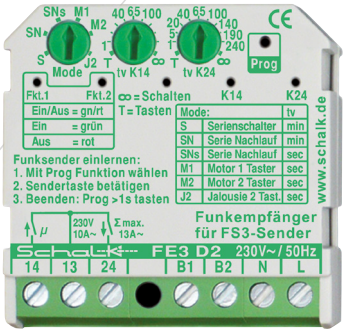
Radio-controlled switch FE3 D2

2 relays, with timer functions and additional operating modes
Compact receiver with 2 relays. Special operating modes for motor controls (roller shutters, blinds, gateways, etc.). Pushbutton or switch modes with timer functions and group control. Two programmable inputs for wired pushbuttons.

Special features

- 6 operating modes for: serial connection, contact status transmission as well as motor and blind controls
- runtime modes: pushbutton mode, switching with or without time monitoring
- transmitter button functions: *„defined On“* and *„defined Off“* or *„one-button On/Off“* programmable
- 2 freely programmable inputs for local pushbuttons
- Free-field range 50m
- Antenna built into housing
- Repeater available to increase range
- Very small enclosure fits in flush mounted switch boxes
- 2 potential-free normally open contacts for 10A/250V AC



General information

The FE3 S2 radio remote-control receiver switch is equipped with two potential-free closing contacts that can be used for wireless switching with the FS3 series of hand-held or fixed-mounted radio transmitters. The 3 functions („On/Off“, „On“, „Off“) can be assigned to any of the transmitter buttons or one of the wired pushbutton inputs B1/B2. The „On/Off“ function (toggling on and off using a single button) is used for individual control. Using the dedicated „On“ and „Off“ functions, several receivers can be switched simultaneously (for example for group or centralized control).
The relay can be operated in switch mode or pushbutton mode (with or without timer functions). Pushbutton mode can be used for example, to control a door opener or a push-button dimmer.

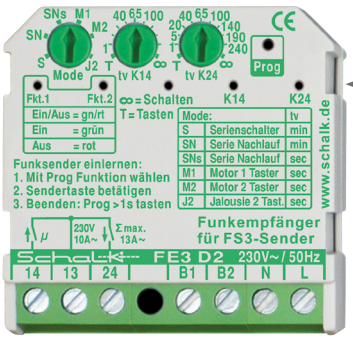
Application

Wireless control of lamps, motors (roller shutters, blinds, gateways, ventilators ...).

Function

In serial switch operation mode the relays can be operated in “push-button mode” or in “switching mode”, with or without time monitoring. In motor operating modes M1 and M2, the relays are interlocked.
In M1 mode (1-button motor control) one transmitter button generates the switching sequence “Up, Stop, Down, Stop”.
In M2 mode (2-button motor control) two transmitter buttons (one for each direction) generate the switching sequence „Up, Stop“ and „Down, Stop“ respectively.
In mode J2 (2-button blind control), the blades‘ angle can be exactly adjusted by the „short-push mode“ (short push <1s), or set to a defined angle after moving up or down.
Using the dedicated „On“ and „Off“ functions, several receivers can be switched simultaneously (for example for group or centralized control).
The „time stretch in pushbutton mode“ (in modes SN and SNs) provides an easy way to implement a long contact time for use with a transmitter in periodic mode. The run-time set here is used to bridge the time until an new transmitter signal retriggers a new switch period. If signals are no longer received from the transmitter, then the FE3 D2 switches off after the timeout. (eg used for motion detectors, heating thermostats, etc.).

1. Default setting and installation
1.1 Controls and displays



„Mode“ setting:

S **Serial switch:** The hold time in minutes can be set separately (see “Runtime setting”).

SN **Serial switch with after-run time (in minutes):** The after-run time in minutes can be set separately (see “Runtime setting”). “ON” and „ON/OFF“ functions have a re-triggering operation.

SNs **Serial switch with after-run time (in seconds):** Same as the SN mode, but the after-run time is adjustable in seconds.

M1 **Motor control:** 1-button motor control. One transmitter button generates the switching sequence “Up, Stop, Down, Stop”. Run-time in seconds.

M2 **Motor control:** 2-button motor control. Two transmitter buttons (one for each direction) generate the switching sequence „Up, Stop“ and „Down, Stop“ respectively. Run-time in seconds.

J2 **Blind control:** 2-button blind control with short push mode (short push, <1s) for easy adjustment of blade angle. The blind runtime (starting after long push of the button >1s) can be set up using dial „tv K14“. The counter-direction pulse is adjusted using the right-hand dial „tv K24“ (a special scale from 0 to 1.2s applies here). The counter-direction pulse starts once the blind has stopped.

Each mode change causes the relays to switch off and LED „Fkt. 1“ blinks red once.

„tv K14“ setting:

Sets the timeout of the relay K14. *(Special function in J2 mode: here timeouts for both relays K14 and K24 are set simultaneously)*

T	Pushbutton mode (relay only switched on during transmission)
1...240	Switch mode with timeout in seconds, the relay then automatically switches off
∞	Switch mode without timeout (all changes to the switch state are done manually)

„tv K24“ setting:

Sets the timeout of the relay K14. *(Special function in J2 mode: here this dial sets the counter-direction pulse using special scale 0 to 1.2s)*

T	Pushbutton mode (relay only switched on during transmission)
1...240	Switch mode with timeout in seconds, the relay then automatically switches off
∞	Switch mode without timeout (all changes to the switch state are done manually)

„Prog“ programming button:

This button is used to enable/disable programming mode, select programming functions or restore the factory default settings (refer to the section on programming)

LEDs: Fkt. 1, Fkt. 2, K14, K24:

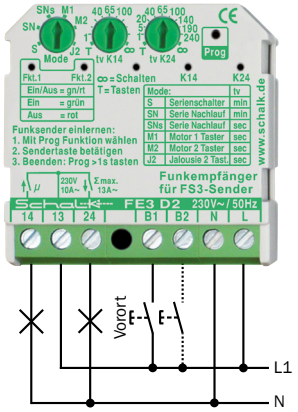
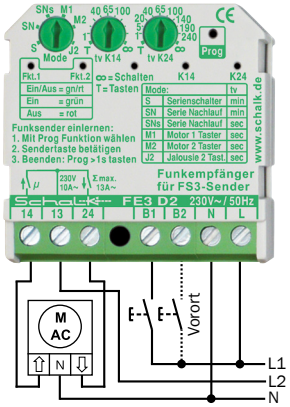
In normal operation (switch mode):

„K14“	Indicates if the relay is switched on. This LED blinks when the timer is running
„K24“	Indicates if the relay is switched on. This LED blinks when the timer is running
„Fkt. 1“ / „Fkt. 2“	When a valid address code is received (programmed transmitter) the „Fkt 1“ lights green, the LED lights red if it receives an unknown address code. In programming mode, these LEDs indicate the function to be programmed (see „Programmable Functions“ table)

Legend:

- ○ LED off
- ● LED lights red
- ◍ LED blinks red
- ● LED lights green
- ◍ LED blinks green
- ◍ LED alternately blinks red/green

1.2 Installation

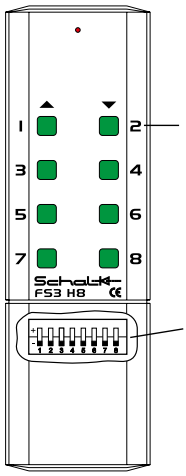
Ex.: Lighting control	Ex.: motor control (different phases possible)
	

Due the potential-free changeover contact, consumers supplied by phases different from the operating voltage can also be switched

2. Programming

2.1 Factory settings

Transmitters and receivers are factory-configured with a standard address (transmitter: all DIP switches in low position"-"/ Receiver: responds to transmitter in factory setting), so that the K14 relay can be switched on and off with pushbutton 1 and K24 relay with pushbutton 1 of the remote control (if it is also configured in the factory setting).



Pushbutton number
In the factory setting, pushbutton 1 switches relay K14 on.

Address switches
In the factory setting, all DIP switches are in „-" position"

When several transmitter/receiver combinations are used together, they must be separated by configuring the addresses in order to prevent any interference.

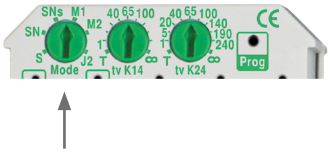
Resetting the radio receiver to the factory settings:
To restore the factory settings, hold down the Prog button for 10s until the „Fkt1" LED blinks red five times (●○○○○).

Functions in factory setting (= delivery state):

Radio function	„Switch On/Off" function via pushbutton 1 (switches K14) and via pushbutton 2 (switches K24) of a transmitter in factory setting
Input B1	"Switch On/Off" function via pushbutton wired to B1
Input B2	"Switch Off" function via pushbutton wired to B2

To also **delete all the programmed radio transmitters and functions** (also including the standard addresses and B1/B2 functions) hold down the Prog pushbutton for 20s until all LEDs blink (●●●●●). As a result, the receiver will no longer react to any radio transmitter/local pushbuttons until they have been explicitly programmed again.
To **delete an individual programmed function**, select this function and hold down the Prog button for 5s until the „Function" LED blinks red three times (●○○○○).

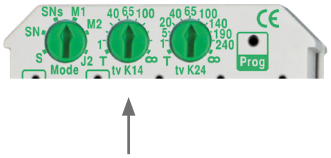
2.2 Selecting the operating mode



Select the desired operating mode using the leftmost rotary switch:
S, **SN**, **SNs**, **M1**, **M2** or **J2** (description see 1.1)

In motor control modes (M1, M2, J2) the following applies:
Up = K14 on, Down = K24 on, Stop = both relays off.
The running direction is switched after a 0.5 second pause.

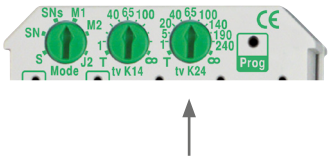
2.3 Configuring the timeouts



Select the desired timeout function for relay K14 with the middle rotary switch „tv K14“:
T (Pushbutton mode), **1...240** (Switch mode with timeout in seconds or minutes, depending on operating mode) or ∞ (Switch mode without timeout)

Operating mode „J2“: here the setting applies for both relays K14 and K24.

Operating mode „SN“ or „SNs“: in this operating mode every „On” or „On/Off“ signal transmitted acts as a retrigger (only a dedicated „Off“ signal causes the relay to switch off). For example, this can be used to easily send long switch states from a periodic transmitter and prevent the relay from becoming deactivated between refresh signals.

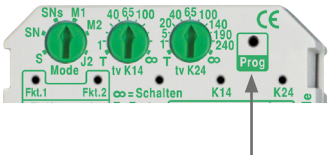


Select the desired timeout function for relay K24 with the middle rotary switch „tv K24“:
T (Pushbutton mode), **1...240** (Switch mode with timeout in seconds or minutes, depending on operating mode) or ∞ (Switch mode without timeout)

In blind mode J2, a special assignment of dials is used:
tv K14 = blind runtime for all 2 relays
tv K24 = counter-direction pulse period: position T=deactivated, or 0.2 to 1.2s, only active when „tv K14“ is set to 1...240

2.4 Programming radio transmitters/functions

To enable specific remote control buttons (or the push buttons wired to inputs B1 or B2) to execute the desired function on the FE3 D2, these have first to be programmed.



Programming procedure:

1. With the help of a pointed object, press 1 to 12 times on the „Prog“ button of the FE3 D2 to select the desired function (the „Programmable functions“ table shows the different functions using the LED display.
2. Briefly press the desired pushbutton on the remote control or the wired pushbutton: the K14 or K24 LED blinks if the reception is valid, indicating that the function/address code has been programmed.
3. Now either exit programming mode by pressing the Prog button for approx. 2s until all LEDs are off (programming mode also switches off automatically after approx. 20s of inactivity), or else select another function by pressing briefly on the Prog button, and assign another pushbutton to it.

If any particular function (for example Function 1 „On/Off“ in operating mode „S“) is addressed by two transmitters with different addresses, then the first transmitter must be programmed on Function 1, the second transmitter programmed on Function 7. Function 7-12 thus enable the functions to be assigned a second time by other transmitters.

Table: Programmable functions

	No.	LED indicator Fkt. 1 / Fkt. 2 / not used / K14 / K24	Pushbutton function depending on the configured operating mode S (serial switch)	SN, SNs (serial switch with after-run time)	M1 (1-button motor control)	M2, J2 (2-button motor control)
Transmitter 1	1	◐ ○ ○ ● ○	K14 On/Off	K14 On	Up-Stop-Down-Stop	Up-Stop
	2	◐ ○ ○ ○ ●	K24 On/Off	K24 On	-	Down-Stop
	3	● ○ ○ ● ○	K14 On	K14 On	Up	Up
	4	● ○ ○ ○ ●	K24 On	K24 On	Down	Down
	5	● ○ ○ ● ○	K14 Off	K14 Off	Stop	Stop
	6	● ○ ○ ○ ●	K24 Off	K24 Off	-	-
Transmitter 2	7	○ ◐ ○ ● ○	K14 On/Off	K14 On	Up-Stop-Down-Stop	Up-Stop
	8	○ ◐ ○ ○ ●	K24 On/Off	K24 On	-	Down-Stop
	9	○ ● ○ ● ○	K14 On	K14 On	Up	Up
	10	○ ● ○ ○ ●	K24 On	K24 On	Down	Down
	11	○ ● ○ ● ○	K14 Off	K14 Off	Stop	Stop
	12	○ ● ○ ○ ●	K24 Off	K24 Off	-	-

Note

Special behavior when programming functions 7-12 to on inputs B1 or B2:
Here the button functions of the operating modes S, SN and SNs apply ***for both relays simultaneously.***
Thus one button connected to both inputs B1 and B2 could switch both relays simultaneously.

2.5 Programming example

Assing transmitter buttons to functions:
Assign the „K14 On/Off“ function (1-pushbutton-control) to button 5 of a remote control transmitter and assign the „K24 On/Off“ function to button 6:

1. Press once briefly on the Prog button, to select Function No 1
   LED Fkt. 1 blinks red/green; and LED K14 lights red (◐ ○ ○ ● ○)
2. Press button 5 on the transmitter to assign the function to it
   LED K14 blinks => Function 1 has been programmed (◐ ○ ○ ◐ ○)
3. Press once briefly on the Prog button, to select next Function No 2
   LED Fkt. 1 blinks red/green; and LED K24 lights red (◐ ○ ○ ○ ●)
4. Press button 6 on the transmitter to assign the function to it
   LED K24 blinks => Function 1 has been programmed (◐ ○ ○ ○ ◐)
5. Then hold down the Prog button for 2s (or wait 20s) to quit programming mode

Group/central switching using a seperate transmitter:
Assign functions 11 and 12 („K14 Off“ and „K24 Off“ = group control) to another transmitter on button 8:

1. Press briefly on the Prog button 11 times to select Function No. 11
   LED „Fkt. 2“ and LED K14 light red (○ ● ○ ● ○)
2. Press button 8 on the transmitter to assign the function to it
   LED K14 blinks => Function 11 has been programmed (○ ● ○ ◐ ○)
3. Press once briefly on the Prog button, to select next Function No 12
   LED „Fkt. 2“ and LED K24 light red (○ ● ○ ○ ●)
4. Press once again button 8 on the transmitter to assign the function to it
   LED K24 blinks => FFunction 12 has been programmed (○ ● ○ ○ ◐)
5. Then hold down the Prog button for 2s (or wait 20s) to quit programming mode

Note

Recommendation on transmission range
The free-field range is a minimum of 50 meters. However it may in some cases be strongly reduced by walls, concrete ceilings, metal surfaces, bushes, or damp soil. Radio or electrical interference from other electrical devices reduces the receiver sensitivity.
Measures for improving the range:
- Optimize the alignment of the transmitter and receiver in relation to each other
- Do not install the transmitter/receiver at ground level (recommendation: at least 1m above ground level)
- Do not install the receiver on a metal surface and keep the top of the housing free of wiring (antenna on the upper surface of the floor)

Technical data

Reception frequency	433.92 MHz
Modulation type	OOK PWM
Operating voltage	230V AC 50/60Hz
Power consumption	0.4W
Line capacity (L-B1/B2)	15nF (ca. 50m NYM)
Glow lamps (L-B1/B2)	Max. 2x 1 mA glow lamps
Relay contacts	2 normally open contacts 10A 250V AC, potential-free (partial connected) (KLS 8mm)
Switching capacity	See relay contact datasheet
Ambient temp.	-10°C to +45°C
Connections	Socket terminals with captive screws M3
Clamping range	0.5 mm^2 - 2.5 mm^2
Strip length	6.5 mm - 7.0 mm
Screwing torque	0.50 Nm
Installation position	If necessary directed at transmitter
External dimensions	43 x 43 x 18.5 mm^3
Weight	37g
Color (RAL)	Gray 7035 / green 6029

Compatible devices: FE3- / FD3- / FS3 Series radio receivers/-transmitters, FV2 Radio repeater

Ordering information

Part No.	EAN	Type	Description
FE3D29	4 046929 101363	FE3 D2	Radio receiver switch, 2 NO potential free, 230 VAC (flush mounting)

Accessories

Part No.	EAN	Type	Description
HC3500	4 046929 901048	HC 35	Top hat rail clip