WIRELESS MESH
GATEWAY PULSE | PHASE

User Manual

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1 Overview

1.1 General

The WIRELESS MESH GATEWAY PULSE | PAHSE represents, like the WIRELESS MESH ANCHOR PULSE | PAHSE, a basing point for the localization within the WIRELESS LOCATION SYSTEM. The gateway can be connected to the local IT-infrastructure via Ethernet. Through this connection the nodes (anchors and gateways) will exchange the localization data gathered as well as customer specific data between the localization network and the localization server. It is suggested to deploy several gateways for larger localization networks in order to raise the number of locatable TAGs and to enhance the availability of the position information.

1.2 Delivery contents

- 1 WIRELESS MESH GATEWAY PULSE | PAHSE, Order No. 6032502

Optional Accessories

- 1 power cord (3-pole), 3 m, Bulgin 400 Series Buccaneer® PX0410/03S
- 3 fixing screws
- Ethernet Connection - Amphenol LTW RCP-00AMMA-TLM7001 with 30 m Ethernet cable
- Quick installation guide including drilling template

1.3 Power supply

The WIRELESS MESH GATEWAY PULSE | PAHSE can be operated with 8 to 30 V direct current (DC) voltage.

The power supply for the device should not exceed the following values:
U < 30V; I<3,3A; P<100W

The device can be supplied via power connector **or** Ethernet (PoE), not both at the same time. The device is a class 0 PoE-Device.

1.4 Application field

The WIRELESS MESH GATEWAY PULSE | PAHSE has been designed for operation in humid environments. For that reason, it is absolutely necessary that all connections are made using waterproof plugs according to the technical specifications described below and to prevent the ingression of moisture into the device by using the appropriate sealing caps.

Important information for use in the USA:

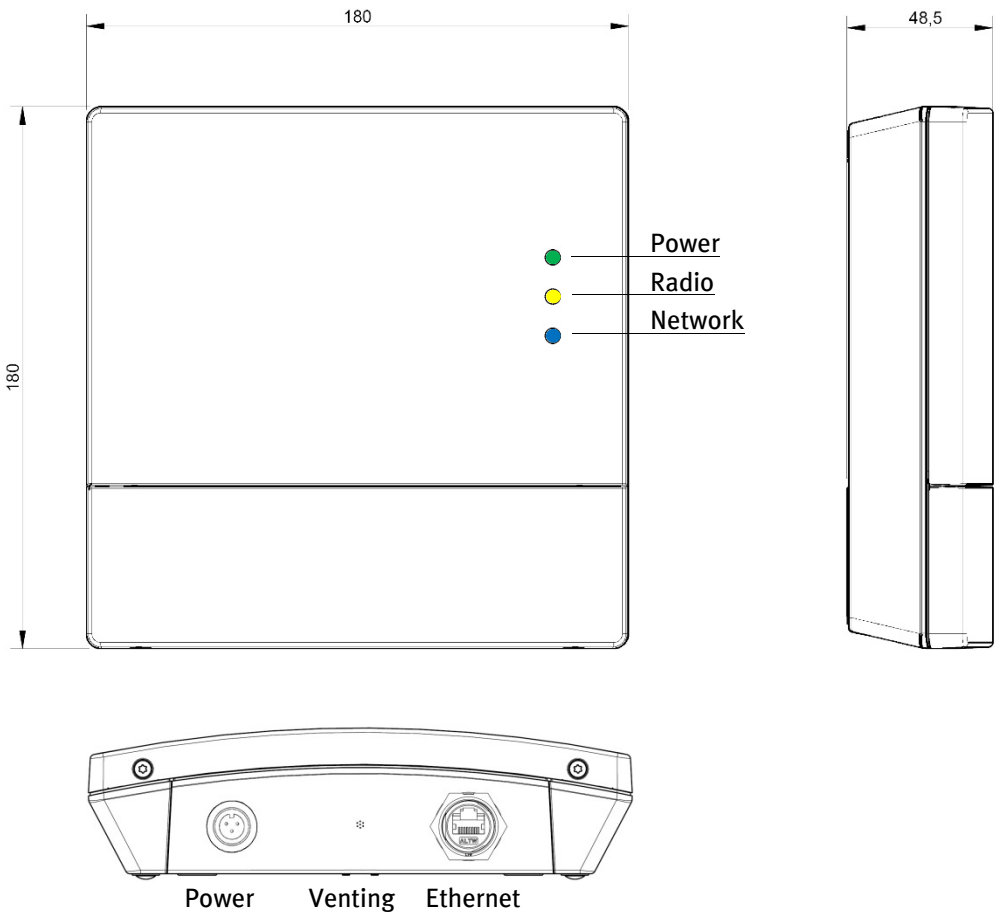
- This equipment may only be operated indoors. Operation outdoors is in violation of 47 U.S.C. 301 and could subject the operator to serious legal penalties.
- This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.
- This device complies with Part 15 of the FCC rules.

  Operation is subject to the following two conditions:
  (1) this device may not cause harmful interference, and
  (2) this device must accept any interference received, including interference that may cause undesired operation.

- Changes modifications or made to this equipment not expressly approved by Agilion GmbH may void the FCC authorization to operate this equipment.
- This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance of 20 cm between the radiator and your body.

2 Layout and connections

2.1 Dimensions



2.2 Connections and displays

Connection	Description
Power	Electricity supply
Ethernet	RJ45 Ethernet with PoE, Amphenol LTW RCP-00AMMA-TLM7001

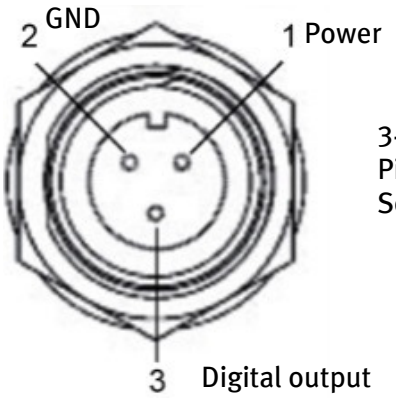
Display	Description
Power LED (green/red)	LED signaling electricity supply
Radio LED (yellow)	LED signaling the activity of the WLS (sending and receiving radio signals)
Network LED (blue)	LED signaling connection to the local IT-network

2.2.1 Possible states of the LEDs

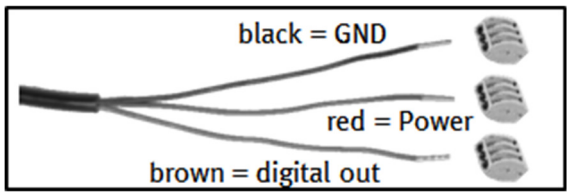
Power LED status display (green/red)	Description
On (green)	Power supply via cord
Flashes red every second	Undervoltage
Radio LED status display (yellow)	**Description**
Off	Device's WLS radio disabled
Flashes	Device's WLS radio active
Network LED status display (blue)	**Description**
On	Network connection established via LAN (Ethernet)
Flashes every scond	Network connection established but no connection to the WIRELESS LOCATION Server
Off	No network connection established

2.3 Pin allocation

2.3.1 Power, digital output – plug-in connector



3-pole connector Buccaneer® PX0412/03P
Pins: SA3350/1
Sealing cap: PX0480

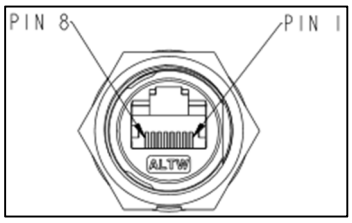


Pin	Description
1 - Power (red)	8 to 30 V DC
2 - GND (black)	Ground
3 - Digital output (brown)	Switched input voltage, maximum current (I) 200 mA

2.3.2 Ethernet socket RJ45

The WIRELESS MESH GATEWAY PULSE | PAHSE may only be connected to the Ethernet using the connectors depicted below. Make sure the twist-lock plugs are locked accurately when connecting the Ethernet cable.

2.3.2.1 Connection socket Amphenol LTW RCP-5SPFFH-TCU7001



Matching plug: RJ45 connector Amphenol LTW PCP-00AMMA-TLM7001

3 Installation, initial start-up, safety

3.1 General information

- The devices can only be used in combination with the WIRELESS LOCATION SYSTEM.
- Buildup, installation as well as the use of the tools and clients of the localization system are described in the corresponding guides and manuals.

3.2 Installation

- Carefully read ALL items listed in section 3 (Installation, initial start-up, safety) before installing the devices in order to safeguard correct installation and operation.
- The WIRELESS MESH GATEWAY PULSE | PAHSE is destined for fixed installation onto walls or ceilings.
- The installation has to be carried out by appropriately qualified and trained personnel and according to the installation guide.
- Follow the references concerning the surrounding conditions when installing and operating the devices.
- Make sure that all screws are screwed tightly to the wall/ceiling and that they are able to carry the weight of device and wiring.
- The ambient temperature must not exceed 50° C. Avoid installing devices at locations exposed to direct sunlight.
- The installation of the devices has to be carried out according to the applicable provisions for the installation of electrical systems and utilities. The devices have to be fitted accessible (to open the housing cover) for later maintenance.

3.3 Connecting the cables

- Make sure the twist-lock plugs are locked into place correctly to prevent the ingression of moisture.
- Make sure that any wiring has been carried out correctly before the start-up of the device.
- Use solely wiring as described in the manual, enclosed with the device or specified accordingly. Agilion GmbH is not liable for any damages or impairment of functionality resulting from the use of other cables.

Warning: Insofar as any connectors are not in use, they have to be sealed with the appropriate caps. The caps are attached to the device.

3.3.1 Power supply

- When connecting the power supply to the power connector, all LEDs flash for an instant. The power LED is on, if power is supplied (cf. states of the LEDs 2.2.1).
- The device can be powered via Ethernet cable. In this case the power supply connector should be sealed to avoid ingress of moisture.
- Do not supply the device by power input and PoE at the same time.
- Check whether the nominal voltage of the power supply is in accordance with the values stated in section “Technical data” (cf. 5).

The power supply for the device should not exceed the following values:
U < 30V; I<3,3A; P<100W

3.3.2 Ethernet

- Mind the relevant general conditions and their legal basis when installing and connecting the Ethernet line.
- Connect the Ethernet cable to the appropriate socket. Assemble the Ethernet cable into the RJ45 jack beforehand.
- To supply the device Power over Ethernet (PoE) an appropriate infrastructure such as PoE-Iniector or PoE-Switch is necessary.

3.4 Operation

- The device is not designed for use in EX-zones.
- Operation of the system in accordance with regulation EN 60950-1 is only safeguarded insofar as the case-cover is mounted (cooling, fire protection, disturbance suppression).
- Break the circuit connecting the device in case of emergencies (e.g. damaged housing, intrusion of liquids or foreign objects) and notify the service immediately.

3.5 Cleaning and maintenance

- The device may only be opened by appropriately trained and qualified personnel.
- Repairs may exclusively be carried out by authorized service points.
- Unauthorized opening and improper repairs of the device can cause substantial dangers for the user.
- Agilion GmbH’s warranty and liability are void in case of unauthorized opening of the device.
- Never use abrasive, alkaline or aggressive cleaning agents or auxiliary devices when cleaning the housing.

4 Troubleshooting

4.1 General errors

Fault detection	Cause of error	Troubleshooting
WIRELESS module does not react, all LEDs are off	Module is not connected or power supply is not switched on.	Check module's power supply
Power LED (red) flashes every second	Undervoltage	Check power supply
Radio LED (yellow) is off	No connection to the WLS	Activate localization network
Network LED (blue) is off	No network connection established (LAN)	Check local IT network, check firewall

5 Technical data

5.1 Connectors and power supply

Connectors and power supply	
Voltage	8 to 30 V DC, nominal 24 V DC
Power consumption	9 W
Power connector	3-pole plug-in connector with screw terminal Bulgin Buccaneer® PX0412/03P
Ethernet	RJ45 Ethernet via connector socket Amphenol LTW RCP-5SPFFH-TCU7001 Matching plug: Amphenol LTW PCP-00AMMA-TLM7001

5.2 Ethernet

Ethernet	
Ethernet	10/100MBit auto-detect
Duplex mode	Half- or full-duplex
DHCP	Yes
PoE	IEEE 802.3af class 0, power level 0,44 - 12,94 W

5.3 Radio

Radio - PULSE	
Wireless technology	IEEE 802.15.4-2011 UWB
Operating frequency	3100 MHz - 4800 MHz 6000 MHz - 7000 MHz
Output power	0,037 mW (-41,3 dBm/MHz)
Antennas	UWB-Antenna Built-in
Radio – PHASE	
Wireless technology	IEEE 802.15.4
Operating frequency	2,40 bis 2,48 GHz ISM-Band
Bandwidth	2 MHz; Data transmission at 802.15.4 , channels selectable
Output power	100mW
Antennas	2,4 GHz Antenna Built-in

5.4 Environment

Environment and dimensions	
Case	Plastic housing, Luran® S KR (ASA+PC), IP 65, UV-resistant
Installation	Fixed installation onto walls or ceilings
Dimension	180 x 180 x 48 mm
Weight	Approx. 650 g
Temperature range	-15 to +50°C

6 Declaration of Conformity

The Agilion GmbH declares as from 30.11.2017 the conformity of the

WIRELESS MESH GATEWAY PULSE | PHASE

according to the requirements of the standards:

EN 300 328 V2.1.1

EN 62311:2008

EN 302 065-2 V2.1.1

EN 301 489-1 V2.2.0 2017-03

EN 301 489-17 V3.2.0 2017-03

EN 301 489-33 V2.2.0 2017-03

EN 62368-1:2014

and complies with the EC-directives:

1999/519/EC

2014/35/EC

2011/65/EC (RoHS)

2014/30/EC

This declaration applies to all devices bearing the CE symbol. Validity is lost if modifications are made to the product.

The WIRELESS MESH GATEWAY PULSE | PAHSE underlies the 2012/19/EC and must be disposed separate form municipal waste.

S. Sieber A. Werner

Dipl.-Inf. Sven Sieber (Managing Director)

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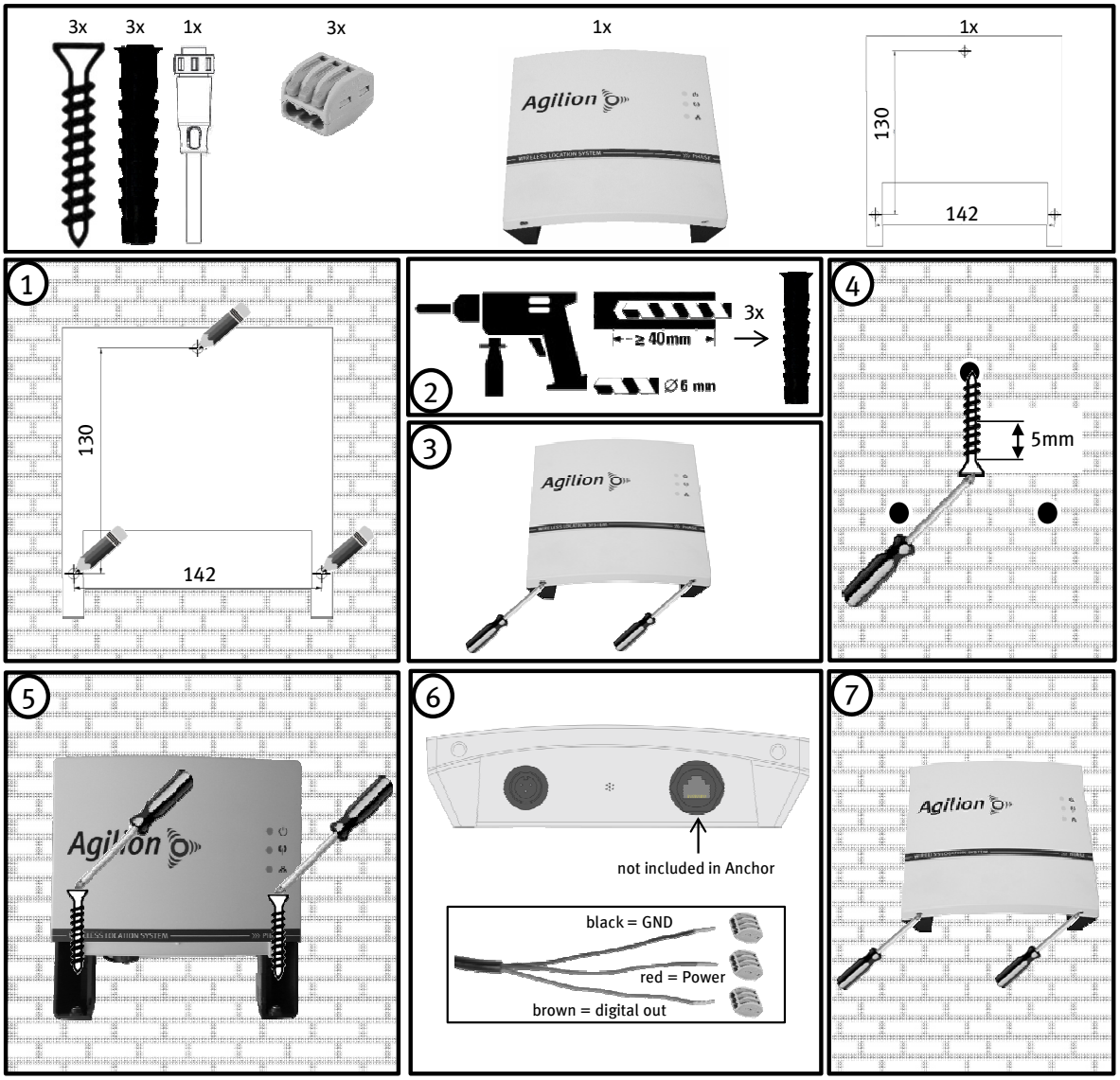
Appendix 1 - Quick installation guide

As stated below you will find a quick installation guide as it is delivered with each WIRELESS MESH GATEWAY PULSE | PHASE.



20170315-Drilling template MESH

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