

USER'S GUIDE

Mains Power Supply WHP25



PUBLISHED BY

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CHAPTER 1

GENERAL INFORMATION

This chapter provides general notes for the product.

About This Manual

This manual provides information for installing, operating, and maintaining WHP25 Mains Power Supply.

Contents of This Manual

This manual consists of the following chapters:

- Chapter 1, General Information, provides general notes for the product.
- Chapter 2, Product Overview, introduces the WHP25 Mains Power Supply features.
- Chapter 3, Installation, provides you with information that is intended to help you install WHP25 Mains Power Supply.
- Chapter 4, Troubleshooting, describes common problems, their probable causes and remedies, and contact information.
- Chapter 5, Technical Data, provides the technical data for WHP25 Mains Power Supply.

Version Information

Table 1 Manual Revisions

Manual Code	Description
T647en-1.1	WHP25 Power Supply Technical Reference
U146en-1.1	WHP25 Power Supply Quick Reference Guide
M210376en-A	This manual, the first version of the WHP25 Mains Power Supply User's Guide. Replaces the above mentioned Technical Reference and Quick Reference Guide.

Feedback

Vaisala Customer Documentation Team welcomes your comments and suggestions on the quality and usefulness of this publication. If you find errors or have other suggestions for improvement, please indicate the chapter, section, and page number. You can send comments to us by e-mail: manuals@vaisala.com

Safety

General Safety Considerations

Throughout the manual, important safety considerations are highlighted as follows:

WARNING

Warning alerts you to a serious hazard. If you do not read and follow instructions very carefully at this point, there is a risk of injury or even death.

CAUTION Caution warns you of a potential hazard. If you do not read and follow instructions carefully at this point, the product could be damaged or important data could be lost.

NOTE Note highlights important information on using the product.

Product Related Safety Precautions

WHP25 Mains Power Supply delivered to you has been tested for safety and approved as shipped from the factory. Note the following precautions:

WARNING Ground the product, and verify outdoor installation grounding periodically to minimize shock hazard.

CAUTION Do not modify the unit. Improper modification can damage the product or lead to malfunction.

ESD Protection

Electrostatic Discharge (ESD) can cause immediate or latent damage to electronic circuits. Vaisala products are adequately protected against ESD for their intended use. However, it is possible to damage the product by delivering electrostatic discharges when touching, removing, or inserting any objects inside the equipment housing.

To make sure you are not delivering high static voltages yourself:

- Handle ESD sensitive components on a properly grounded and protected ESD workbench. When this is not possible, ground yourself to the equipment chassis before touching the boards. Ground yourself with a wrist strap and a resistive connection cord. When neither of the above is possible, touch a conductive part of the equipment chassis with your other hand before touching the boards.
- Always hold the boards by the edges and avoid touching the component contacts.

Warranty

For certain products Vaisala normally gives a limited one year warranty. Please observe that any such warranty may not be valid in case of damage due to normal wear and tear, exceptional operating conditions, negligent handling or installation, or unauthorized modifications. Please see the applicable supply contract or conditions of sale for details of the warranty for each product.

CHAPTER 2

PRODUCT OVERVIEW

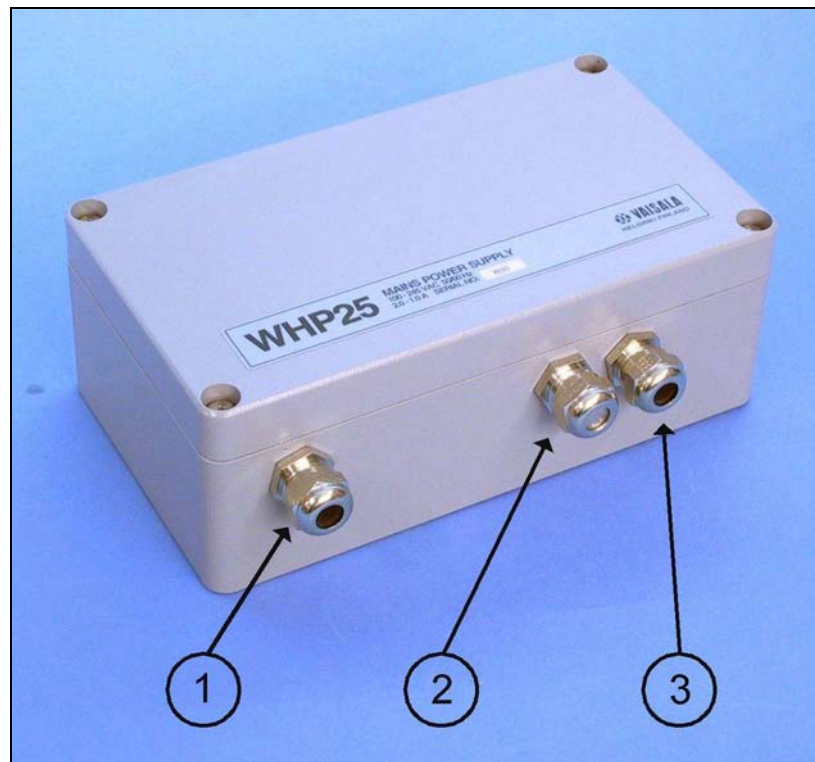
This chapter introduces the WHP25 Mains Power Supply features.

Introduction to WHP25 Mains Power Supply

WHP25 is a compact AC (Mains) Power Supply Unit intended for outdoor use. The unit is capable of delivering power, for example, to the WA25 Wind Set.

The nominal input power of 230 VAC can be changed by jumpers between 100 VAC and 245 VAC ($\pm 10\%$). The WHP25 unit provides two power outputs, namely 24.0 VDC (max 5.2 A) and 38.0 VAC (max 0.9 A).

The WHP25 unit has a waterproof housing made from cast aluminum. The mounting hardware is included in the delivery. It is mountable to a \varnothing 100 mm standard pole mast.



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Figure 1 WHP25 Mains Power Supply

The following numbers refer to Figure 1 above:

- 1 = Gland for AC (mains) input cable
- 2 = Gland for optional power output cable
- 3 = Gland for power output cable

CHAPTER 3

INSTALLATION

This chapter provides you with information that is intended to help you install WHP25 Mains Power Supply.

Installation Procedure

Before installation, route the input (AC) power cable near the mast, which WHP25 Mains Power Supply will be mounted to. Make sure you selected a pole mast with a diameter from 99 to 105 mm for installation with the standard mounting clamp.

To install the WHP25 unit, follow the procedure below.

1. Remove the four screws holding the cover of the WHP25 unit. Remove the cover.
2. Attach the unit to the mast at a suitable place with the provided accessories and the standard mounting clamp. Refer to Figure 2 on page 10.

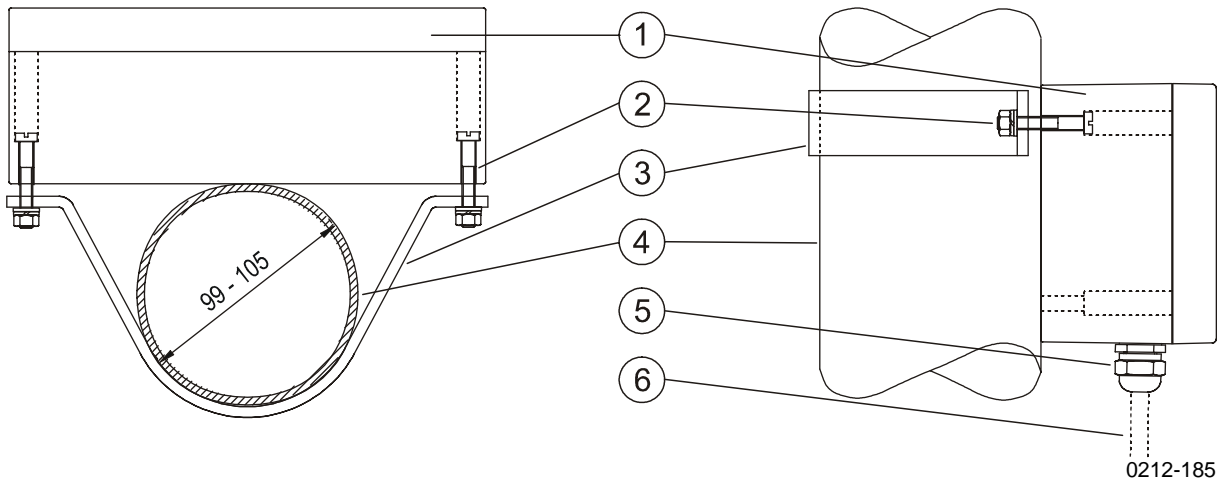


Figure 2 Mounting WHP25 Mains Power Supply on a Pole Mast

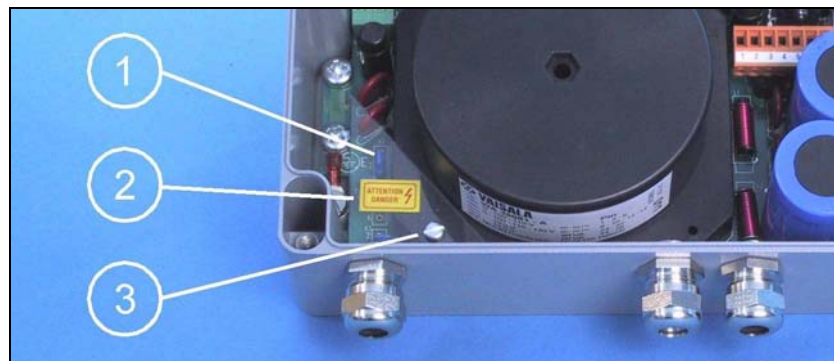
The following numbers refer to Figure 2 above.

- 1 = Enclosure
- 2 = Slot screw M6, washer A6, spring washer B6, and nut M6
- 3 = Mounting clamp
- 4 = Pole mast, diameter from 99 to 105 mm
- 5 = Cable gland
- 6 = Cable

- 3. If the local voltage level is other than 230 VAC, reselect the voltage with the X2 and X3 jumpers located inside the WHP25 unit. For the location of the jumpers, refer to Figure 3 on page 11. For instructions how to set the jumpers for different input voltages, refer to Figure 4 on page 11.

WARNING Improper jumper setting damages WHP25 Mains Power Supply.

CAUTION Observe the instructions and warnings in the instruction label inside the unit, refer to Figure 4 on page 11.



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Figure 3 Location of the WHP25 Jumpers

The following numbers refer to Figure 3 above.

- 1 = Plastic shield above the jumpers
- 2 = Caution label
- 3 = Fixing screw for the plastic shield

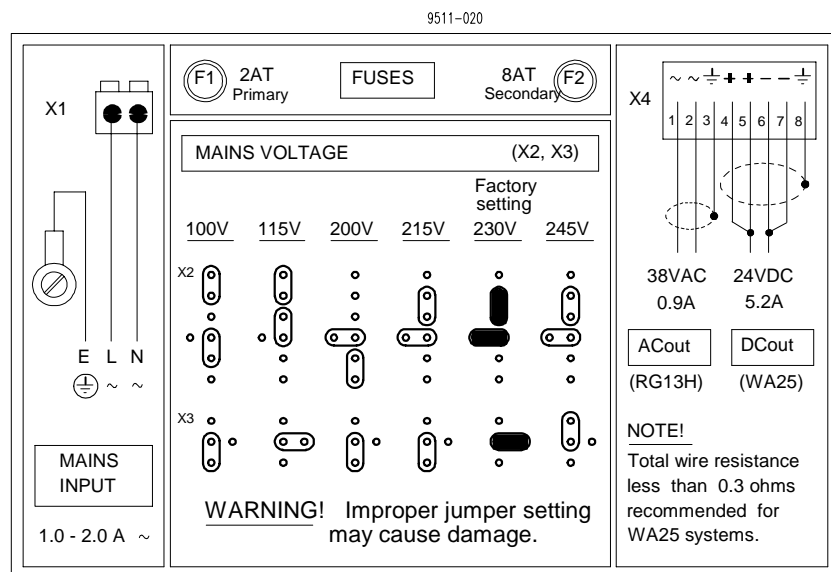
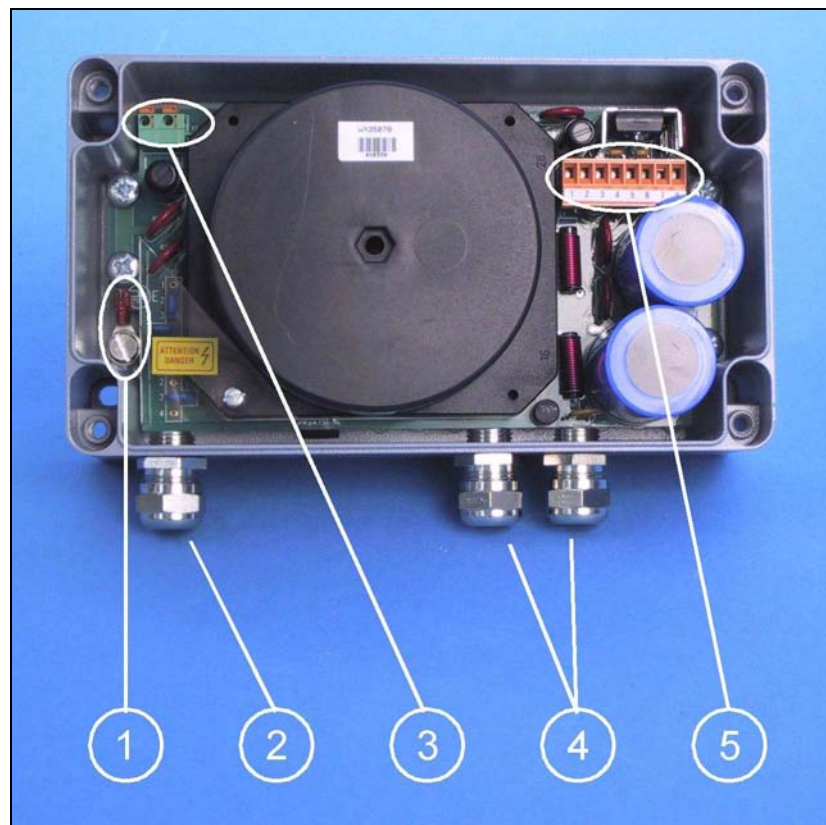


Figure 4 Instructions Label for the WHP25 Jumper Settings and Wiring

4. Make sure the AC (mains) voltage is disconnected.
5. Enter the AC (mains) cable through the leftmost cable gland and connect the input wiring to the X1

connector. To ease the wire connection the connector has spring loaded terminals.

6. Connect the ground wire to the crimp assembled under the screw. The wiring of the AC (mains) input to the X1 connector is instructed in Figure 4 on page 11. Refer to Figure 5 below for the location of the connectors and cable glands on the WHP25 unit.
7. Tighten the input cable glands.



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Figure 5 WHP25 Connectors and Glands

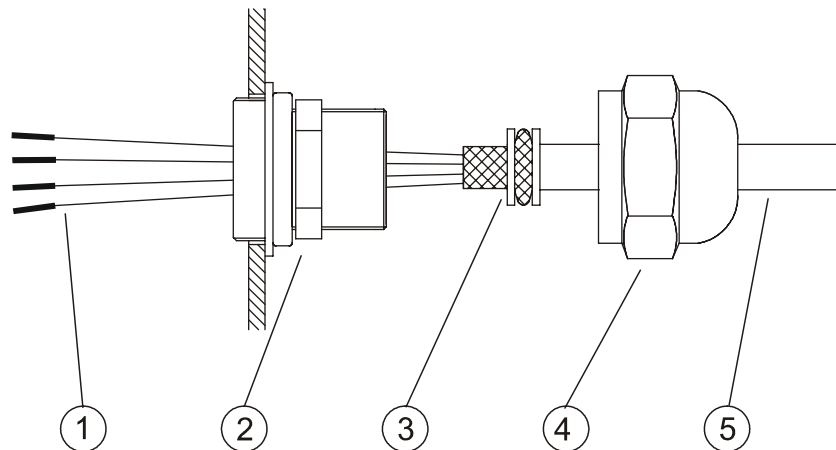
The following numbers refer to Figure 5 above.

- 1 = Crimp and screw for AC (mains) grounding
- 2 = Gland for AC (mains) input cable
- 3 = X1: Spring loaded terminals
- 4 = Glands for power output cables
- 5 = X4: Removable screw terminal block

8. Enter the output power cable(s) through the rightmost cable gland(s). For better protection against RF interference, ground the cable as shown in Figure 6 below. Push the shield through the two washers (number 3 in Figure 6 below) and squeeze part of it evenly between them.

CAUTION

The shield mesh must not touch the circuit board or its components. Make sure no pieces of the mesh or other metal parts touch the circuit board.



0212-188

Figure 6 Grounding the Cable

The following numbers refer to Figure 6 above.

- 1 = Wires
- 2 = Entry
- 3 = Two washers
- 4 = Backnut
- 5 = Cable

9. Connect the output wiring to the removable screw terminal block X4, as shown in Figure 4 on page 11. Tighten the output cable gland(s).
10. Carefully reattach the enclosure cover with the four screws.

Installation Examples

Installation with WAC151 and WA25 Wind Set

Figure 7 below illustrates a typical installation with WA25 Wind Set. As a power source, it is recommended to use WHP25 Mains Power Supply, with a mast mountable, all-weather enclosure. For the wiring instructions, refer to Figure 8 on page 15.

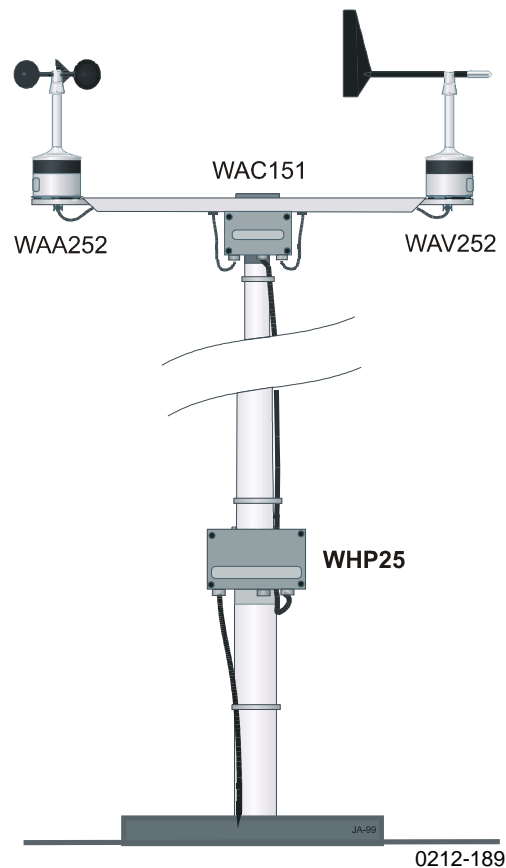
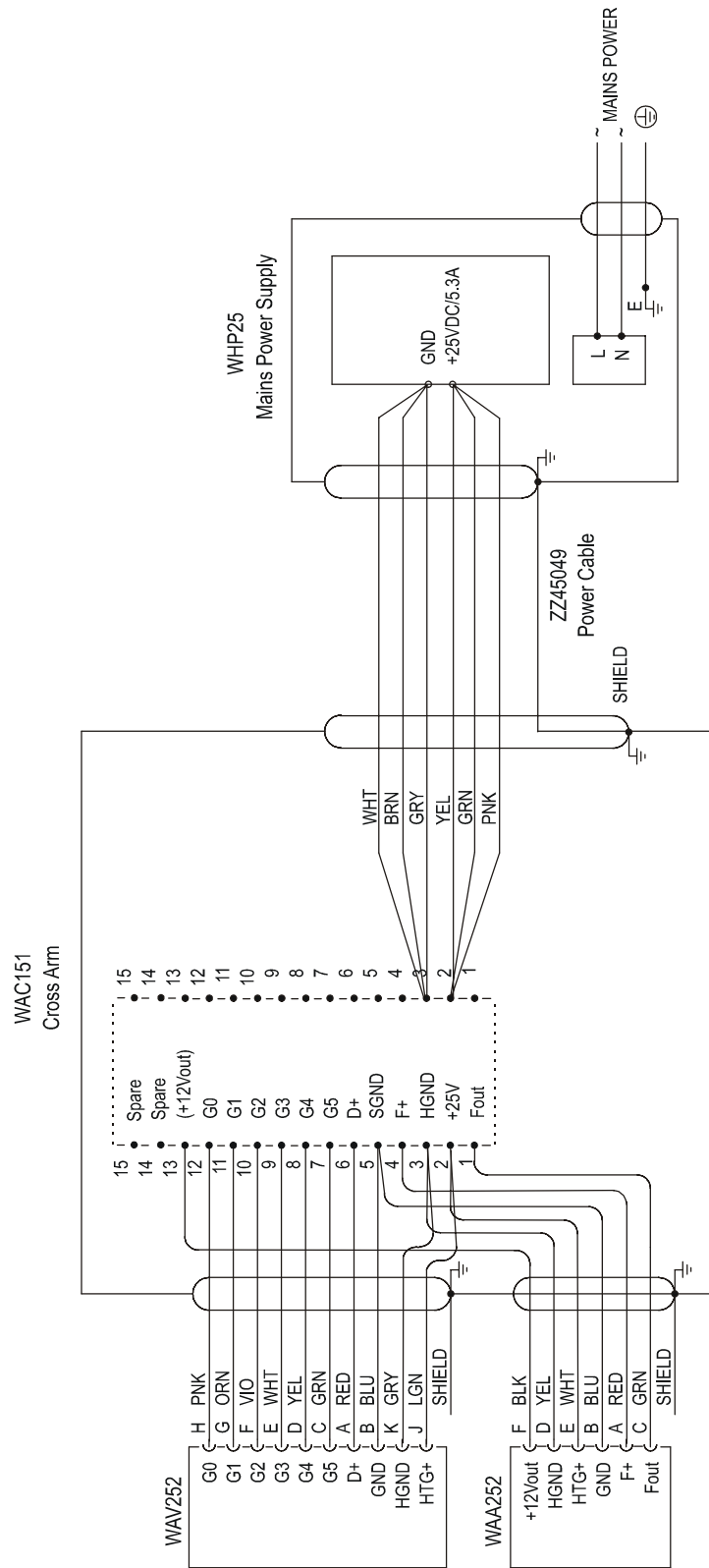


Figure 7 Typical Installation with WA25 Wind Set



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Figure 8 Wiring WAC151 with WHP25 Mains Power Supply and WA25 Wind Set

NOTE

Total wire resistance of less than 0.3 Ω is recommended for WA25 Wind Set.

Figure 8 on page 15 provides the wiring diagram for WA25 Wind Set mounted to WAC151 Cross Arm. When using the standard power and signal cables ZZ45049 and ZZ45048, the connections are the following:

1. For power supply, connect the YEL, GRN, and PNK colored wires to the screw terminal #2 and the WHT, BRN, and GRY colored wires to the terminal #3.
2. For signal output, connect wires GRN, YEL, WHT, VIO, GRY, and PNK to terminals #7 to #12. For signal grounding, connect BLK to the terminal #5.
3. For the optional sensor power input, connect BRN to the terminal #6.

Installation with WAT12 and WA25 Wind Set

Figure 9 on page 17 provides the wiring diagram for WA25 Wind Set mounted to WAT12 Analog Wind Transmitter.

NOTE

An expansion connector and discrete joining wires are included in the WAA252 accessories.

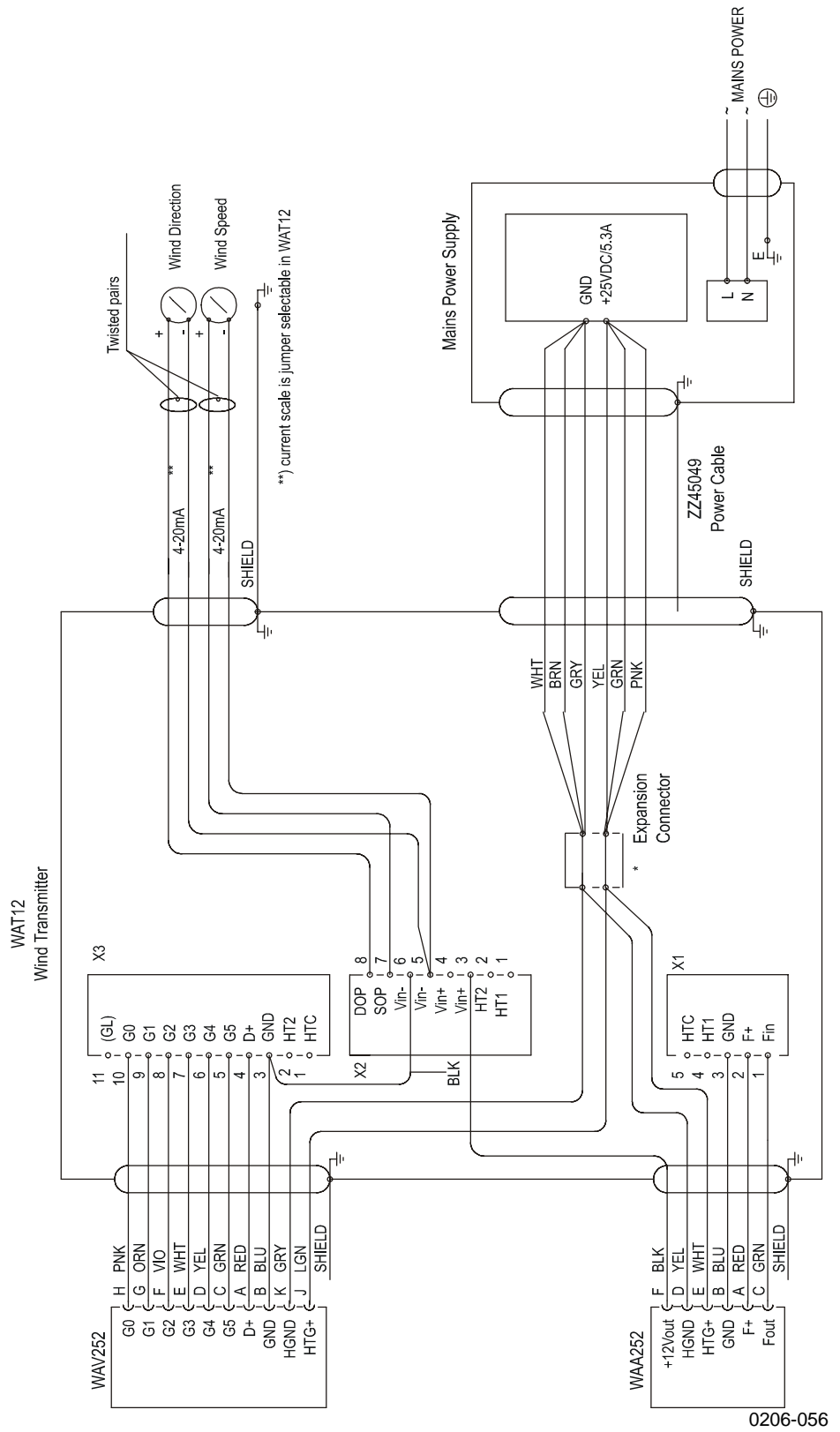


Figure 9 Wiring WAT12 with WHP25 Mains Power Supply and WA25 Wind Set

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CHAPTER 4

TROUBLESHOOTING

This chapter describes common problems, their probable causes and remedies, and contact information.

Common Problems

Table 2 below lists some common problems and their remedies.

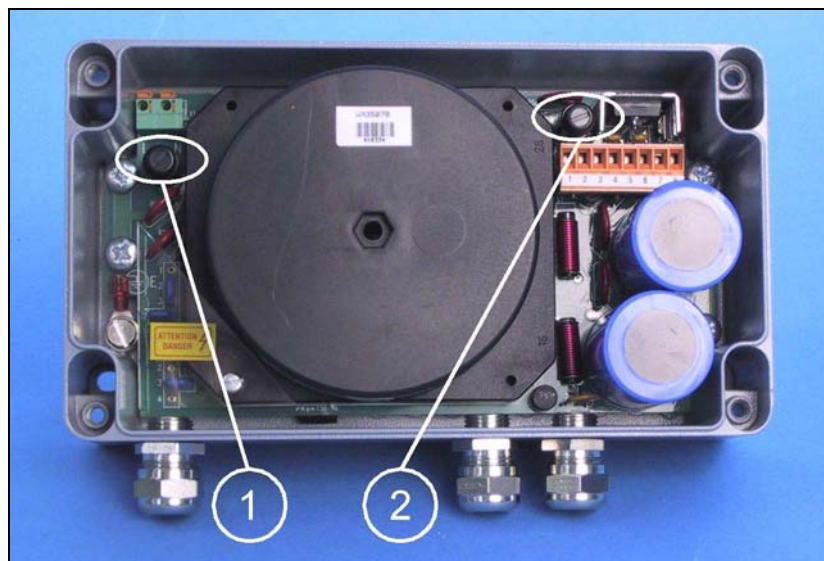
Table 2 Some Common Problems and their Remedies

Problem	Probable Cause	Remedy
No voltage between X5 and the grounding crimp.	Fuse F1 is broken.	Replace the fuse F1 as instructed in section Replacing Fuses on page 20.
No voltage from the 24 VDC output.	Fuse F2 is broken	Replace the fuse F2 as instructed in section Replacing Fuses on page 20.
No voltage from the 36 VDC output.	Fuse R3 is broken.	Send the unit to Vaisala as instructed in section Return Instructions on page 22.

Replacing Fuses

Follow the procedure below to replace a broken fuse:

1. Remove the four screws attaching the cover of the WHP25 unit. Remove the cover.
2. Disconnect the power input.
3. Refer to Figure 10 below for the location of the replaceable fuses.
4. Open the holder of the broken fuse (either F1 or F2) with a screw driver.
5. Replace the broken fuse (either F1 or F2) with a new one and screw the holder back onto its place.
6. Connect the power input.
7. Carefully reattach the enclosure cover with the four screws.



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Figure 10 Location of the Fuses F1 and F2

The following numbers refer to Figure 10 above.

- 1 = F1: 2 AT replaceable fuse, 5 × 20 mm
- 2 = F2: 8 AT replaceable fuse, 5 × 20 mm

Technical Support

For technical questions or for comments on the manuals,
contact the Vaisala technical support:

E-mail helpdesk@vaisala.com

Telephone +358 9 8949 2789

Fax +358 9 8949 2790

Return Instructions

If the product needs repair, please follow the instructions below to speed up the process and avoid extra costs.

1. Read the warranty information.
2. Write a Problem Report with the name and contact information of a technically competent person who can provide further information on the problem.
3. On the Problem Report, please explain:
 - What failed (what worked / did not work)?
 - Where did it fail (location and environment)?
 - When did it fail (date, immediately / after a while / periodically / randomly)?
 - How many failed (only one defect / other same or similar defects / several failures in one unit)?
 - What was connected to the product and to which connectors?
 - Input power source type, voltage and list of other items (lighting, heaters, motors etc.) that were connected to the same power output.
 - What was done when the failure was noticed?
4. Include a detailed return address with your preferred shipping method on the Problem Report.
5. Pack the faulty product using an ESD protection bag of good quality with proper cushioning material in a strong box of adequate size. Please include the Problem Report in the same box.
6. Send the box to:
Vaisala Oyj
SSD Service
Vanha Nurmijärventie 21
FIN-01670 Vantaa
Finland

CHAPTER 5

TECHNICAL DATA

This chapter provides the technical data for WHP25 Mains Power Supply.

Specifications

Table 3 WHP25 Mains Power Supply Specifications

Property	Description/Value
Input operating power: Nominal Optional selections	230 VAC $\pm 10\%$, 50/60 Hz, 1.0 A max. 100/115/200/215/245 VAC ($\pm 10\%$)
DC output (X4/4, 5 - 6, 7)	24.0 ± 2.5 VDC, 5.2 A (max.)
AC output (X4/1 - 2)	38.0 ± 3.0 VAC, 0.9 A (max.)
Fuses: Primary 24 V output 38 V output	2 AT replaceable fuse, 5 \times 20 mm 8 AT replaceable fuse, 5 \times 20 mm 1.8 A solid state fuse
Cable glands (3)	One for input, two for outputs, cable \varnothing 7 ... 10 mm
Input wiring (L, N)	Spring loaded terminals, 1.5 mm ² max. wire dimension
Input wiring (E)	Crimp connector, 2.5 mm ² max.
Output wiring (24 V, 38 V)	8-pin removable screw terminal connector, 2.5 mm ² max.
Operating temperature	-60 ... +55 °C
Storage temperature	-60 ... +70 °C
Humidity	0 ... 100 %RH
Housing material	Cast aluminum, painted gray

Property	Description/Value
Mounting clamp material	AlMgSi, gray anodized
Ingress protection	IP65 (Nema 4)
Unit dimensions	220 (w) × 120 (h) × 81 (d) mm (cable glands add 23 mm to height)
Mounting	To a \varnothing 99 ... 105 mm pole mast tube with standard mounting clamp
Weight	3.6 kg

Dimensions

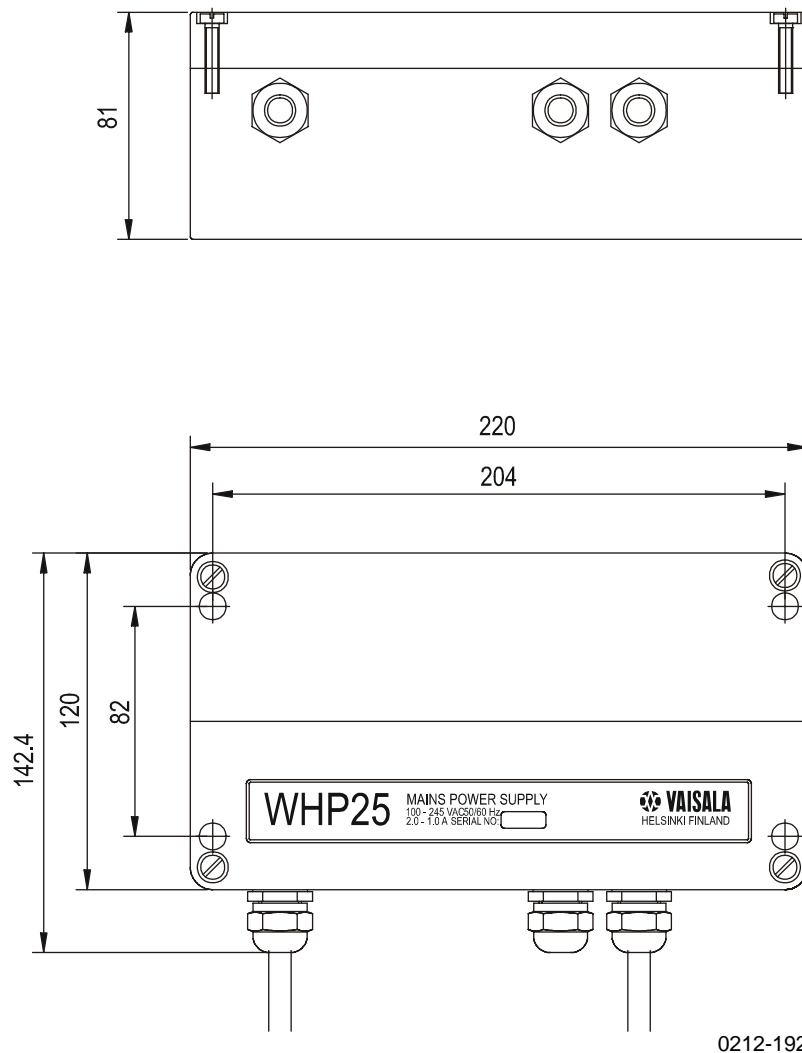


Figure 11 WHP25 Main Dimensions



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