

W7070A2000 ZAPP WIRELESS RECEIVER

HONEYWELL EXCEL 5000 OPEN SYSTEM

INSTALLATION INSTRUCTIONS

BEFORE INSTALLATION

The W7070A2000 ZAPP Wireless Receiver (including the ZAPP External Antenna) is capable of exchanging data with the following four types of ZAPP room units:

- The RT7070A2008 ZAPP Wireless Handheld Remote Control
- the T7270A2001 ZAPP Wireless Wall Module with temperature sensor and setpoint;
- the T7270A2019 ZAPP Wireless Wall Module with temperature sensor; and
- the T7270B2009 ZAPP Wireless Wall Module for HVAC, light, and sunblind applications.

The W7070A2000 is suitable for use with up to eight rooms in which the aforementioned ZAPP room units are in operation. The W7070A2000 ZAPP Wireless Receiver receives data from the ZAPP room units at 868.3 MHz.

STANDARDS AND NORMS

The ZAPP System complies with CE and EN 300 220-1 and EN 301 489-1 as well as LONMARK® Application Layer Guidelines Version 3.2.

IMPORTANT!

It is recommended that devices be kept at room temperature for at least 24 hours before applying power to allow any condensation resulting from low shipping/storage temperatures to evaporate.

Use in Combination with Legacy Devices

The W7070A2000 ZAPP Wireless Receiver is suitable for use only with the T7270A2001, T7270A2019, T7270B2009 ZAPP Wireless Wall Modules and the RT7070A2008 ZAPP Wireless Handheld Remote Control. It cannot communicate with (but is likewise unaffected by) legacy devices (e.g. the T7270A1001, T7270A1019, T7270B1009, or the RT7070A1008).

Set-Up

Because of interference from other devices and the building structure, it is not possible to exactly define the wireless transmission range. For further details, see section "Installation of Wireless Systems" on page 3.

LonWorks Communications

The W7070A2000 utilizes a free-topology transceiver (FTT10A) Link Power compatible LONWORKS® network that allows daisy-chain, loop, and star network configurations or any combination thereof.

Depending upon the LONWORKS® network configuration used, one or two termination modules may be required (see Fig. 4). Different connections to the termination module are necessary, depending upon whether it is used in a single- or double-terminated network configuration. For more information, please see "LonWorks Mechanisms" (EN1B-0270GE51).

NOTE: The LONWORKS® network is insensitive to polarity, eliminating installation errors due to miswiring

Wire the W7070A2000's LonWorks® communications network using level IV 22 AWG or plenum-rated level IV 22 AWG non-shielded, twisted pair, solid conductor wire.

INSTALLATION

See Fig. 1 for outside dimensions and Fig. 2 for sub-base mounting dimensions. The W7070A2000 can be mounted in any orientation desired on a panel, wall, or onto a standard wall outlet box (see Fig. 3).

Power

Input power provided must be 24 Vac ($\pm 20\%$), 50 or 60 Hz. The power consumption of the W7070A2000 (including the connected active antenna) is 2 VA.



CAUTION

Avoid electrical shock or equipment damage. Turn power OFF prior to connecting to or removing connections from any terminals.

Use the heaviest gauge wire available, up to 14 AWG (2.5 mm²), with a minimum of 18 AWG (1.0 mm²) for all power wiring.

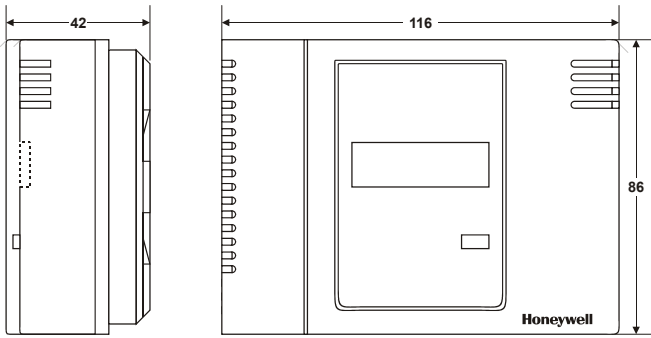


Fig. 1. W7070A2000, outside dimensions (in mm)

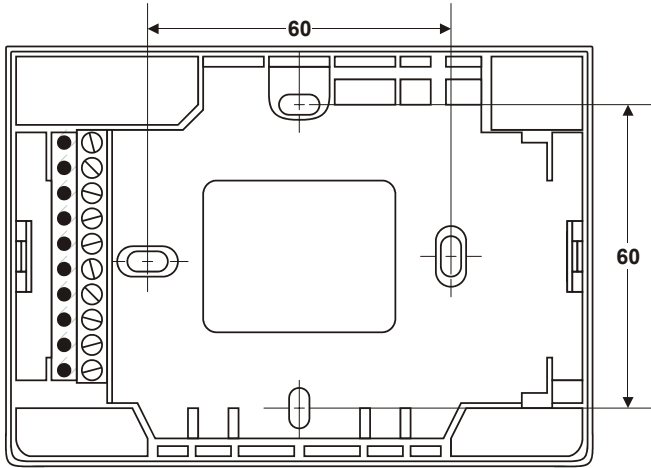


Fig. 2. Sub-base mounting dimensions (in mm)

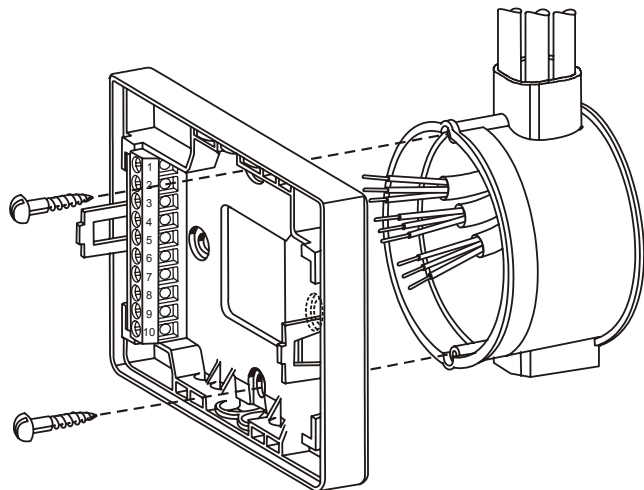


Fig. 3. Mounting on wall outlet box

Wiring Details

Fig. 5 illustrates the terminal assignments of the W7070A2000. Refer to job drawings for specific wiring diagrams. Connections to the W7070A2000 are made at an internal terminal block accessible beneath the front cover. No tools are required to remove the front cover.

1. Simply pull away the cover from the sub-base as shown in Fig. 6.

Use a minimum wire size of 20 AWG (0.5 mm²) for all input / output connections. The maximum length of all input / output cables is 20 m.

Wire to the terminal blocks as follows:

2. Strip 13 mm insulation from the conductor.
3. Insert the wire in the required terminal location and tighten the screw to complete the termination.
4. Ensure that the wire entering the terminal block does not extend above the numbered face of the terminal block to avoid contact between the wires and the printed circuit board on the underside of the front cover (see Fig. 7).

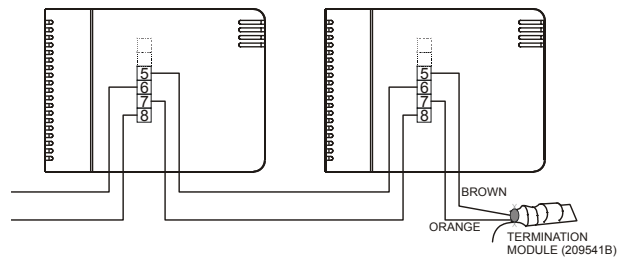


Fig. 4. Termination module connection (daisy-chain network configuration)

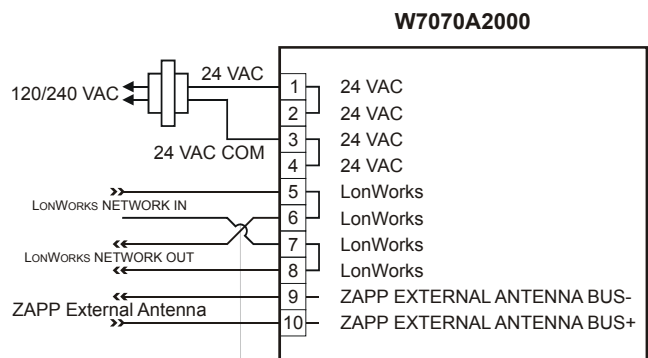


Fig. 5. W7070A2000 terminal assignments

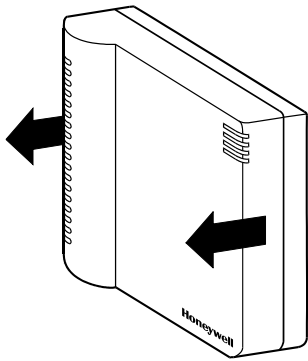


Fig. 6. Terminal cover removal

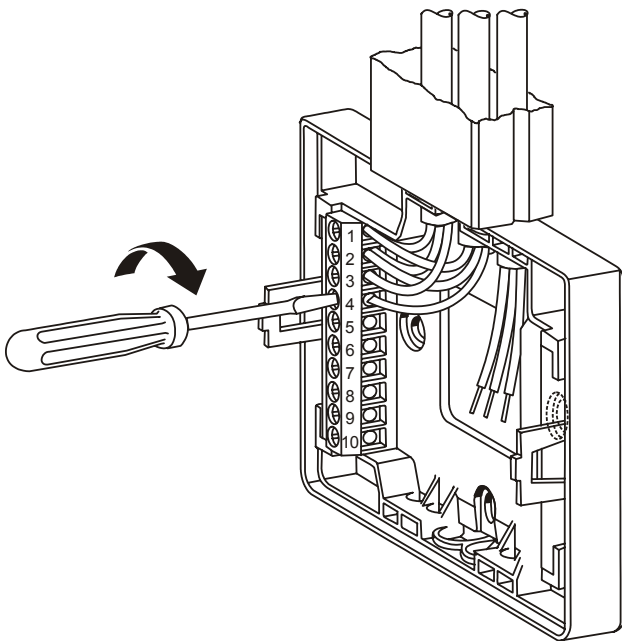


Fig. 7. Terminal box connections

Environmental Ratings

Operating Temperature
(0...50 °C).

Shipping/Storage Temperature
(-20...70 °C).

Relative Humidity
5...95 % non-condensing

Receiver Class

The ZAPP External Antenna (Receiver Class 2) is an active electronic element. It broadcasts no electromagnetic energy. Communication between the ZAPP External Antenna and the W7070A2000 is via bus (see also Fig. 9).

Housing
IP20

ZAPP EXTERNAL ANTENNA

Each W7070A2000 is delivered together with a corresponding ZAPP External Antenna, to which it must be connected before it can receive signals from the ZAPP devices.

Install the ZAPP External Antenna only outside of metal housings (e.g. control cabinets).

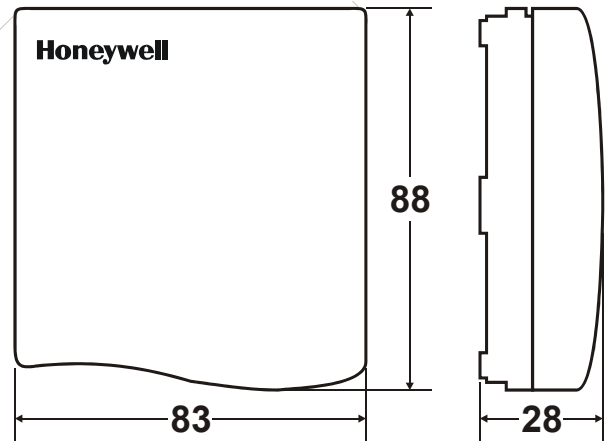


Fig. 8. ZAPP External Antenna, dimensions (mm)

Install the ZAPP External Antenna at a suitable location near (i.e. within 30 m) of the W7070A2000.

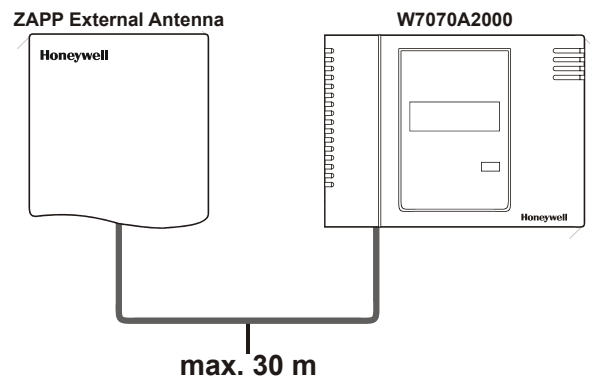


Fig. 9. Max. distance

The ZAPP External Antenna may be connected to only a single W7070A2000.

See also section "ZAPP External Antenna – Installation and Wiring" on page 6.

Installation of Wireless Systems

Due to the use of wireless technology for sending signals from transmitters i.e. ZAPP room units to evaluation units (receivers) and the discontinuation of the use of electrical cable connections, there are some basic guidelines that must be followed during planning and installation.

This information is intended to help both the planner with configuring the radio path and the system integrator/engineer or service technician with installation and troubleshooting.

Basics for Radio Signals in Buildings

Radio signals are electromagnetic waves and as such diminish in strength on their way from the transmitter to the receiver, even when unobstructed. This drop in signal strength is inversely proportional to the square of the distance between the transmitter and the receiver.

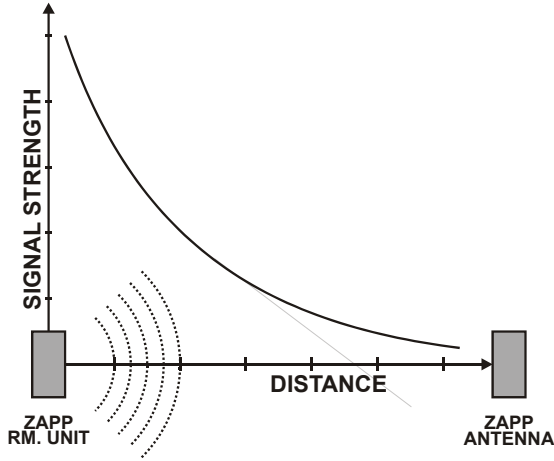


Fig. 10. Attenuation of signal strength with distance

Physical Obstructions

Beside this natural (distance-dependent) drop in signal strength, the presence of physical obstructions (e.g. walls, metallic objects, reinforcements in walls, metallized foils of thermal insulations or metallized heat-absorbent glass) located between the transmitter and the receiver can further weaken signal strength. This is referred to as "damping attenuation."

It is true that radio waves can penetrate walls to an extent, but the resultant drop in signal strength is greater than with unobstructed propagation in the free field.

Here are some examples of the blocking effect of different types of walls:

Table 1. Blocking effect of different wall materials

material	penetration
wood, gypsum, uncoated glass without metal	90...100%
brick, pressboard	65...95%
reinforced concrete with iron reinforcement	10...90%
metal, aluminum pasting	0...10%

In actual practice, this means that the building material used in a building is of paramount importance for the evaluation of the transmitting range. For an evaluation of the environment, some standard values are listed:

Table 2. Evaluating installation environment

pathway	typical range
unobstructed direct line of sight	30 m in passages, corridors, up to 100 m in halls
gypsum wall/wood	25 m through max. 4 walls
brick wall/gas concrete	15 m through max. 2 walls
reinforced concrete walls/ceilings	10 m through max. 1 wall/ceiling

NOTE: Storage areas and elevator shafts should be regarded as obstructions.

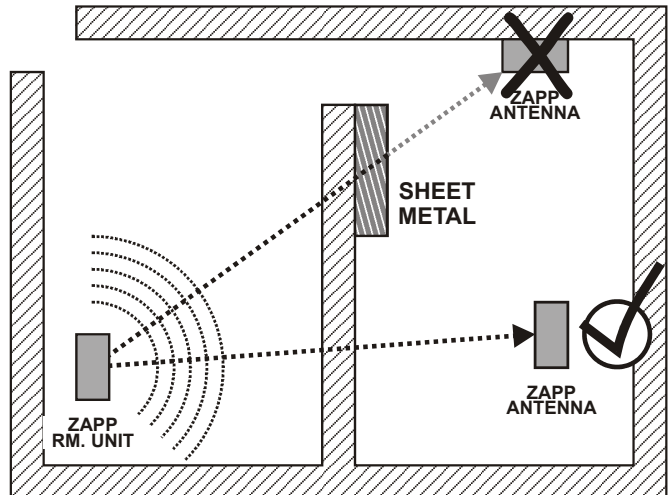


Fig. 11. Obstruction of signal

Likewise, avoid mounting the antenna and transmitter such that the radio waves travel along walls (see Fig. 12).

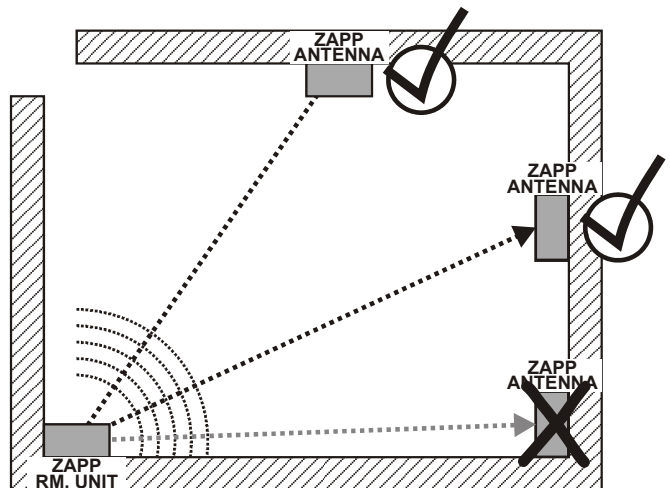


Fig. 12. Attenuation of signal strength at walls

Distance to Other Interference Sources

A distance between the ZAPP room units and other (third-party) transmitters (e.g. GSM / DECT / wireless LAN) of at least 1 m should be maintained.

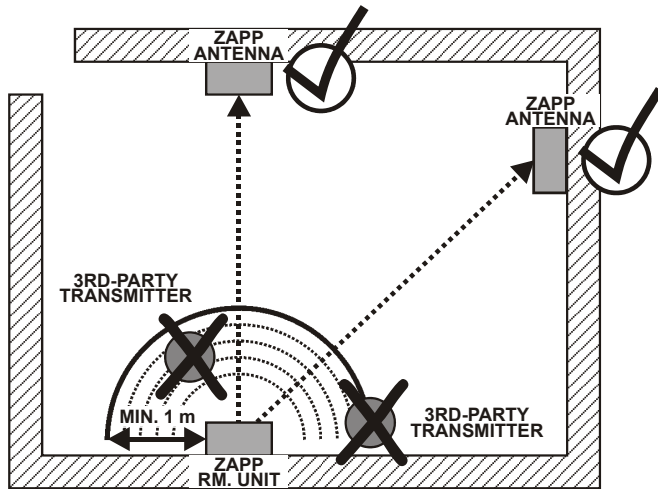


Fig. 13. Distance to interference sources

Further, a minimum distance of 35 cm should be maintained between different ZAPP components (i.e. ZAPP External Antennas, ZAPP Wall modules, and ZAPP Handhelds; it is, of course, no problem if a ZAPP External Antenna and a W7070A2000 Wireless Receiver are closer together).

Mounting Of Receiving Antenna

Ideally, an external receiving antenna should be mounted at a central location in the room. If possible, the antenna should have a distance of min. 0.1 m (min. $\lambda/4$, example: at 868 MHz ≈ 9 cm) to the wall and 0.5 m to the ceiling.

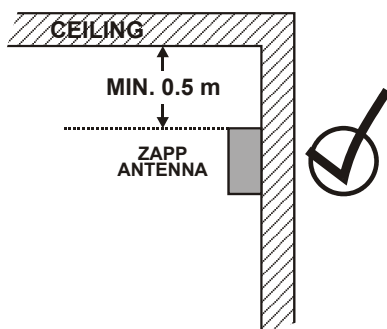


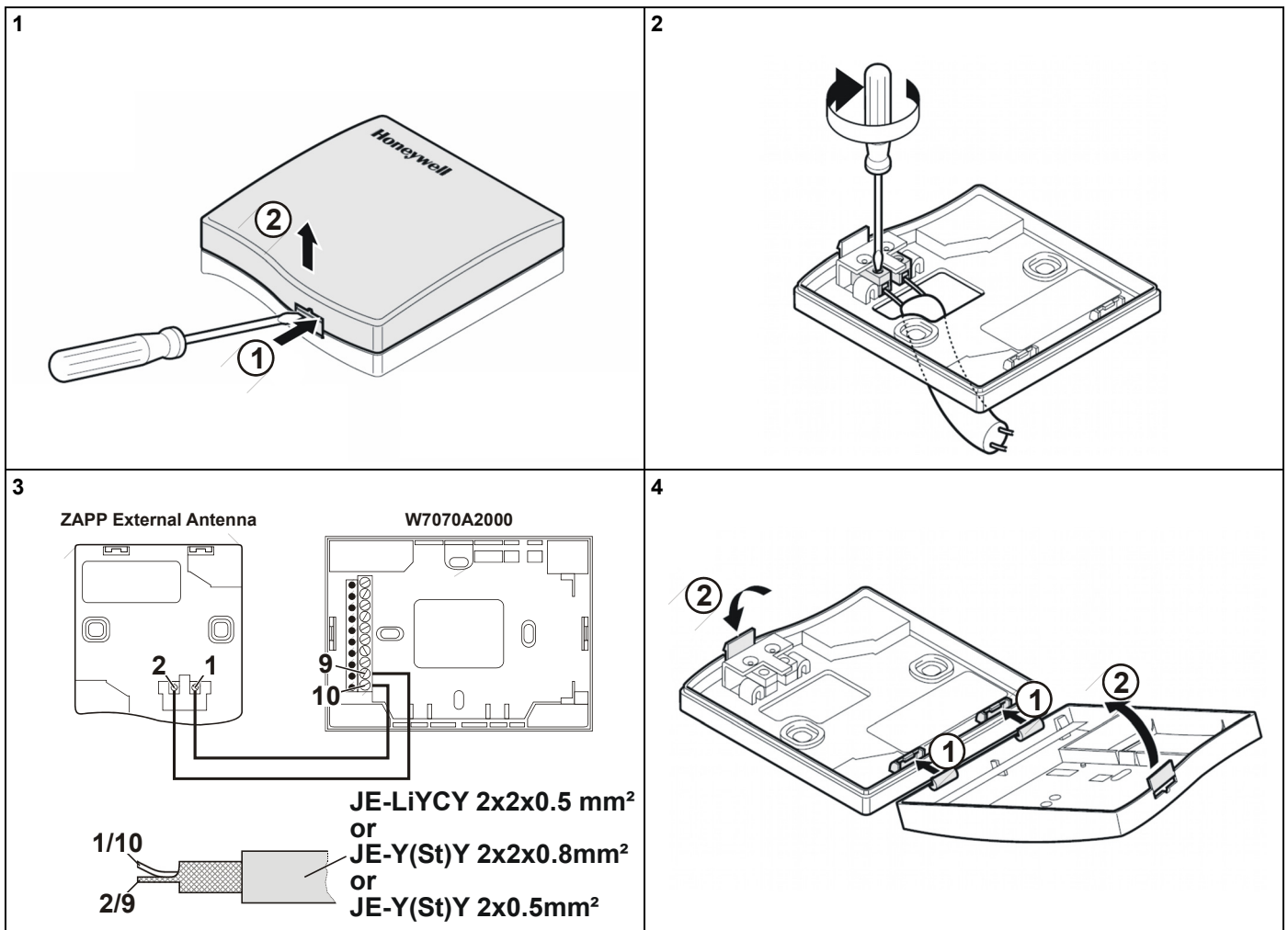
Fig. 14. Positioning antenna in ceiling area

Troubleshooting

Table 3. Possible causes of trouble and measures

error	possible cause	measure
ZAPP Ext. Antenna never receiving signal.	ZAPP room unit not transmitting.	Check ZAPP room unit as described above.
	Distance between ZAPP room unit and ZAPP Ext. Antenna beyond limit.	Decrease distance.
	Improper connection of ZAPP Ext. Antenna.	Check routing of cable between ZAPP Ext. Antenna and ZAPP Receiver.
	ZAPP room unit not taught-in.	Renewed teaching-in of ZAPP room unit to ZAPP Receiver.
	Wrong ZAPP room unit taught-in.	Renewed teaching-in of ZAPP room unit to ZAPP Receiver.
	ZAPP room unit removed.	Renewed teaching-in of ZAPP room unit to ZAPP Receiver.
ZAPP Ext. Antenna sometimes not receiving signal.	Mounting place of the ZAPP room unit has been changed.	Shift ZAPP room unit or ZAPP Ext. Antenna.
	Change of ambient conditions (metal cabinets, door, equipment, people, jamming).	Ensure min. distance to interference source; remove obstructions. Shift ZAPP room unit or ZAPP Ext. Antenna.
ZAPP Receiver displays invalid values on LONWORKS interface.	Distance between ZAPP room unit and ZAPP Ext. Antenna at limit.	Decrease distance.
	ZAPP room units have been taught in and, afterwards, ZAPP Receiver has been re-commissioned.	Force updating by operating adjustment wheel of every taught-in ZAPP Wall Module or pushing setpoint key of every taught-in ZAPP Handheld.

ZAPP External Antenna – Installation and Wiring



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This document is definitive for the enclosed product and replaces all previous publications.

Honeywell Inc. hereby declares that this device complies with the basic requirements and other relevant regulations of guideline 1999/5/EC. The declaration of conformity of the product can be requested from the manufacturer.

Note to non-E.U. countries: This product may only be used if operation in the 868 MHz frequency band is permissible.

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