ScreenLine®

ST3124

KNX Blind Actuator DC 4-fold

Operation and Installation Manual

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ScreenLine®

Introduction

The ST3124 KNX Blind Actuator DC 4-fold is a special control for blinds inside insulating glass.

It is designed to control 24V DC motors direct or the ScreenTronic® motor control boards inside blind head rail with 2-wire control with pole reversal.

Installation

General

Product information and operation and installation instructions of the blind and insulating glass system are to be considered.

WARNING

- The device must be mounted and commissioned by an authorized electrician.
- The prevailing safety rules must be heeded.
- The device must not be opened.
- For planning and construction of electric installations, the relevant guidelines, regulations and standards of the respective country are to be considered.

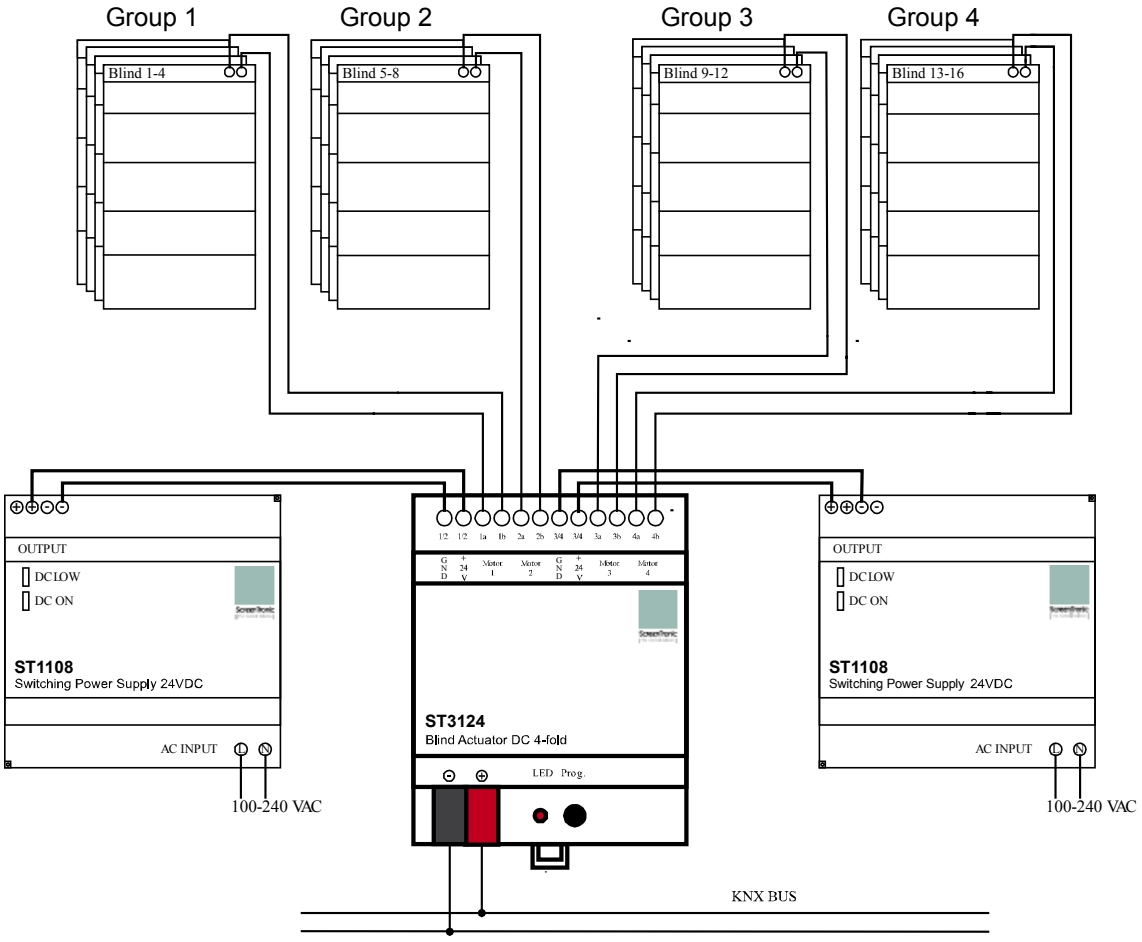
Connection

The ST3124 KNX blind actuator is designed for installation on a DIN rail with a width of 4 unit (71mm).

Connection-No.	Description	Comments
1	GND (for blind group 1/2)	Power supply for blind group 1 and 2
2	+24V DC (for blind group 1/2)	
3	Blind group 1a	Blind group 1 (max. 4 motors)
4	Blind group 1b	
5	Blind group 2a	Blind group 2 (max. 4 motors)
6	Blind group 2b	
7	GND (for blind group 3/4)	Power supply for blind group 3 and 4
8	+24V DC (for blind group 3/4)	
9	Blind group 3a	Blind group 3 (max. 4 motors)
10	Blind group 3b	
11	Blind group 4a	Blind group 4 (max. 4 motors)
12	Blind group 4b	
13	KNX -	KNX Connection
14	KNX +	

Each output stage (each channel) can drive up to 4 blinds with ScreenTronic® motor control board (depending on using two original ScreenTronic® Switching Power Supplies ST1108).

Wiring Diagram



Switching Power Supply 24VDC | KNX Blind Actuator DC | Switching Power Supply 24VDC

Blind Connection Cable: ST81xx, ST83xx or ST85xx
3 x 0,34mm^2 max. 30m per blind
Individually wiring of connection cable (3 pole) for each blind to the control. Access to data wire of each blind is necessary for maintenance purpose.

Group Objects

Number	Name	Length	C	R	W	T	U	Data Type	Priority
1	Security	1 bit	C	-	W	-	-	switch	Low
11	Blind 1 Up/Down	1 bit	C	-	W	-	-	up/down, up/down	Low
12	Blind 1 Stop/Step	1 bit	C	-	W	-	-		Low
13	Blind 1 Slat tilting	4 bit	C	-	W	-	-	blind control	Low
14	Blind 1 Disable Up/Down commands Off/On	1 bit	C	-	W	-	-	switch	Low
15	Blind 1 Disable Slat tilting commands Off/On	1 bit	C	-	W	-	-	switch	Low
16	Blind 1 Up/Down (automatic)	1 bit	C	-	W	-	-	up/down	Low
17	Blind 1 Stop/Step (automatic)	1 bit	C	-	W	-	-		Low
18	Blind 1 Automatic Off/On	1 bit	C	R	W	T	U	switch	Low
19	Blind 1 Reference movement	1 bit	C	-	W	-	-	switch	Low
20	Blind 1 State	1 bit	C	R	-	T	-	up/down, up/down	Low
21	Blind 2 Up/Down	1 bit	C	-	W	-	-	up/down, up/down	Low
22	Blind 2 Stop/Step	1 bit	C	-	W	-	-		Low
23	Blind 2 Slat tilting	4 bit	C	-	W	-	-	blind control	Low
24	Blind 2 Disable Up/Down commands Off/On	1 bit	C	-	W	-	-	switch	Low
25	Blind 2 Disable Slat tilting commands Off/On	1 bit	C	-	W	-	-	switch	Low
26	Blind 2 Up/Down (automatic)	1 bit	C	-	W	-	-	up/down	Low
27	Blind 2 Stop/Step (automatic)	1 bit	C	-	W	-	-		Low
28	Blind 2 Automatic Off/On	1 bit	C	R	W	T	U	switch	Low
29	Blind 2 Reference movement	1 bit	C	-	W	-	-	switch	Low
30	Blind 2 State	1 bit	-	R	-	T	-	up/down, up/down	Low
31	Blind 3 Up/Down	1 bit	C	-	W	-	-	up/down	Low
32	Blind 3 Stop/Step	1 bit	C	-	W	-	-		Low
33	Blind 3 Slat tilting	4 bit	C	-	W	-	-	blind control	Low
34	Blind 3 Disable Up/Down commands Off/On	1 bit	C	-	W	-	-	switch	Low
35	Blind 3 Disable Slat tilting commands Off/On	1 bit	C	-	W	-	-	switch	Low
36	Blind 3 Up/Down (automatic)	1 bit	C	-	W	-	-	up/down	Low
37	Blind 3 Stop/Step (automatic)	1 bit	C	-	W	-	-		Low
38	Blind 3 Automatic Off/On	1 bit	C	R	W	T	U	switch	Low
39	Blind 3 Reference movement	1 bit	C	-	W	-	-	switch	Low
40	Blind 3 State	1 bit	C	R	-	T	-	up/down	Low
41	Blind 4 Up/Down	1 bit	C	-	W	-	-	up/down	Low
42	Blind 4 Stop/Step	1 bit	C	-	W	-	-		Low
43	Blind 4 Slat tilting	4 bit	C	-	W	-	-	blind control	Low
44	Blind 4 Disable Up/Down commands Off/On	1 bit	C	-	W	-	-	switch	Low
45	Blind 4 Disable Slat tilting commands Off/On	1 bit	C	-	W	-	-	switch	Low
46	Blind 4 Up/Down (automatic)	1 bit	C	-	W	-	-	up/down	Low
47	Blind 4 Stop/Step (automatic)	1 bit	C	-	W	-	-		Low
48	Blind 4 Automatic Off/On	1 bit	C	R	W	T	U	switch	Low
49	Blind 4 Reference movement	1 bit	C	-	W	-	-	switch	Low
50	Blind 4 State	1 bit	C	R	-	T	-	up/down	Low
51	Blind 1 Runtime counter	2 bytes	C	R	-	T	-		Low
52	Blind 2 Runtime counter	2 bytes	C	R	-	T	-		Low
53	Blind 3 Runtime counter	2 bytes	C	R	-	T	-		Low
54	Blind 4 Runtime counter	2 bytes	C	R	-	T	-		Low

01 Security

Security command:
0 = Normal operation
1 = Security position
After receiving value 1 or not receiving value 0 for “Monitoring time for security object (min)” the blinds will move to the defined security position.

11 Blind 1 Up/Down

Movement command for blind channel 1. Output will stay active for “Total running time (s)”.

12 Blind 1 Stop/Step

Stop or tilt command for blind channel 1.
During movement blind stops, otherwise tilt step is performed.

13 Blind 1 Slat tilting

Dimming command for tilting of blind channel 1.
Allows additional operation logic for local control switches. Tilt operation is performed until control button is released.

14 Blind 1 Disable Up/Down commands

Disable of movement commands (Group Object 11).

15 Blind 1 Disable Up/Down commands

Disable of tilt commands (Group Objects 12 and 13)

16 Blind 1 Up/Down (automatic)

Movement command from automatic (blind control center / weather station) for blind channel 1. Output will stay active for “Total running time (s)”.
This group object is only performed when automatic is on. If automatic is turned on, last received value (up/down) of this group object is performed (if object 17 was not received after last object 16).

17 Blind 1 Stop/Step (automatic)

Stop or tilt command from automatic (blind control center / weather station) for blind channel 1. During movement blind stops, otherwise tilt step is performed.

18 Blind 1 Automatic

Control and status of the automatic mode:
0 = Automatic off
1 = Automatic on

19 Blind 1 Reference movement

A special sequence is performed at the channel 1 output to indicate for special blind type MP to reset virtual end limits. Do not use this group object for direct DC motor control or blinds with ScreenTronic® motor control board.

20 Blind 1 State

Indicates the actual position of the blinds on channel 1:
1 = blinds are in down position and maybe tilted (last movement was full movement down)
0 = any other position (not fully down)

21 – 30 Blind 2

Same as Group Objects 11 – 20 but for Blind 2

31 – 40 Blind 3

Same as Group Objects 11 – 20 but for Blind 3

41 – 50 Blind 4

Same as Group Objects 11 – 20 but for Blind 4

51 Blind 1 Runtime counter

Runtime counter (hours) for blind channel 1.

52 Blind 2 Runtime counter

Runtime counter (hours) for blind channel 2.

53 Blind 3 Runtime counter

Runtime counter (hours) for blind channel 3.

54 Blind 4 Runtime counter

Runtime counter (hours) for blind channel 4.

Parameters

General

Operation mode

Selection of the connected blind types:

Venetian blind:	Normal operation with raise/lower and tilt functions
Venetian blind – tilt only:	Operation limited to tilt functions
Roller blind:	Operation limited to raise/lower functions
Switching mode:	Operation is limited to switching the outputs on/off (no blind operation)

Blind type

Do not change this parameter (always 0). This parameter is reserved for special project customization.

Motor brake

With active motor brake the outputs are on short circuit to ground when output is not powered. This allows motor brake function for direct DC motor control.
Do not activate this function for blinds with ScreenTronic® motor control boards.

Ride repeat after term expiration

After full movement (running time) in one direction another movement in same direction can be performed if this parameter is active. Otherwise movement in same direction is blocked until movement in other direction was started.

Movement after tilting time

If this parameter is active and blind is tilted by dimming object (Group Object 13/23/33/43) a move command is performed after tilt time (tilt step duration * number of tilt steps) has passed. So after tilting the local control button can be released and blind will move to end limit (and stop command from dimming object is ignored after full tilt time).

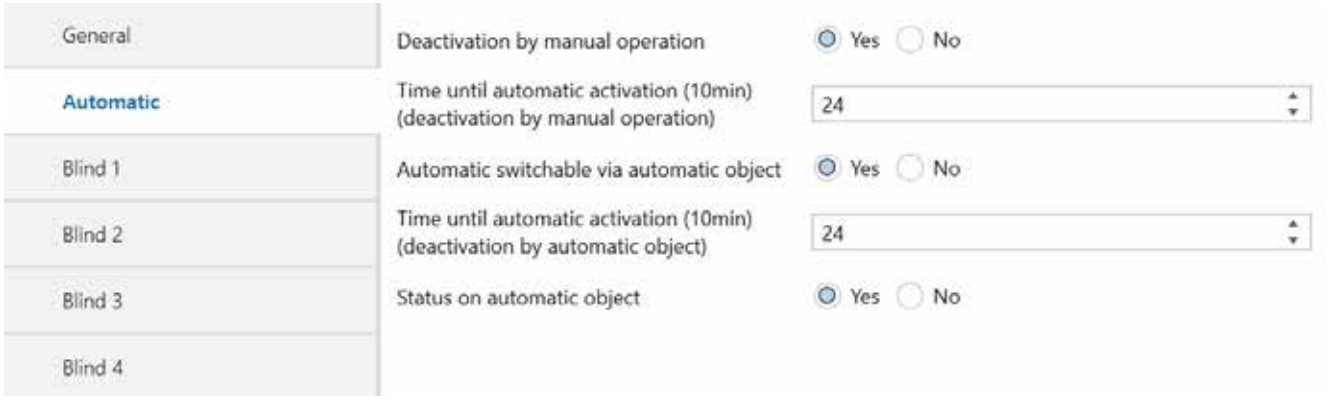
Security position

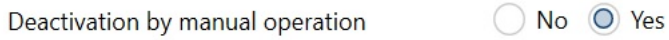
After receiving value 1 on security group object or missing 0 telegram during monitoring time the blinds go to defined security position and any operation is blocked until security mode is deactivated.

Monitoring time security object (min)

Time within the security group object must be received (with value 0) to stay in normal operation mode.
0=no monitoring of security group object.

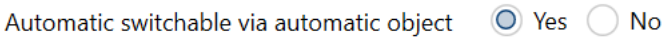
Automatic





Any manual operation of the blinds (group objects 11, 12, 13) will deactivate the automatic.

After any manual blind operation (group objects 11, 12, 13) a timer starts and after selected time (value * 10 min) has passed the automatic for channel 1 is switched on again.

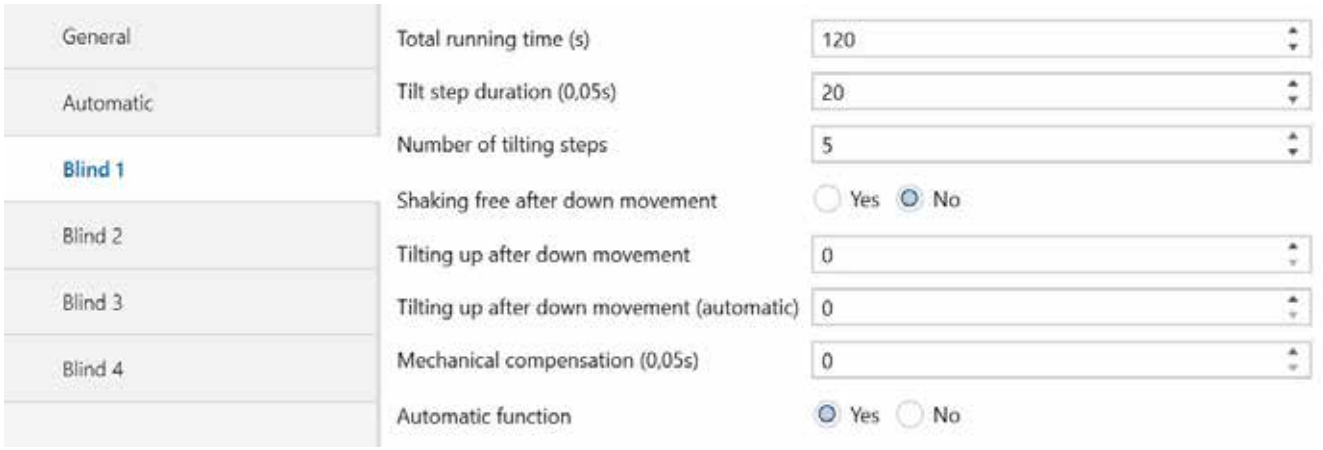


Any received telegram on automatic group objects 18 will switch the automatic of channel 1.

After receiving value 0 on automatic group object 18 a timer starts and after selected time (value * 10 min) has passed the automatic for channel 1 is switched on again.

If this status parameter is active the group object 18 will send changes in automatic state of channel 1 to the bus.

Blind 1



Total running time (s)

This parameter is set to the total running time (s) of the largest blind on channel 1. Movement commands activate the output stage for channel 1 for this period.

IMPORTANT:

For blinds with direct DC motor the value is the real maximum runtime of the blind from up to down or from down to up position.

For blinds with ScreenTronic® motor control board it is necessary to add 25s to the real runtime of the blinds to allow automatic referencing of the blinds.

Tilt step duration (0,05s)

With this parameter the tilt step duration is defined. The parameter value indicates the step time in 0,05s units (e.g. 20 sets tilt time to 1,0s).

For blinds with ScreenTronic® motor control board tilt step should not set below 20 to allow powering of the control board. Very short tilt steps will result in no reaction of the blinds and can damage the motor electronic.

Number of tilt steps

Defines the number of steps for the full tilt area off the blinds. Continues tilt steps in one direction are limited to this quantity of steps.

Shaking free after down movement

With activated parameter the blinds perform a shake free sequence after each full down movement. The sequence tilts up the blinds on channel 1 for full tilting area and tilt down again to closed position. This function is used to prevent slats from sticking together and should only be used in agreement with blind manufacturer.

Tilt up after down movement

Number of tilt steps which are performed after each down command on group object 11 (after full running time).
This parameter results in open slat position as standard slat position after lowering of the blinds.

Tilt up after down movement (automatic)

Same as “Tilt up after down movement” but for movement commands on group object 16.

Mechanical compensation (0,05s)

Runtime extension of the first tilt step after change of direction.
The parameter value indicates the extension time in 0,05s units (e.g. 5 sets tilt time to 0,25s)

Automatic function

This parameter activates the automatic function for channel 1 and depending of the parameters in register Automatic the blinds will follow the automatic control group objects 16 and 17.

Blind 2

Same parameter as for Blind 1 but for channel 2.

Blind 3

Same parameter as for Blind 1 but for channel 3.

Blind 4

Same parameter as for Blind 1 but for channel 4.

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