place according to the current value of the switching object.

Status

If the parameter “Additional function …” is set to “Status display”, the ETS2 program displays a further 1 bit communication object. This communication object sends a telegram each time the actuator is switched. The value “1” means that the relay has accepted the active switching state in accordance with the parameter “Switch function”.

In the default setting, the LED displays the status of the relay by its change in colour. Alternatively it can as an orientation light always glow the same colour. Via the communication object no. 3, the LED and the backlighting of the text field can be switched on or off.

Staircase lighting function

In the operation mode “Staircase lighting function”, the output switches on immediately after receiving an “On” telegram. Once the time specified in the two parameters “Time base” and “Factor” has elapsed, the relay automatically opens. If the output receives further “On” telegrams during this interval, the period restarts each time.

If both a logical connection and a staircase lighting function have been assigned, the time setting only applies if the actuator is switched via object no. 0.

On bus voltage failure, the relay contact is opened. When the bus voltage is restored, the output can either switch in the set state or recover the state that was active prior to the bus voltage failure. If the output is defined as switching on or off, the actuator takes the “Switch function” parameter into account.

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Communication objects

No.	Type	Object name	Function
0	1 bit	Output/push button	Switch / Telegr. switch
3	1 bit	Backlighting/LED	Switch

Communication objects
for OR connection

No.	Type	Object name	Function
0	1 bit	Output/push button	Switch / Telegr. switch
1	1 bit	Output A	OR connection

Communication objects
for AND connection

No.	Type	Object name	Function
0	1 bit	Output/push button	Switch / Telegr. switch
1	1 bit	Output A	AND connection

Communication objects
for additional function “Priority”

No.	Type	Object name	Function
…			
2	1 bit	Output A	Priority

Communication objects
for additional function “Status display”

No.	Type	Object name	Function
…			
2	1 bit	Output A	Telegr. status

Parameters
The default setting for the values is **printed in bold type.**

– Switch function	**normally open contact** normally closed contact
– Operation mode	**normal operation** staircase lighting function
only for staircase lighting function:	
– Time base for staircase lighting function	130 ms / … / **520 ms** / … / 1.2 h
– Factor for staircase lighting function (2 … 127)	**8**
– Logical connection	**no logical connection** OR connection AND connection
– Additional status or priority function	**no additional function** priority status display
– Default position on bus voltage failure	**contact opened**
– Behaviour on bus voltage recovery	**recover previous state** switch on switch off
– Function of the LED	orientation light **LED indicates status of relay**
only for orienation light:	
– Colour of the LED	**green** red
only for display of relay status:	
– Colour of the LED	**“OFF” = green, “ON” = red** “OFF” = red, “ON” = green