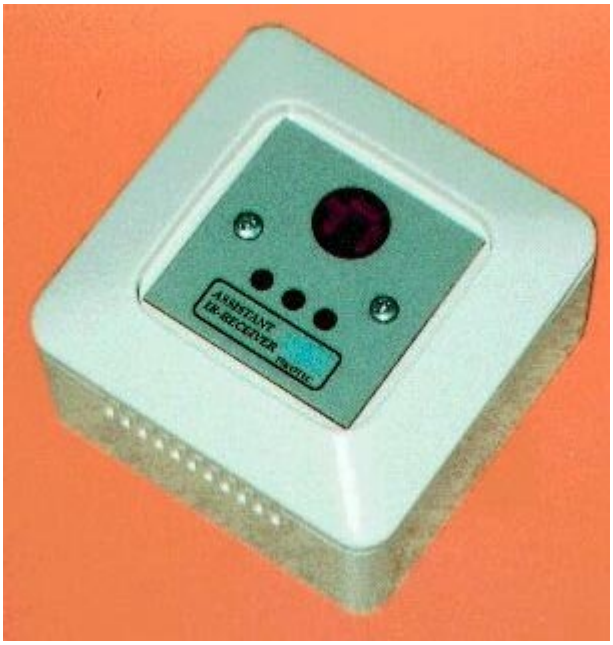
Environmental Control

Documentation for Picomed ER2AC and ER4AC IR-receivers with 2 and 4 channels



Brokelandsheia, 4993 Sundebru, **Tlf** +47 3711 9950 **Fax** +47 3711 9951 **E-mail**: firmapost@picomed.no **Foretaksnr** 962 211 631 MVA

Documentation ER2AC and ER4AC IR-receiver

Versions

Date	Made by	Comment
210205	Bent-Håvard Sollid	English version, based on Norwegian version 0303.

Table of contents

1 User manual

Picomed ER2AC and ER4AC receivers for InfraRed (IR) light receives IR light emitted from IR-transmitters. To receive these signals it is an advantage that the receiver not is covered by anything which can block the emitted signal from the transmitter. Usually the IR-signals will be reflected by floor, walls and roof, so in most cases there is no need to point directly against the receiver with the IR-transmitter. The distance between the receiver and the transmitter should be more than 1 metres to make the most of this reflection effect.

The receiver will be controlled by a transmitter with the same type of IR-signals and the correct codes.

There is no need for maintenance for the IR-receiver, and there is no batteries etc. which has to be changed. If the IR-receiver needs to be cleaned, it can be cleaned with a humid cloth, alternatively use a mild soap.

There is a red light indicator in the front of the IR-receivers which will lit when it receives a known IR-signal. Keep in mind that it should not be covered by anything which can prevent the IR-signals to reach it, and it should not be exposed for direct sunlight.

1.1 Water, humidity and cleaning

Picomed ER2AC and ER4AC is ment for indoor use. Do not spell liquids on the receiver while it can destroy it.

1.2 Cleaning

It can be cleaned with a humid cloth, alternatively use a mild soap.

1.3 Malfunctioning

Contact:

Name	Telephonenumber

2 Technical documentation

The IR-receiver is ment to be wall-mounted in a standard box. It can also be flush mounted in a standard box. There is no need for any dissasembling for periodical maintenance, inspections or repairments.

2.1 Periodically maintenance

The IR-receiver is developed to work without any need for periodical maintenance. There is no internal battery to be changed.

2.2 Mounting

Picomeds IR-receiveres ER2AC and ER4AC is ment for wall mounting. All electrical wires shall be disconnected when mounting the receiver. It shall be mounted in a place where it not will be covered by anything which can block the IR-signals. Even so, it is very often possible to place it behind curtains etc, and still it will work to the users satisfaction. Direct sunlight which shines on the receiver will very often reduce the receivers sensitivity.

2.2.1 Electrical connections

The IR-receiver shall be powered by 12-24 VDC/AC and shall only be connected to approved powersupplies.

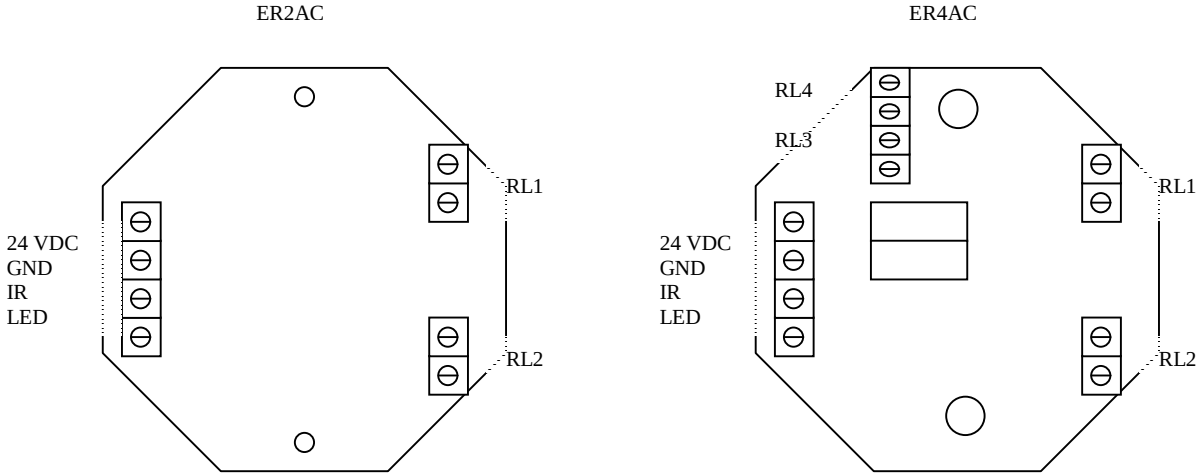
All connections shall be made without an active powersupply. The minimum cable area shall be 0,22 mm^2.

If necessary, it is possible to connect an additional IR-sensor to the IR-receiver. Also two IR-receivers can be connected together, and work as IR-sensors for each other. An IR-signal will be adducted to the other IR-receiver via the IR-bus. The IR-sensors have to be programmed with the same user code. The IR-bus has 4 connections:

1. IR-BUS signal.
2. Ground (-).
3. IR-BUS LED.
4. =< + 24V.

To connect different receivers to each other, they have to use the same powersupply.

2.2.2 Wiring diagram

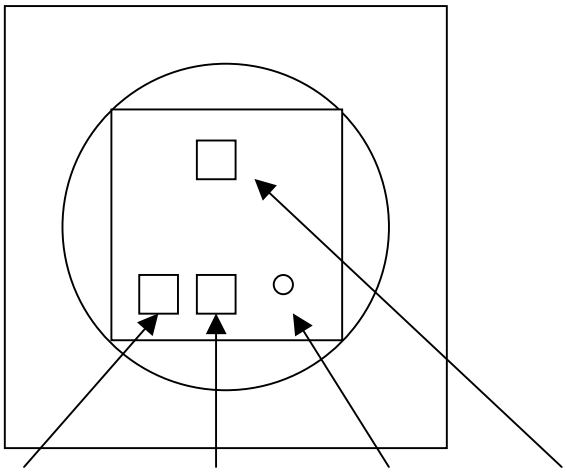


2.2.3 IR-receiver with lock-code

Picomeds IR-receivers are designed to work together with Abloy and Picomatic dooropeners. Usually these advanced door-openers will be connected to only one relay-output. When the IR-receiver is programmed with a lock-code signal, it will activate both relay 1 and 2. The signal on output 2 will be activated a little bit **before** channel 1, and it is ment for lock-systems which not can be controlled by the dooropener.

2.3 Programming

The ER2AC and ER4AC IR-receiver can be programmed by the 2 push-buttons next to the LED on the PCB. It is also possible to use these buttons in combination with a preprogrammed IR-transmitter and obtain a fast-mode programming. The front-cover has to be removed to get access to the buttons. The power supply has to be connected to the IR-receiver, but no electrical components shall be connected to the relay connections. The receiver will not loose any settings during a power loss.



The main components on the PCB are two programming buttons ("1" knapp, "0" knapp), one LED (Lysdiode) and a IR-sensor on the PCB.
The programming buttons are indicated as "0" and "1" (binary notation). The following parameters can be programmed:

- User code and channels.
- Lockcode.
- Working mode for the relays.

User code and channel can be set with the help of a preprogrammed IR-remote controller. The working mode for the relays has to be set with the programming buttons. The receiver can be reprogrammed any time, and there is no limit for how many times it can be reprogrammed.

2.3.1 How to program the IR-receiver

- Enter programmaing mode by press & hold the "0" button for 5 seconds. Let off the button when the LED is lightning.
- The programming can be done by writing "programming-words"; PW, which consists of sequences containing "0" and "1". The PW's should be written down before the programming starts to avoid any trouble due to timeouts during the programming.
- If a wrong input is made, press an hold the "0" button for 5 seconds to leave the PW and go back to programming mode without saving data.
- There will be a timeout after 60 seconds if no keys are pressed.
- When entering of a PW is started a pause of more than 15 seconds between two bits will result in timeout of a PW.
- Only completed PW will be stored.

2.3.2 LED behaviour during programming mode

- In programming mode the LED will be on.
- When a PW is started, the LED will flashing rapidly.
- When entering a bit, the LED will turn of for a moment.
- When a PW is done and all bits accepted, the LED will flash slowly twice.

The IR-receiver will have the same behaviour when it is programmed by the help of an IR-transmitter.

2.3.3 Programming memory

All settings which are programmed will be stored and they will not be changed during a power loss. The power supply has to be connected during the programming sequence.

2.3.4 User code and channel - programmed with buttons

PW to use for choosing the user code shall start with " 1 0 0 0". The PW shall be like this:

1	0	0	0	A4	A3	A2	A1	A0	D3	D2	D1	D0

The table beneath shows the usercodes and channels:

Gewa channel group	Usercode	A_4	A_3	A_2	A_1	A_0
0	0	0	0	0	0	0
1	1	0	0	0	0	1
2	2	0	0	0	1	0
3	3	0	0	0	1	1
0	4	0	0	1	0	0
1	5	0	0	1	0	1
2	6	0	0	1	1	0
3	7	0	0	1	1	1
0	8	0	1	0	0	0
1	9	0	1	0	0	1
2	10	0	1	0	1	0
3	11	0	1	0	1	1
0	12	0	1	1	0	0
1	13	0	1	1	0	1
2	14	0	1	1	1	0
3	15	0	1	1	1	1
0	16	1	0	0	0	0
1	17	1	0	0	0	1
2	18	1	0	0	1	0
3	19	1	0	0	1	1
0	20	1	0	1	0	0
1	21	1	0	1	0	1
2	22	1	0	1	1	0
3	23	1	0	1	1	1
0	24	1	1	0	0	0
1	25	1	1	0	0	1
2	26	1	1	0	1	0
3	27	1	1	0	1	1
0	28	1	1	1	0	0
1	29	1	1	1	0	1
2	30	1	1	1	1	0
3	31	1	1	1	1	1

2.3.5 User code and channel - programmed with an IR-remotecontroller

A fast mode programming mode is also available. A preprogrammed IR-remote controller can be used.

- Press and hold the "0"-button for 5 seconds to enter the programming mode. The LED shall be lightning.
- Press the "1" button once, the LED will start flashing rapidly.
- Transmit the signal from the IR-remote which shall control the first relay in the IR-receiver.
- The LED will flash twice.
- Finish by press & hold the "0" - buttons for 5 seconds.

The IR-receiver will read the IR-signal and store it in its memory. When programming the receiver in this way, ONLY the signaltype programmed in the IR-transmitter will be stored. If the IR-receiver shall respond to more than one IR-signal, the IR-receiver shall be programmed with the programming buttons.

2.3.6 Lockcode - programmed with buttons

The lockcode is a special code consisting of 12 bits to obtain higher security. PW to use for choosing the Lock code shall start with "0". The PW shall be like this:

0	XXX	XXX	XXX	XXX

- Press and hold the "0" button for 5 seconds and let off the button when the LED lit.
- Press the "0" button once, the LED will start flashing rapidly.
- Enter the 12 bit lockcode to be used.
- The LED will flash twice.
- Finish by press & hold the "0" - buttons for 5 seconds.

2.3.7 Lockcode - programmed with an IR-remote controller

A fast mode programming mode is also available. A preprogrammed IR-remote controller can be used.

- Press and hold the "0"-button for 5 seconds to enter the programming mode. The LED shall be lightning.
- Press the "0" button once, the LED will start flashing rapidly.
- Transmit the lock-code signal from the IR-remote.
- The LED will flash twice.
- Finish by press & hold the "0" - buttons for 5 seconds.

2.3.8 Relay functions

The relay functions can be set to:

- On/Off.
- Impulse (1 or 4 seconds).
- Hold.

This can be set with the programming buttons. Each channel (relay) can be programmed individually.
PW to use for relay functions shall start with "1 1 0 0 0". The PW shall be like this:

1 1 0 0 0	X0 Y0	X1 Y1	X2 Y2	X3 Y3

Setting		
Xn	Yn	Output function on the relay
0	0	On/Off
0	1	Impulse 1 second

1 0 Impulse 4 seconds
1 1 Hold

2.4 Recycling

When the IR-receiver shall be recycled to be used by an other user, the following should be done. If there is any need to file this process, make copies of this page, fill in serialnumber and make a cross next to each point to be done.

- Serialnumber:
- Check the IR-receiver for damages.
- Clean it.
- Make a functional test[1].
- Reprogram the ER x AC IR-receiver so IR-formats and usercodes used by a person not can be misused in any circumstances. The following settings are recommended:
  - Usercode 0.
  - Channelgroup (Gewa) 0.
  - Channel 0.
  - Format New Assistant.

3 Productinformation

Picomed ER2AC and *Picomed ER4AC* IR-receivers have 2 or 4 channels controlled by infrared (IR) light. The receivers are developed to control lov-voltage products up to 48 V. They can also control 230 VAC via external relays. They shall be powered with 12-24 VAC/VDC. They can be programmed to receive ordinary codes or lock codes. They can read the following IR-formats:

- New Assistant, 32 usercodes with 16 channels in each.
- New Assistant lockcode, 12 bit.
- Gewa Infralink, 4 groups with 16 channels in each.
- Gewa Infralink lockcode, old 10 bit.
- Gewa Infralink lockcode, new12 bit.

The IR-receiver can be programmed to respond on both New Assistant and Gewa if needed.

- ER2AC has 2 channels (relays).
- ER4AC has 4 channels (relays).

Each relay output can be individually programmed to on/off, hold or impuls. ***If the IR-receiver is programmed to respond on lock-codes it will only work on channel/relay 1.***

3.1 Accessories

The IR-receiver is assembled with a printed circuit board inside a plastic box. On the front there is a keypad foil with keys, product name and a light indicator. The partnumbers are:

Description	Picomed partnumber
Infrared receiver 2 channels	ER2AC
Infrared receiver 4 channels	ER4AC

[1] A functional test should be done together with an IR-transmitter. Tip: do it before the IR-receiver is dismounted. Both the IR-receiver and the IR-transmitter has to be prerogrammed with the same user code and channel. Ensure that the IR-receiver responds on the receiverd IR-signals.

3.2 Technical data

Type	Picomed ER2AC/ER4AC infrared receiver 2/4 channels.
Controlled by	From an IR remotecontrol.
Number of channels	2/4 potential free relays, 0,5 A/48 Volt.
Powersupply	External powersupply 9-24 VAC/DC.
Current consumption	50 mA.
Temperature	-10 up to + 40° C.
Connections	Internal screw terminals.
Weight	Ca 100 g.
Materiale	Plastic.
Settings	Usercode. Channel. Lockcode. Relay working mode.
Neccessary depth when flush mounting	35 mm.

SYMPTOM	ACTION I	ACTION II	ACTION III
The receiver does not work at all	Check power supply.	Disconnect IR-sensor if connected	Call Your technichian
The receiver does not work when IR-sensor is connected	The IR-sensor is exposed to direct sunshine. It has to be moved to a place where it not is exposed by sunshine	The IR-sensor is defect and has to be changed	Call Your technichian
The receiver does not work when the sun is shining on it	It has to be moved to a place where it not is exposed by sunshine	Call Your technichian	
The receiver is connected to a common door and works only for some users	Not correct programmed. Check the user manual	Call Your technichian	
The receiver works somethimes or in intervals	Not correct programmed. Check the user manual	Call Your technichian	
The receiver works for a while and seems to be reset	The receiver is connected to an inductive load (relay etc) which not is not protected with a diode.	Call Your technichian	

Brokelandsheia, 4993 Sundebru, **Tlf** +47 3711 9950 **Fax** +47 3711 9951 **E-mail**: firmapost@picomed.no **Foretaksnr** 962 211 631 MVA

PICOMED

EC DECLARATION OF CONFORMITY

Manufacturers name and address:

Picomed as
Brokelandsheia
N-4993 SUNDEBRU, Norway

Declare under our sole responsibility that the product:

Picomed Infrared Receivers ERx-series.

Model names:

- ER2.
- ER4.

Are in conformity with the following standards:

- NS-EN 1441: 1998-03: Medical devices - Risk analysis.
- NS-EN 12182: 2000-02: Technical aids for disabled person. General requirements and test methods.
- NS-EN ISO14971: 2001-04: Medical devices. Application of risk management to medical devices (ISO 14971:2000)(Corrigendum AC:2001 incorporated).
- NS-EN ISO 14971:2000/A1: 2003-05: Amendment A1. Medical devices. Application of risk management to medical devices. Amendment 1: Rationale for requirements (ISO 14971:2000/AM1:2003).
- EN 50081-1: Electromagnetic compatbility - Generic emission, standard part 1: Residential, commercial and light industry.
- EN 50082-1: Electromagnetic compatbility - Generic immunity, standard part 1: Residential, commercial and light industry.
- EN 60601-1:1988-12 (IEC 601-1:1988): Medical electrical equipment Pt. 1: General requirements for safety. Defined as a Class B product – int. powered equipm.

Supplementary information:

The products compiles with the requirements of the following directives:

- Low Voltage Directive 73/23/EEC.
- Medical Devices Directive 93/42/EEC (Class I).

The products carries the CE mark accordingly. The CE mark was first applied in the year 2000. The technical documentation relevant to the above equipment will be held by us.

Gjerstad, Norway	06. may 2004.	Bent-H. Sollid
Location	*Issue Date*	*Bent-Håvard Sollid.* *Development Manager*

Picomed as, Brokelandsheia, N-4993 Sundebru
Tel: 37 11 99 50, Faks: 37 11 99 51, E-mail: firmapost@picomed.no, Org.nr: NO 962 211 631 MVA, Bank: 2938.05.05914