

12 CO IR Decoder 7F0301

Devices Employing the Program

Product family: Infrared
Product type: IR Decoder N450
Manufacturer: Siemens

Name : IR Decoder
Order-no.: 5WG1 450-1AB02

Application Description

In an infrared system IR signals are sent by IR transmitters and remote controls on operating the corresponding push buttons or rocker switches. The IR receiver picks up the IR signals and forwards them to the IR decoder where the signals are converted to telegrams and sent on the *instabus* EIB.

Unlike its predecessor 5WG1 450-1AB01 (which required the STS Siemens Tool Software) the IR decoder 5WG1 450-1AB02 does not require any additional programming software. The IR decoder can be configured like any other device with an ETS version 1.36 or higher. It now is also possible to use the decoder to different tasks (e.g. dimming & blinds control) at the same time. The IR decoder can manage up to 22 configurations (IR channels). With a rotary switch and a slide switch the IR channel can be specified, a IR transmitter or remote control.

An IR channel can be employed to the following tasks:

- Switching
- Switching and dimming
- Switching and value setting
- Blinds control
- Value setting
- Scene control

Tasks are assigned when configuring the IR decoder with the ETS2. Furthermore, the group addresses must be assigned to sending the telegrams on the bus.

The IR decoder provides 22 communication objects. I.e., up to 22 different group addresses can be managed.

Each communication object requires 4 settings:

- Group address (object/address window)
- Object size (type) (parameters)
- Task (parameters)
- IR channel (parameters)

According to the chosen task (switching/dimming/blinds/scenes) the IR decoder distinguishes between short (< 0,5 sec.) and long switch operations at the transmitter. Short and long switch operations then can be used to address different objects. However, this uses up two configuration entries.

Follow the below instructions when configuring the IR decoder:

- Select the channel that is to be used to sending with the IR transmitter's coding switch.
- Add the desired configuration in the IR decoder's parameter window by specifying the number of the IR channel (0-63), the task (switching/dimming/blinds/scenes), and the object type (1 bit, 4 bit, 1 byte).
- Define group addresses with the ETS
- Assign group addresses to the respective objects of both the IR decoder and the actuators and thereby define the object type (e.g. 1 bit).

A configuration consists of:

- Number of IR channels: Here, the number of IR channels (0 - 63) can be selected. Configurations that is not be used must be disabled. The configurations should be used in ascending order.
- Task: This entry defines the operating mode to responding to a switch operation. Here, a "1" corresponds to the rocker's upper switching point (the left key on the remote control) and a "0" the rocker's lower switching point (the right key on the remote control).
- Object type: The object type must be chosen according to the selected mode. The type cannot be entered once a group address is assigned to the corresponding object. The IR decoder uses 1 bit-, 4 bit- or 1 byte types.

12 CO IR Decoder 7F0301

Communication Objects

Product	Program	Order number
no. Function	Object name	Type
IR decoder N 450/02	12 CO IR Decoder 7F0301	5WG1 450-1.AB02
0 Configuration 0	Configuration 0	1 Bit
1 Configuration 1	Configuration 1	1 Bit
2 Configuration 2	Configuration 2	1 Bit
3 Configuration 3	Configuration 3	1 Bit
4 Configuration 4	Configuration 4	1 Bit
5 Configuration 5	Configuration 5	1 Bit
6 Configuration 6	Configuration 6	1 Bit
7 Configuration 7	Configuration 7	1 Bit
8 Configuration 8	Configuration 8	1 Bit
9 Configuration 9	Configuration 9	1 Bit
10 Configuration 10	Configuration 10	1 Bit
11 Configuration 11	Configuration 11	1 Bit
12 Configuration 12	Configuration 12	1 Bit
13 Configuration 13	Configuration 13	1 Bit
14 Configuration 14	Configuration 14	1 Bit
15 Configuration 15	Configuration 15	1 Bit
16 Configuration 16	Configuration 16	1 Bit
17 Configuration 17	Configuration 17	1 Bit
18 Configuration 18	Configuration 18	1 Bit
19 Configuration 19	Configuration 19	1 Bit
20 Configuration 20	Configuration 20	1 Bit
21 Configuration 21	Configuration 21	1 Bit

Note:

The order of the entries may vary from the above due to individual customization of the table.

Obj	Function	Object name	Type	Flags
0	Configuration 0	Configuration 0	1-bit 4-bit 1-Byte	CWTU
The tasks to this configuration and the type of the corresponding object are specified in the parameter window "Configuration 0"				
1	Configuration 1	Configuration 1	1-bit 4-bit 1-Byte	CWTU
The tasks to this configuration and the type of the corresponding object are specified in the parameter window "Configuration 1"				
2	Configuration 2	Configuration 2	1-bit 4-bit 1-Byte	CWTU
The tasks to this configuration and the type of the corresponding object are specified in the parameter window "Configuration 2"				

Obj	Function	Object name	Type	Flags
3	Configuration 3	Configuration 3	1-bit 4-bit 1-Byte	CWTU
The tasks to this configuration and the type of the corresponding object are specified in the parameter window "Configuration 3"				
4	Configuration 4	Configuration 4	1-bit 4-bit 1-Byte	CWTU
The tasks to this configuration and the type of the corresponding object are specified in the parameter window "Configuration 4"				
5	Configuration 5	Configuration 5	1-bit 4-bit 1-Byte	CWTU
The tasks to this configuration and the type of the corresponding object are specified in the parameter window "Configuration 5"				
6	Configuration 6	Configuration 6	1-bit 4-bit 1-Byte	CWTU
The tasks to this configuration and the type of the corresponding object are specified in the parameter window "Configuration 6"				
7	Configuration 7	Configuration 7	1-bit 4-bit 1-Byte	CWTU
The tasks to this configuration and the type of the corresponding object are specified in the parameter window "Configuration 7"				
8	Configuration 8	Configuration 8	1-bit 4-bit 1-Byte	CWTU
The tasks to this configuration and the type of the corresponding object are specified in the parameter window "Configuration 8"				
9	Configuration 9	Configuration 9	1-bit 4-bit 1-Byte	CWTU
The tasks to this configuration and the type of the corresponding object are specified in the parameter window "Configuration 9"				
10	Configuration 10	Configuration 10	1-bit 4-bit 1-Byte	CWTU
The tasks to this configuration and the type of the corresponding object are specified in the parameter window "Configuration 10"				
11	Configuration 11	Configuration 11	1-bit 4-bit 1-Byte	CWTU
The tasks to this configuration and the type of the corresponding object are specified in the parameter window "Configuration 11"				

12 CO IR Decoder 7F0301

Obj	Function	Object name	Type	Flags
12	Configuration 12	Configuration 12	1-bit 4-bit 1-Byte	CWTU
The tasks to this configuration and the type of the corresponding object are specified in the parameter window "Configuration 12"				
13	Configuration 13	Configuration 13	1-bit 4-bit 1-Byte	CWTU
The tasks to this configuration and the type of the corresponding object are specified in the parameter window "Configuration 13"				
14	Configuration 14	Configuration 14	1-bit 4-bit 1-Byte	CWTU
The tasks to this configuration and the type of the corresponding object are specified in the parameter window "Configuration 14"				
15	Configuration 15	Configuration 15	1-bit 4-bit 1-Byte	CWTU
The tasks to this configuration and the type of the corresponding object are specified in the parameter window "Configuration 15"				
16	Configuration 16	Configuration 16	1-bit 4-bit 1-Byte	CWTU
The tasks to this configuration and the type of the corresponding object are specified in the parameter window "Configuration 16"				
17	Configuration 17	Configuration 17	1-bit 4-bit 1-Byte	CWTU
The tasks to this configuration and the type of the corresponding object are specified in the parameter window "Configuration 17"				
18	Configuration 18	Configuration 18	1-bit 4-bit 1-Byte	CWTU
The tasks to this configuration and the type of the corresponding object are specified in the parameter window "Configuration 18"				
19	Configuration 19	Configuration 19	1-bit 4-bit 1-Byte	CWTU
The tasks to this configuration and the type of the corresponding object are specified in the parameter window "Configuration 19"				
20	Configuration 20	Configuration 20	1-bit 4-bit 1-Byte	CWTU
The tasks to this configuration and the type of the corresponding object are specified in the parameter window "Configuration 20"				

Obj	Function	Object name	Type	Flags
21	Configuration 21	Configuration 21	1-bit 4-bit 1-Byte	CWTU
The tasks to this configuration and the type of the corresponding object are specified in the parameter window "Configuration 21"				
22	Configuration 22	Configuration 22	1-bit 4-bit 1-Byte	CWTU
The tasks to this configuration and the type of the corresponding object are specified in the parameter window "Configuration 0"				

Maximum number of group addresses: 22
Maximum number of assignments: 22

Parameters

Configuration 0:

For examples see:	Configuration 0	Configuration 1	Configuration 2	Configuration 3
IR channel no.	00 (Wall-mounted transmitter= 0 Hand-held tr)			
Function	Switch 1: on 0: off - 1 bit			
Object type (match above function)	1 bit - Switch on/off, Shutter, Scene			

Parameters	Settings
IR channel no.	disabled 00 (Wall-mounted transmitter=0 Hand-held =0) . . . 63 (Wall-mounted transmitter=F Hand-held =7)
Here, the number of IR channels (0 - 63) can be selected. Configurations that is not be used must be disabled. The configurations should be used in ascending order.	

12 CO IR Decoder 7F0301

Parameters	Settings
Function	Switch I: On 0: Off - 1-bit Dimming On/Off I: On 0: Off - 1-bit Dimming I: brighter 0: darker - 4-bit Set value I: 0% 0: 30% - 1-Byte Set value I: 30% 0: 0% - 1- Byte Set value I: 20% 0: 40% - 1- Byte Set value I: 80% 0: 80% - 1- Byte Set value I: 70% 0: 100% - 1- Byte Set value I: 100% 0: 70% - 1- Byte Shutter Up/Down I: up 0: down - 1-bit Shutter Louvres I: up 0: down - 1-bit Retrieve scene I: Sc 1/3 0: Sc 2/4 - 1-bit Program scene I: Sc 1/3 0: Sc 2/4 -1-bit Switch toggle I: and 0: On/Off - 1-bit Dimming On/Off/toggle I: and 0: On/Off - 1-bit Dimming toggle I: and 0: brighter/darker - 4-bit
	This entry defines the operating mode to responding to a switch operation. Here, a "1" corresponds to the rocker's upper switching point (the left key on the remote control) and a "0" the rocker's lower switching point (the right key on the remote control)
Object type (match above function)	1-bit - switch On/Off, Shutter, Scene 4-bit - dimming Brighter/Darker 1-Byte - set value
	The object type must be chosen according to the mode selected. The type cannot be entered once a group address is assigned to the corresponding object. The IR decoder uses 1 bit-, 4 bit- or 1 byte types.

The parameters of the configurations 1 to 21 can be set accordingly.

Scene programming:

Configuration 19	Configuration 20	Configuration 21	Save scene	Monitoring
Delay time		6 seconds		

Parameters	Settings
Enter programming mode after	2 seconds 4 seconds 6 seconds 8 seconds 10 seconds 15 seconds 30 seconds
	To avoid entering the programming mode accidentally, this parameter allows you to adjust the period to generating long and short switch operations. Operating the rocker switch longer than the selected period produces a long switch operation to entering the programming mode.

Monitoring:

Configuration 19	Configuration 20	Configuration 21	Scene programming	Monitoring
Long push button action		inactive		

Parameters	Settings
Long push button action	inactive active
	On a long switch operation a series of IR telegrams are sent with a certain frequency (cyclic sending). When failing to receive one or more of these IR telegrams the actuator responds as if receiving a stop signal. Example: An IR channel is set to "dimming/over" mode. Now, a long switch operation is to be used to dimming. If the transmission is interrupted even briefly (e.g. somebody moves through the room), the IR decoder would stop sending dimming telegrams, and send an "over" telegram when receiving the next IR telegram. When set to "enabled", this parameter allows you to force the IR decoder to wait to a missing telegram a certain period of time (at least two sending periods) before stopping to forward the received signals on the bus. It ignores a missing telegram and continues forwarding the signals received on the bus.

12 CO IR Decoder 7F0301

Configuration examples

Switching:

In the switching configuration operating the upper switching point of the IR transmitter produces an "on" telegram and operating the lower switching point produces an "Off" telegram. Operating the left key on the IR remote controller produces an "on" telegram and operating the right key produces an "Off" telegram. In this configuration the application program does not distinguish between short and long switch operations. This configuration is used mostly to switching binary outputs. It also can be used to recalling scenes when used in combination with a scene module (see "scene control")

For examples see:	Configuration 0	Configuration 1	Configuration 2	Configuration 3
IR channel no.	00 (Wall-mounted transmitter= 0 Hand-held tr)			
Function	Switch I: on 0: off - 1 bit			
Object type (match above function)	1 bit - Switch on/off,Shutter,Scene			

Switching over (toggle):

On operating either the switching point of the rocker, telegrams are sent ("On" or "Off") appropriate to change the actual switching state. I.e. the first switch operation produces an "On" telegram, a second switch operation produces an "Off" telegram, and so on. As no telegrams are available to switching over, the IR decoder stores the previous switching state, when the rocker is operated again, this state is inverted and then sent on the bus .
Note: To make the "over" mode configurations 0 to 5 should be used. Otherwise, the IR transmitter's rocker might require two operations in order to produce an appropriate bus telegram.

For examples see:	Configuration 0	Configuration 1	Configuration 2	Configuration 3
IR channel no.	01 (Wall-mounted transmitter= 0 Hand-held tr)			
Function	Switch: toggle I: and 0: on/off - 1 bit			
Object type (match above function)	1 bit - Switch on/off,Shutter,Scene			

Dimming:

In the dimming configuration the application program distinguishes between long and short switch operations. Short switch operations address the switch object (on/Off) of the dimming actuator and long operations address the dimming actuators. The difference between the modes "switching" and "dimming on/Off" sends "On" and "Off" telegrams on a short switch operation only. When keeping the rocker or key pressed, "1/8 brighten" or "1/8 darken" telegrams are sent periodically every 0,5

seconds until releasing the rocker or key. The dimming steps (1/8 = 12%) cannot be changed. An IR decoder cannot use a "dim by stop telegram" mode.

Note: Bear in mind that 2 configuration entries are required when using the rocker of an IR transmitter in "dimming" configuration. One to handling the switching and one to the dimming (brighten/ darken). Both configurations must be assigned the same IR channel.

For examples see:	Configuration 0	Configuration 1	Configuration 2	Configuration 3
IR channel no.	02 (Wall-mounted transmitter= 0 Hand-held tr)			
Function	Dimming on/off I: on 0: off - 1 bit			
Object type (match above function)	1 bit - Switch on/off,Shutter,Scene			

For examples see:	Configuration 0	Configuration 1	Configuration 2	Configuration 3
IR channel no.	02 (Wall-mounted transmitter= 0 Hand-held tr)			
Function	Dimming I: brighter 0: darker - 4 bit			
Object type (match above function)	4 bit - Dimming brighter - darker			

Dim by value setting:

The "set value" configuration provides various fixed presets to choose from in the parameter window "Operating mode".

Note: When using only the value object of a dimming actuator, switching the lighting on and Off by dimming telegrams must be allowed by setting the respective parameters accordingly when programming the dimming actuator.

Configuration 4	Configuration 5	Configuration 6	Configuration 7	Configuration 8
IR channel no.				
03 (Wall-mounted transmitter= 0 Hand-held tr)				
Function				
Set value I: 60% 0: 80% - 1 byte				
Object type (match above function)				
1 byte - Set value				

Switching and dimming with "over":

When using the mode "dimming: over" or "dimming On/Off/over" the application program, distinguishes between short and long switch operations. To short switch operations see the "switching over" configuration. On long switch operations dimming telegrams are sent on the bus (brighten/darken). When releasing the rocker and operating it once more the dimming effect is inverted. When the dimming actuator's maximum or minimum dimming value is reached, further dimming telegrams are ignored. When keeping the rocker or key pressed, "1/8 brighten" or "1/8 darken" telegrams are sent periodically every 0,5 seconds until releasing the

12 CO IR Decoder 7F0301

rocker or key. The dimming steps (1/8 = 12%) cannot be changed.

Note: Bear in mind that 2 configuration entries are required when using the rocker of an IR transmitter in "dimming" configuration. One to handling the switching and one to the dimming (brighten/ darken). Both configurations must be assigned the same IR channel.

Configuration 4	Configuration 5	Configuration 6	Configuration 7	Configuration 8
IR channel no.				
04 (Wall-mounted transmitter= 0 Hand-held tr				
Function				
Dimming on/off/toggle I: and 0: on/off -1Bit				
Object type (match above function)				
1 bit - Switch on/off,Shutter,Scene				

Configuration 4	Configuration 5	Configuration 6	Configuration 7	Configuration 8
IR channel no.				
04 (Wall-mounted transmitter= 0 Hand-held tr				
Function				
Dimming toggle I: and 0: brighter/darker - 4 bit				
Object type (match above function)				
4 bit - Dimming brighter - darker				

Blinds control:

Two configurations are provided to controlling blinds actuators. The application program distinguishes between long and short switch operations. On a short switch operation a telegram to adjusting the louvres is sent . On a long switch operation "raise" and "lower" telegrams are sent to moving the blinds.

Note: Bear in mind that 2 configuration entries are required when using the rocker of an IR transmitter in "blinds control" configuration. One to handling the blinds movement and one to adjusting the louvres. Both configurations must be assigned the same IR channel.

Configuration 4	Configuration 5	Configuration 6	Configuration 7	Configuration 8
IR channel no.				
05 (Wall-mounted transmitter= 0 Hand-held tr				
Function				
Shutter up/down I: up 0: down - 1 bit				
Object type (match above function)				
1 bit - Switch on/off,Shutter,Scene				

Configuration 4	Configuration 5	Configuration 6	Configuration 7	Configuration 8
IR channel no.				
05 (Wall-mounted transmitter= 0 Hand-held tr				
Function				
Shutter louvress I: up 0: down - 1 bit				
Object type (match above function)				
1 bit - Switch on/off,Shutter,Scene				

Scene control:

The IR decoder 5WG1 450-2AB02 only supports the application programs "12 C0 ScenMod 740701" and "12 C0 ScenMod 74801". The telegrams to recalling the scenes are identical in all application programs, however, scenes are stored differently. When adding an IR

decoder to an existing EIB configure, which was made employing one of the application programs 740401 to 740601, scenes can only be recalled with the IR decoder but not programmed. In order to recall scenes, the IR decoder must be set to the "switching" configuration. Short switch operations are used to recalling scenes, long switch operations are used to programming scenes. While the time period to generating a long switch operation cannot be changed to the dimming configuration, it can be adjusted to programming scenes.

Note: Bear in mind that 2 configuration entries are required when using the rocker of an IR transmitter in "scene control" configuration. One to recalling the scenes and one to storing them. Both configurations must be assigned the same IR channel. The entry to storing scenes can be ignored when using the rocker only to recall scenes.

Configuration 9	Configuration 10	Configuration 11	Configuration 12	Configuration 13
IR channel no.				
06 (Wall-mounted transmitter= 0 Hand-held tr				
Function				
Retrieve scene I: Sc1/3 0: Sc2/4 - 1 bit				
Object type (match above function)				
1 bit - Switch on/off,Shutter,Scene				

Configuration 9	Configuration 10	Configuration 11	Configuration 12	Configuration 13
IR channel no.				
06 (Wall-mounted transmitter= 0 Hand-held tr				
Function				
Scene progr. I: Sc1/3 0: Sc2/4 - 1 bit				
Object type (match above function)				
1 bit - Switch on/off,Shutter,Scene				

Configuration 19	Configuration 20	Configuration 21	Scene programming	Monitoring
Time delay				
6 seconds				