Operating Instructions
Radio Control Converter

1. System information

This device is a product of the *instabus* EIB system and complies with EIBA directives. Detailed technical knowledge obtained in *instabus* training courses is a prerequisite to proper understanding.
The functionality of this device depends upon the software. Detailed information on loadable software and attainable functionality as well as on the software itself may be taken from the manufacturer's product database.
Planning, installation and commissioning of the unit are performed by means of EIBA certified software.
For the productdatabase and technical descriptions please refer to the internet at www.jung.de offering up-to-date information.

2. Function

The Radio Control Converter can be used to integrate Radio sensors intothe *instabus* EIB system. Radio data telegrams received from components learned in are converted into corresponding EIB telegrams. Data transfer is unidirectional.

The following radio-control products are presently supported:

- Hand-held transmitter (Comfort and Standard).
- Wall-mounted transmitter insert (single, double, and quadruple).
- Universal transmitter.
- Radio detector 180.

2.1. Scope of Functions

General

- Unidirectional conversion of the received radio telegrams into corresponding *instabus* telegrams.
- Up to 50 channels with different channel functions can be parameterised.
- A total of 100 memory locations for keys (e. g. hand-held transmitter keys) and devices (e. g. radio detector) are available.

Channel function: Switching

- The functions of the left/upper and the right/lower keys can be parameterised.

Channel function: Toggling

- Alternate transmitting of ON and OFF telegrams per key.

Channel function: Dimming

- Adjustable dimming step width.
- Telegram repetition and stop telegrampossible.

Channel function: Louver

- Key function (UP, DOWN) and time between short-time and long-time operation selectable.
- Adjustable blade adjustment time (time in which a move command can be stopped by releasing the key).

Channel function: Value transmitter

- The values (0...255) of the left/upper and the right/lower keys can be parameterised.

Channel function: Lightscape extension

- The lightscape numbers (1...8) of the left/upper and the right/lower keys can be parameterised
- Memory function possible.

Channel function: Lightscape

- Calling and storing of up to five lightscapes with eight outputs each via
  keys or extension.
- Switching (1 bit) or dimming value (1 byte) object types can be parameterised per output.

Channel function: Automatic switch

- Transmitting of 1-bit or 1-byte value telegrams, in dependence upon the
  preset dimming value.
- Telegram at the beginning and at the end of a detection selectable.
- Transmit delay at the end of a detection and locking time can be parameterised.

Channel function: Universal transmitter as switch

- Transmitting of ON and OFF telegrams in accordance with the universal transmitter telegrams received.

3. Instructions

- The distance to electrical loads causing interference (e.g. electronic ballasts, transformers, microwave ovens, HiFi and TV sets) must be at least 0.5 m.
- To avoid saturation, the distance between Radio Control Converter and transmitter must be at least 1 m.
- The range of a radio-control system depends on transmitter power, receiver characteristics, air humidity, fitting height and building conditions.

Penetration of building materials by radio waves:

Dry material	**Penetration**
Timber, gypsum, gypsum plaster boards	approx. 90 %
Brickwork, particle boards	approx. 70 %
Reinforced concrete	approx. 30 %
Metal, metal grating, aluminium	approx. 10 %
Rain, snow	approx. 0 – 40 %

4. Radio operation

- The inter-connection of this radio system with other communication networks must comply with national legislation.
- This radio system must not be used for communication beyond property boundaries.
- If utilized in conformity with its designated use, this unit fulfills the requirements of the R&TTE Directive (1999/5/EC).
  The complete declaration of conformity can be found in the Internet under: www.jung.de/ce.

The Radio Control Converter 2700 AP may be operated in all EU and EFTA countries.

5. Safety instructions

Attention: Electrical equipment must be installed and fitted by qualified electricians only.
Non-observance of the safety instructions may cause fire or other hazards.
Radio transmission takes place on nonexclusive frequencies. Therefore, interference cannot be excluded. This type of radio transmission is not suitable for safety applications such as emergency shut-off or emergency calling functions.

6. Electrical Connection

In normal operation, the Radio Control Converter is supplied with power only from the *instabus* EIB. It is connected through *instabus* terminal A (see illustration on foldout page).
Connection of the 9V battery is necessary only for the learning and clearing mode (see chapter ‘Changing the modes of operation‘).

7. Radio antenna fitting instructions

For best radio reception results, the antenna (C) must be laid as far away as possible from the *instabus* EIB cable and the battery clip (B) (see illustration). The antenna must always be laid loosely extended, i.e. with the wire completely unrolled.
Keep away from large metal surfaces (as, for instance, metal door-frames).

Do not bare the antenna wire and do not shorten or lengthen it.

8. Project Planning Recommendation

For Radio Control Converter project planning, it is useful to thoroughly document the sequence from the planning stage up to the startup.

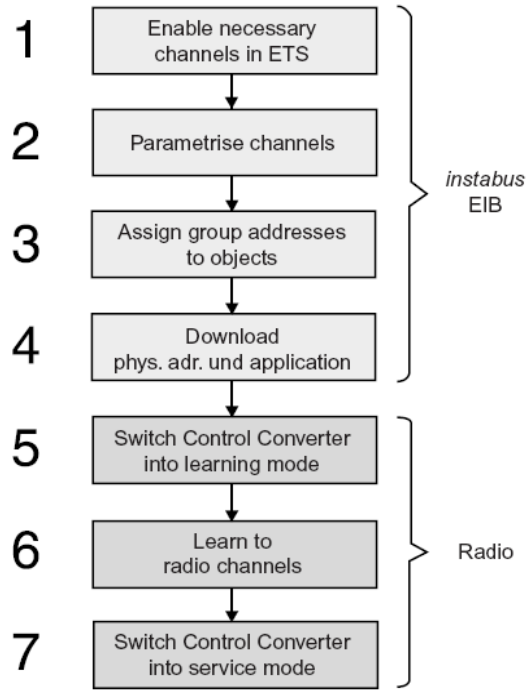
Note: It is recommended to use a projecting aid (DIN A4, see example) in which the individual steps are documented.

It is recommended that the *instabus* EIB project planning should be done first before the radio transmitters are learned in.

Where the following points should be paid attention to:

- Selection of the channel number.
- Assignment of the function.
- Selection of the group address.
- Exact description of the transmitter (e. g. Comfort hand-held transmitter, key 1).
- Learning process completed?

This will result in the following sequence:



Project Planning Aid Radio Control Converter			Physical Adress:	1.2.1		Place of Installation:	Storage Room 1st Floor
	ETS: Object				Radio Transmitter		
Channel	No.	Name	ETS: Function	Group Address	Description	Key/Place	Learned In?
1	0	Channel 1	Switching	1.2.7	Comf Hand-Held Tr.	1 Gr. A	✓
		---	--	---	Comf Hand-Held Tr.	2 Gr. A	✓
2	2	Channel 2	Dimming: Switching	1.2.8	Comf Hand-Held Tr.	3 + 4 Gr. A	✓
	3	Channel 2	Dimming: Dimming	1.2.9	Comf Hand-Held Tr.	4 + 4 Gr. A	✓
3	4	Channel 3	Louver: Short-Time Operation	1.3.1	Comf Hand-Held Tr.	5 + 6 Gr. A	✓
	5	Channel 3	Louver: Long-Time Operation	1.3.3	Comf Hand-Held Tr.	5 + 6 Gr. A	✓
4	6	Channel 4.1	Value Transmitter	1.2.10	Comf Hand-Held Tr.	7 + 8 Gr. A	✓
	7	Channel 4.2	Value Transmitter	1.2.11	Comf Hand-Held Tr.	7 + 8 Gr. A	✓
5	8	Channel 5.1	Lightscape Extension	1.2.12	Wall-Mounted Tr.	1	✓
	9	Channel 5.2	Lightscape Extension	1.2.13	Wall-Mounted Tr.	2	✓
6	10	Channel 6	Radio detector: Switching	1.2.14	Radio detector	Entrance	✓
		---	--	---	---	--	--
7	12	Channel 7	Radio detector: Value Transm.	1.2.15	Radio detector	Garage Yard	✓
		---	--	---	---	--	--
8	14	Channel 8.1	Universal Transm. as Switch	1.2.16	Universal Transm.	Child's Room	✓
	15	Channel 8.2	Universal Transm. as Switch	1.2.17	Universal Transm.	Corridor	✓
9	18	Channel 10.1	Toggling	1.2.20	Comf Hand-Held Tr.	3 + 4 Gr. B	✓
	19	Channel 10.2	Toggling	1.2.21	Comf Hand-Held Tr.	4 + 4 Gr. B	✓
10	100	Output 1	Lightscape	1.2.18	Comf Hand-Held Tr.	1 Gr. B	✓
	101	Output 2	Lightscape	1.2.19	Comf Hand-Held Tr.	2 Gr. B	✓

9. *instabus* EIB Startup

The *instabus* EIB project planning and startup are done in the usual way with the aid of the ETS2.
The physical address is assigned by means of programming LED E and programming key F. See front fold-out page.

Possibilities to AssignRadioComponents to ETS Functions
The nine functions available in the ETS can be assigned to the different keys and devices as follows:

ETS-Function \ Radio Devices or Keys, Resp.	Hand-Held Transmitter / All-ON Key	Hand- Held and Wall Mounted Transmitters / All-OFF Key	Hand- Held and Wall Mounted Transmitters / Channel Keys (Rockers)	Hand- Held and Wall Mounted Transmitters / Lightscape Keys	Hand-Held Transmitter / Master Key (Rocker)	Universal Transmitter / (Function: Key/Louver)	Universal Transmitter / (Function: Switch)	Radio Detector 180
Switching	•1)	•2)	•	•1)	•3)	•	–	–
Toggling	–	–	•4)	•5)	•3)	•	–	–
Dimming	–	–	•6)	–	•3)	•	–	–
Louver	–	–	•	–	•3)	•	–	–
Value Transmitter	–	–	•4)	•5)	•3)	•	–	–
Lightscape Extension	–	–	•4)	•5)	•3)	•	–	–
Lightscape	–	–	–	•7)	–	–	–	–
Automatic Switch	–	–	–	–	–	–	–	•
Universal Transmitter as Switch	–	–	–	–	–	–	•	–

•: Device or key, respectively, supported by this function.

-: Device or key, respectively, not supported by this function.

1) Transmitting the value parameterised under “left/upper key function”.
2) Transmitting the value parameterised under “right/lower key function”.
3) The master key can be used in the same way as a channel key.
4) Left/upper key: Output through object n (n = 0, 2, 4, ... , 98)
   Right/lower key: Output through object m (m = 1, 3, 5, ... , 99)
5) Output through object n (n = 0, 2, 4, ... , 98)
6) Left/upper key: ON/dimming up
   Right/lower key: OFF/dimming down
7) Output of key numbers 1-5 lightscapes.

10. Commissioning of radio components

The Radio Control Converter has three different modes of operation:

1. Service mode Radio telegrams from transmitters learned in are converted into EIB telegrams. => Normal mode.
2. Learning mode Radio control transmitters and functions are learned. Receiver sensitivity is highly restricted to avoid erroneous learning events.
3. Clear mode Radio control transmitters and functions are deleted.

10.1. Changing the Modes of Operation

You can change between the modes as shown in the opposite diagram. For this purpose, the battery must be connected to clip B.

To learn radio components and to assign keys (functions) to an ETS channel number the learn mode must be activated first.

10.2. Learning Mode

In the learning mode, the keys or devices of the radio products are learned and assigned to an ETS channel number.

Changing to learn mode:

1. Connect the battery to clip B (see illustration on fold-out page). Display J is activated.
2. Press channel selection keys G and H simultaneously until display J shows ‘01‘ and the right decimal point is lit up (ca. 5 seconds).

Learning a new key or a new device, respectively:

1. Set desired ETS channel number with channel selection keys G and H.
2. Actuate radio control transmitter until display reads ‘LE’ (LEARN). (Actuation time: between 1 s and 10 s: e. g. 1 s for channel keys, 10 s for All-ON or All-OFF key, respectively.)
3. To store the key or the device on the ETS channel set before press accept key D. Learning will be indicated by the channel number shortly blinking in display J.

Cancel process: Press channel selections keys G and H simutaneously until the right decimal point in the display goes out.

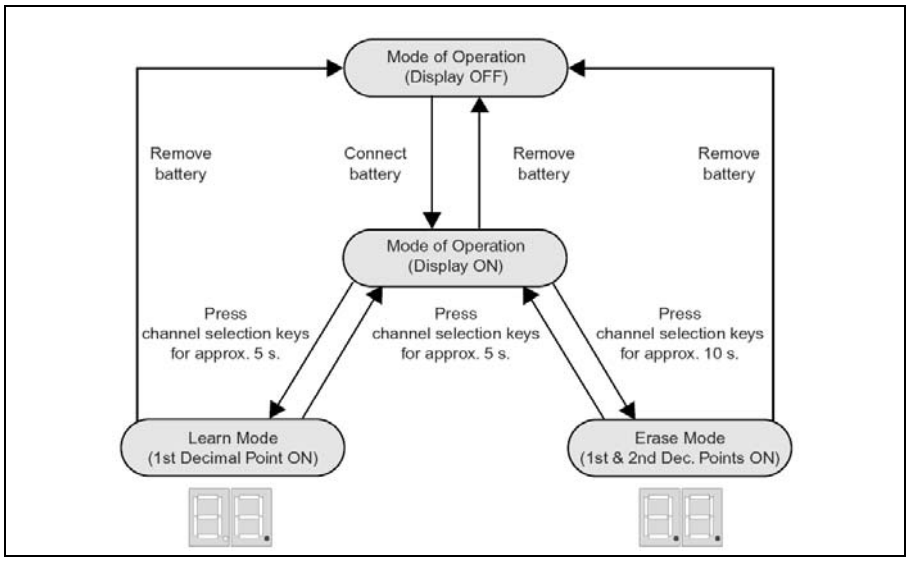
To have further devices or keys learned in start from item 1 again.

Important: If all 100 memory locations are occupied in the device the display will read ‘OF’ (OVERFLOW).

Relearning a key or device, respectively, into a new channel:

1. Set desired new ETS channel number with channel selection keys G and H.
2. Actuate radio sensor. Channel number still current will be blinking in display J. (Actuation time: between 1 s and 10 s: e. g. 1 s for channel keys, 10 s for All- ON or All-OFF key, respectively.)
3. To program the device or key to a new ETS channel accept key D must be pressed for approx. 3 s.
   Programming the device to the new ETS channel number will be indicated by this channel number shortly blinking.

Cancel process: Press channel selections keys G and H simutaneously until the right decimal point in the display goes out.
To return to the normal service mode after the learning processes remove the battery.



10.3.Clear Mode

In the clear mode (for selecting, refer to “Changing the Modes of Operation”),

a.) a key or device, respectively,

b.) all devices (keys) of an ETS channel, or

c.) the entire memory can be cleared.

Switching over to the clear mode:

1. Connect the battery to clip B (see illustration on fold-out page). Display J is activated.
2. Press channel selection keys G and H simultaneously until both decimal points are lit up (ca. 10 seconds.) Display J shows ’01.’,

a.) Clearing a key or device, respectively

1. Actuate the key or device to be cleared until the associated ETS channel number blinks in the display.
   (Actuation time: between 1 s and 10 s: e. g. 1 s for channel keys, 10 s for All-ON or All-OFF key, respectively.)
2. By pressing the accept key for approx. 3 s, the key or device can be cleared from the memory. During the clearing process, the display will be reading '- -'. After the completion of the clearing process, the channel number will be displayed.
3. If the key or device is not to be cleared the clearing process can be cancelled by pressing any channel selection key.

b.) Clearing all keys or devices, respectively, of an ETS channel

1. Select the ETS channel to be cleared with the channel selection keys.
2. Pressing the accept key for approx. 3 s will initiate the clearing process for the ETS channel selected. The display will read 'CE' (CLEAR ENTRY). After the completion of the clearing process, the ETS channel will reappear in the display.

c.) Clearing the entire memory

1. Pressing the accept key for approx. 3 s will initiate the clearing process for the memory. The display will read 'AC' (ALL CLEAR).
2. After the completion of the clearing process, the display will read '00'. The device is again in the normal service mode.

To return to the normal service mode after the clearing processes remove the battery.

11. Technical data

Power supply *instabus* EIB	
Voltage :	21 - 32 V DC
Power consumption :	max. 170 mW
External power supply (only for learning/ clearing mode)	
Voltage :	9 V battery, type 6LR61
Power consumption :	max. 140 mW
Connection	
instabus EIB :	Connecting and branch terminal
Battery :	Battery clip for 9 V battery block
Radio receive frequency :	433.42 MHz
Modulation :	ASK (amplitude shift keying)
Ambient temperature :	-5°C to + 45°C
Protective system :	IP 20

Subject to technical modifications.

12. Guarantee

Our products are under guarantee within the scope of the statutory provisions.

Please return the unit postage paid to our central service department giving a brief description of the fault:

ALBRECHT JUNG GMBH & CO. KG
Service-Center
Kupferstr. 17-19

D-44532 Lünen

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