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</tbody>
</table>
1. About This Document

1.1 Version Information
This document provides installation instructions and product specifications for Vaisala CMS Industrial Cabinet CAB100.

Table 1  Document Versions (English)

<table>
<thead>
<tr>
<th>Document Code</th>
<th>Date</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>M212242EN-A</td>
<td>October</td>
<td>First version.</td>
</tr>
</tbody>
</table>

1.2 Related Manuals

Table 2  Related Manuals

<table>
<thead>
<tr>
<th>Document Code</th>
<th>Name</th>
</tr>
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<tbody>
<tr>
<td>M212262EN</td>
<td>Vaisala CMS Industrial Cabinet CAB100 Assembling Analog Channel Terminal Block Technical Note</td>
</tr>
<tr>
<td>M212294EN</td>
<td>Vaisala CMS Industrial Cabinet CAB100 Wiring Diagrams Technical Reference</td>
</tr>
<tr>
<td>M212284EN</td>
<td>Vaisala CMS Industrial Cabinet CAB100 Quick Guide</td>
</tr>
<tr>
<td>M212284EN</td>
<td>Vaisala Differential Pressure Transmitter PDT101 Quick Guide</td>
</tr>
<tr>
<td>M211247EN</td>
<td>Vaisala HUMICAP® Humidity and Temperature Transmitter Series HMT120 Quick Guide</td>
</tr>
<tr>
<td>M211244EN</td>
<td>Vaisala HUMICAP® Humidity and Temperature Transmitter Series HMT120 User Guide</td>
</tr>
<tr>
<td>M010056EN</td>
<td>Vaisala HUMICAP® Humidity and Temperature Transmitter Series HMT360 User's Guide</td>
</tr>
<tr>
<td>M210483EN</td>
<td>Vaisala Transmitter Series HMT360 Safety Guide</td>
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<tr>
<td>M211975EN</td>
<td>Vaisala viewLinc Enterprise Server Version 5.0 User Guide</td>
</tr>
<tr>
<td>90000687-88</td>
<td>DIGI PortServer® TS Family Quick Start Guide</td>
</tr>
<tr>
<td>158962 / 900260</td>
<td>Stahl 9001 Series Single-channel Safety Barrier Operating Instructions</td>
</tr>
<tr>
<td>2300</td>
<td>Stahl Type 9160/9163 Transmitter Supply Unit/Isolating Repeater Safety Manual</td>
</tr>
</tbody>
</table>

Documentation by third-party instrument manufacturers is provided as is.
1.3 Documentation Conventions

**WARNING!** Warning alerts you to a serious hazard. If you do not read and follow instructions 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** highlights important information on using the product.

**Tip** gives information for using the product more efficiently.

Lists tools needed to perform the task.

Indicates that you need to take some notes during the task.

1.4 Trademarks

Vaisala® is a registered trademark of Vaisala Oyj.

HUMICAP® is a registered trademark of Vaisala Oyj.

All other product or company names that may be mentioned in this publication are trade names, trademarks, or registered trademarks of their respective owners.
Chapter 2 – Product Overview

2. Product Overview

2.1 Overview of CMS Industrial Cabinet CAB100

The Vaisala CMS Industrial Cabinet CAB100 is an instrument cabinet designed to integrate devices for measuring humidity, temperature, differential pressure, and other parameters. Combined with the Vaisala viewLinc Continuous Monitoring System, CAB100 is an integrated solution for real-time monitoring of cleanrooms and industrial applications in multiple industries.

There are 2 cabinet models, CAB100A 1) (small enclosure) and CAB100B (large enclosure). The cabinets can be configured according to application requirements, with options for differential pressure transmitters, analog input channels for the connection of remote transmitters, and safety barriers or galvanic isolators for hazardous areas, used with intrinsically safe devices.

Figure 1  CMS Industrial Cabinet Models CAB100A (Small) and CAB100B (Large)

---

1) Availability of CAB100A to be announced.
## 2.2 Basic Features and Options

### Table 3  CAB100 Configuration Options

<table>
<thead>
<tr>
<th>Property</th>
<th>Description/Value</th>
</tr>
</thead>
</table>
| **Cabinet size**       | CAB100A 1): 400 × 300 × 200 mm (15.75 × 11.81 × 7.87 in)  
                          | CAB100B: 600 × 500 × 200 mm (23.62 × 19.69 × 7.87 in)                                |
| **Powering**           | Power supply:  
                          | • Within cabinet: 24 VDC / 2.5 A  
                          | • To cabinet: 110 ... 240 VAC  
                          | Power over Ethernet (with loop power, without fan) 2)                              |
| **Differential pressure** | 1 ... 12 pcs, ±60 Pa or ±0.25 in H₂O                                             |
| **Analog input channels** | 4 ... 32 channels, 4 ... 20 mA                                                  |
| **Safety barrier**     | 1 ... 16 pcs, 1 barrier per channel                                              |
| **Galvanic isolator**  | 1 ... 12 pcs, 1 isolator per channel                                             |
| **Ethernet communication** | CAB100A: Vaisala vNet Power over Ethernet data logger interface, with PoE option via RJ45 connector  
                          | CAB100B: Up to 2 serial-to-Ethernet devices via RJ45 (DIGI PortServer TS4)         |
| **Ethernet**           | Ethernet switch, +4 PoE IEEE 802.3af/at                                            |
| **Standards**          | EN/IEC61326-1 (Basic electromagnetic environment) 3)  
                          | EN55032 Class B  
                          | IEC/UL/EN 61010-1  
                          | IP66/NEMA 4 (CAB100B) / IP54 (CAB100A)  
                          | Safety listed in USA and Canada 4)                                                  |

1) Availability of CAB100A to be announced.  
2) PoE is available for CAB100A PDT101 model only.  
3) Excluding CAB100 analog input channels, which are not surge protected.  
4) Safety listing pending.

### More Information

- CAB100 Specifications (page 84)  
- Component Specifications (page 86)  
- Spare Parts and Accessories (page 91)

### 2.2.1 CAB100B Models

CAB100B is available in 4 different pre-configured models. The communication interface in all CAB100B models is a multiport serial port server.

<table>
<thead>
<tr>
<th>CAB100B Model</th>
<th>Maximum Number of Measurement Devices per Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>PDT101 model</td>
<td>16 PDT101 transmitters</td>
</tr>
</tbody>
</table>
### CAB100B Model

<table>
<thead>
<tr>
<th>CAB100B Model</th>
<th>Maximum Number of Measurement Devices per Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analog channel model</td>
<td>32 analog input channels</td>
</tr>
<tr>
<td>Safety barrier model</td>
<td>16 safety barriers</td>
</tr>
<tr>
<td>Galvanic isolator model</td>
<td>12 galvanic isolators</td>
</tr>
</tbody>
</table>

In addition to the above, mixed models are available, with limitations. Contact your Vaisala sales representative for details. For an example configuration, see Figure 2 (page 10).

**More Information**

- CAB100B Layout Diagrams (page 98)
2.3 Physical Structure and Components

Figure 2  Main Components Inside CAB100B, Mixed Model with PDT101s, Analog Input Channels, and Safety Barriers

1. Cable duct for intrinsically safe connections
2. Safety barriers (8 pcs)
3. Terminal block for analog input channels
4. Holders for tubing (3 pcs)
5. PDT101 transmitters (4 pcs)
6. DL4000 data loggers (6 pcs)
7. Serial port servers (2 pcs)
8. Ethernet switch
9. 24 VDC power block
10. 24 VDC fuses T2.5A, 5 × 20 mm (2 pcs)
11. Cover plate
12. Circuit breaker and power supply module
2.3.1 Enclosure

The CAB100B enclosure is made of stainless steel, and it is rated IP66/NEMA 4 (2). There are flanges for cable lead-through at the top and bottom of the enclosure. The top flange is made of rubber. Stainless steel and rubber flange models are available to order for the bottom of the cabinet.

The enclosure comes with a mounting frame for easy installation.

More Information
- Installing CAB100B with Mounting Frame (page 13)
- CAB100 Specifications (page 84)

2) Applicable when using the existing flanges on the top and bottom of the cabinet.
2.4 Regulatory Compliances

This product complies with the following electromagnetic compatibility and safety standards:

- EN/IEC 61326-1: Basic electromagnetic environment.  
- EN55032 Class B.
- EN/UL/IEC 61010-1: Safety requirements for electrical equipment for measurement, control, and laboratory Use – Part 1: General requirements.

3) Excluding CAB100 analog input channels, which are not surge protected.
3. Installing the Enclosure

3.1 Installing CAB100B with Mounting Frame

- 4-mm Allen key
- 10-mm wrench
- Drill and 8-mm drill bits for making the installation holes
- Spirit level

**CAUTION!** For safety reasons, do not carry out installations alone. Safe installation requires at least 2 people.

**CAUTION!** CAB100 analog input channels are not surge protected. Therefore, note the following:
- The analog input channel wiring must not exceed 30 meters.
- The wiring must not come from outside the building where CAB100 is installed.

If CAB100 cannot be installed in an environment that meets the above criteria, use a suitable surge protection device that has been installed following local regulations.

**CAUTION!** Do not drill holes in the backplate or the cabinet enclosure. Drill shavings may damage the equipment inside the cabinet.

CAB100 is shipped with a mounting frame and installation accessories for indoor wall installation. If the screws delivered with the mounting frame are not suitable for the wall material in the installation location, use any appropriate screws to attach the frame.
Figure 4  CAB100B Wall Installation Accessories

1  Hole for wall plug (4 pcs)
2  Wall plug (4 pcs)
3  Mounting slot (2 pcs)
4  Hex wood screw M6×40 DIN571 A2 (4 pcs)

- 1. Drill holes into the wall. Use the mounting frame as a guide.
- 2. Place the wall plugs into the drilled holes.
3. Attach the mounting frame to the wall with screws.

4. Lift the enclosure into place.
   Hang the enclosure onto the frame by sliding the mounting studs on the back of the enclosure into the mounting slots of the frame.
5. Attach the enclosure to the mounting frame.

1  Washer with EPDM gasket 6.8/16×1.5/A2/EPDM (2 pcs)
2  Hex screw M6×16 ISO7380 A4 (2 pcs)

More Information
- Enclosure Dimensions (page 86)
4. Electrical Installation

4.1 Installation Safety

**WARNING!** Only licensed experts may install electrical components. They must adhere to local and state legislation and regulations.

**WARNING!** Do not open the AC/DC power supply module. There are no user-serviceable parts inside the module. If the power supply module is faulty, replace it.

**WARNING!** Make sure that you prepare and connect only de-energized wires.

**WARNING!** Keep away from live circuits. Operating personnel must observe safety regulations at all times.

**WARNING!** Ground the product and verify installation grounding periodically to minimize shock hazard.

**WARNING!** After disconnecting the power cable, dangerous voltages can exist for some time. To avoid injury, disconnect the power and discharge circuits before touching them.

**CAUTION!** CAB100 analog input channels are not surge protected. Therefore, note the following:

- The analog input channel wiring must not exceed 30 meters.
- The wiring must not come from outside the building where CAB100 is installed. If CAB100 cannot be installed in an environment that meets the above criteria, use a suitable surge protection device that has been installed following local regulations.
CAUTION! Do not modify the unit or use it in ways not described in the documentation. Improper modification may lead to safety hazards, equipment damage, failure to perform according to specification, decreased equipment lifetime, or the warranty becoming void.

CAUTION! For safety reasons, do not carry out installations alone. Safe installation requires at least 2 people.

4.1.1 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 an electrostatic discharge when touching, removing or inserting any objects inside the equipment housing. Avoid touching component contacts or connectors when working with the device.

4.2 Connecting (AC) Mains Power

WARNING! Before connecting the AC (mains) power cable, switch off the power from the main power source.

CAUTION! Before connecting power to the device, read carefully the safety notes in Installation Safety (page 17)

• Screwdriver
• Cable cutters
• Cable-stripping pliers

For the AC (mains) power connection, you need an external disconnection device (for example, a power cable or a mains power switch).

Note the following:
• The disconnection device must be rated 16 A or 20 A at 250 VAC, and must conform to any additional local regulations.
• The disconnection device must be visible from the cabinet, or lockable with a key to prevent accidental switching on during installation and maintenance.
• The cabinet must not block access to the disconnection device after it has been installed. The disconnection device must remain easy to operate.

The AC (mains) cable is not included in the delivery. Use an AC (mains) cable with a minimum cross-section of $3 \times 0.75 \text{ mm}^2$ (18 AWG).

Refer to Layout Diagrams (page 98) for the locations of components inside the cabinet.

1. Unscrew and remove the transparent cover plate protecting the circuit breaker and the power supply module.

2. Lead the AC (mains) cable into the enclosure. Lead the cable through a flange in the cabinet enclosure, following relevant safety regulations. Take note of safe areas around safety barriers or galvanic isolators inside the enclosure.
3. Strip approximately 100 mm (4 in) of the cable, and cut the phase and neutral wires to the length of approximately 50 mm (2 in). If you are using a stranded wire, add cable ferrules to the ends.

**CAUTION!** Make sure that the grounding wire is longer than the phase and neutral wires. Under mechanical stress, the grounding wire must be the last to disconnect from the protective ground terminal.

<table>
<thead>
<tr>
<th>Number</th>
<th>Wire</th>
<th>Wire Color (International)</th>
<th>Wire Color (North America)</th>
<th>Maximum Wire Cross-section</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Phase L</td>
<td>Brown</td>
<td>Black</td>
<td>Solid wire: 4 mm² (12 AWG)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Stranded wire: 2.5 mm² (14 AWG)</td>
</tr>
<tr>
<td>2</td>
<td>Neutral N</td>
<td>Blue</td>
<td>White</td>
<td>Solid wire: 4 mm² (12 AWG)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Stranded wire: 2.5 mm² (14 AWG)</td>
</tr>
<tr>
<td>3</td>
<td>Grounding PE/GND</td>
<td>Yellow/Green</td>
<td>Green</td>
<td>Solid wire: 4 mm² (12 AWG)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Stranded wire: 2.5 mm² (14 AWG)</td>
</tr>
</tbody>
</table>
4. Connect the phase, neutral, and grounding wires of the AC (mains) cable as indicated in the figure below.

1. Connect the (green or yellow-green) grounding wire to the grounding terminal block.
2. Connect the phase (L) and neutral (N) wires to the circuit breaker: the phase in the left-hand wire terminal and the neutral in the right-hand wire terminal.
3. Mount the AC (mains) cable to the strain relief fixture located under the circuit breaker.

5. Replace the transparent cover plate.
6. Switch on the power.

More Information
- Wiring Diagrams (page 93)
- Layout Diagrams (page 98)
5. Adding Devices to CAB100B

5.1 Adding PDT101 Transmitters as New Modules

- Empty DIN rail in the cabinet
- PDT Wiring Set (Vaisala order code: ASM213079SP), 1 set per 4 PDT101 transmitters. The set contains the following:
  - Cable set for PDT or safety
  - Data logger data cable
  - Data logger holder
- DL4000 data logger(s), 1 logger per 4 PDT101 transmitters. For order codes, see Spare Parts and Accessories (page 91).
- Small flat head screwdriver

You can install only one type of device or measurement point (PDT101 transmitters, analog input channels, safety barriers, or galvanic isolators) per row in the cabinet.

In cabinet models with 5 to 8 data loggers, you need 2 serial port servers. One serial port server controls the traffic of maximum 4 data loggers.

Make sure to number the data loggers as well as the cable sets and wires in the PDT Wiring Set before you install and connect them.

Follow the steps below to install PDT101 transmitters as new devices to an empty DIN rail in CAB100B. Refer to CAB100B Layout Diagrams (page 98) when planning the installation.

For instructions on expanding the number of PDT101 transmitters installed in the cabinet, see Expanding PDT101 Transmitter Installation (page 28).
1. De-energize the cabinet:
   a. Switch off mains power.
   b. Switch off the circuit breaker located inside the cabinet.

   ![Circuit breaker]

   1 Circuit breaker

2. Remove the cable duct cover below the PDT101 mounting location.
3. Remove the long vertical cable duct cover in the middle of the cabinet.
4. Mount the new PDT101 transmitters on the DIN rail, preferably at the left end of the rail.
   Rest the upper part of the PDT101 locking mechanism on the DIN rail and push down firmly. This will click the device into place.
5. Assemble the data logger holder.
   a. Place the data logger in the logger holder.
   b. Fit the cover into place.
   c. Tighten the screw by hand.
6. Connect the logger data cable to the RS-232 serial port in the data logger. Use a small flat head screwdriver to tighten the screw attached to the connector.

7. Mount the data logger on the DIN rail, preferably at the right end of the rail. Rest the logger holder locking mechanism on the DIN rail and push down firmly. This will click the device into place.

8. Connect the logger data cable to a free port in the serial port server.
9. Connect the PDT101 transmitters to the data logger and the power block as shown in step 10 to step 15. Use the cable set for PDT, which is included in PDT Wiring Set (Vaisala order code: ASM213079SP).

1. Power wires and connector
2. PDT101 wires
3. Data logger connector

The cable set for PDT contains wiring for 4 PDT101 transmitters. If you install only 1 to 3 PDT transmitters, leave the extra wires unconnected and the wire end plugs in place.

10. Remove the end caps from the wires in the cable set for PDT.
11. Disconnect the wire terminal connector from the PDT101 by pulling it out.

12. Observing polarity, connect the PDT101 wires to the wire terminal connector with a small flat head screwdriver.
13. Follow the terminal block label markings on the PDT101 and plug the connector back in.

14. Connect the data logger connector to the DL4000 data logger.
15. Connect the power wire connector to the power block on the right-hand side of the cabinet.

16. The new PDT101 transmitters are now mounted and connected.

17. Route the wires along the cable ducts.

18. Insert any extra length of wire into the cable ducts and replace the cable duct covers.

19. Reconnect power in the cabinet.
   a. Switch on the circuit breaker.
   b. Switch on mains power.
For instructions on configuring measurement units and scaling in DL4000 data loggers, see *Vaisala viewLinc Enterprise Server Version 5.0 User Guide* (M211975EN).

**More Information**

- PDT101 Calibration (page 82)
- Spare Parts and Accessories (page 91)
- CAB100B Wiring Diagrams (page 94)
- CAB100B Layout Diagrams (page 98)

## 5.2 Expanding PDT101 Transmitter Installation

- PDT Wiring Set (Vaisala order code: ASM213079SP), 1 set per 4 PDT101 transmitters. The set contains the following:
  - Cable set for PDT or safety
  - Data logger data cable
  - Data logger holder
  - DL4000 data logger(s), 1 logger per 4 PDT101 transmitters
  - Small flat head screwdriver

Check the type of your PDT101 transmitters (voltage model / current model) before ordering new devices, as you cannot mix different types of PDT101 models in a cabinet installation. For more information, see Spare Parts and Accessories (page 91).

You can install only one type of device or measurement point (PDT101 transmitters, analog input channels, safety barriers, or galvanic isolators) per row in the cabinet.

In cabinet models with 5 to 8 data loggers, you need 2 serial port servers. One serial port server controls the traffic of maximum 4 data loggers.

Make sure to number the data loggers as well as the cable sets and wires in the PDT Wiring Set before you install and connect them.

Follow the steps below to add new PDT101 transmitters to an existing set of transmitters in CAB100B. Refer to CAB100B Layout Diagrams (page 98) when planning the installation.
For instructions on introducing PDT101 transmitters as new devices to an empty DIN rail in the cabinet, see Adding PDT101 Transmitters as New Modules (page 22).

The PDT Wiring Set consists of wiring for 4 devices. Any unused wires in the Wiring Set have been placed in the cable duct at the factory. If you have, for example, 3 PDT101 transmitters installed on a DIN rail, and want to complete the set by installing a 4th one, use the existing PDT101 wires present in the cable duct.

1. De-energize the cabinet:
   a. Switch off mains power.
   b. Switch off the circuit breaker located inside the cabinet.

![Circuit breaker]

1  Circuit breaker

2. Disconnect the PDT101 power wire connector from the power block located on the right-hand side of the cabinet.

3. Remove the cable duct cover below the PDT101 mounting location.
4. Mount the DL4000 data logger (or loggers), as shown in step 5 to step 8.

Each set of 4 PDT101 transmitters requires a data logger of its own. If you are installing the 2nd, 3rd, or 4th transmitter to complete a set of 4, step 5 to step 8 are not relevant, as you can connect the new transmitter(s) to the existing data logger with the factory-installed cable set for PDT.

5. Assemble the data logger holder.
   a. Place the data logger in the logger holder.
   b. Fit the cover into place.
   c. Tighten the screw by hand.

6. Connect the logger data cable to the RS-232 serial port in the data logger. Use a small flat head screwdriver to tighten the screw attached to the connector.

7. Mount the data logger on the DIN rail, preferably at the right end of the rail. Rest the logger holder locking mechanism on the DIN rail and push down firmly. This will click the device into place.
8. Connect the logger data cable to a free port in the serial port server.

9. Mount the new PDT101 transmitter(s) on the DIN rail. Rest the upper part of the locking mechanism on the DIN rail and push down firmly. This will click the device into place.

10. Connect the PDT101 transmitters to the data logger and the power block, as shown in step 11 to step 16.
Use the cable set for PDT, which is included in PDT Wiring Set (Vaisala order code: ASM213079SP).
When mounting the 2nd, 3rd, or 4th PDT101 transmitter on the DIN rail, use the existing wires in the cable duct below the PDT101 mounting location.

1 24 VDC power wires and connector
2 PDT101 wires
3 Data logger connector

The cable set for PDT contains wiring for 4 PDT101 transmitters. If you install only 1 to 3 PDT transmitters, leave the extra wires unconnected and the wire end plugs in place.
11. Disconnect the wire terminal connector from the PDT101 by pulling it out.

12. Observing polarity, connect the PDT101 wires to the wire terminal connector with a small flat head screwdriver.

13. Follow the terminal block label markings on the PDT101 and plug the connector back in.
14. Connect the data logger connector to the DL4000 data logger.

15. Remove the cable duct cover above the power block.

16. Connect the 24 VDC power connector to the power block, or reconnect any existing power wires (disconnected in step 2).

17. Route the wires along the cable ducts.

18. Insert any extra length of wire into the cable ducts and replace the cable duct covers.

19. Reconnect power in the cabinet.
   a. Switch on the circuit breaker.
   b. Switch on mains power.

More Information
- PDT101 Calibration (page 82)
- CAB100B Wiring Diagrams (page 94)
- CAB100B Layout Diagrams (page 98)
5.3 Adding Analog Input Channels

- Empty DIN rail in the cabinet \(^1\)
- Analog Wiring Set (Vaisala order code: ASM213078SP). \(^2\) One set contains the following:
  - Cable set, 24 VDC power block to analog terminal block
  - Cable set, data logger to analog terminal block
  - Data logger data cable
  - Data logger holder
  - Terminal block accessories for 4 analog input channels
  - Document Vaisala CAB100 Assembling Analog Channel Terminal Block Technical Note (M212262EN)
  - DL4000 data logger(s), 1 logger per 4 analog input channels
  - Small flat head screwdriver

You can install only one type of device or measurement point (PDT101 transmitters, analog input channels, safety barriers, or galvanic isolators) per row in the cabinet.

In cabinet models with 5 to 8 data loggers, you need 2 serial port servers. One serial port server controls the traffic of maximum 4 data loggers.

Make sure to number the data loggers as well as the cable sets and wires in the Analog Wiring Set before you install and connect them.

Follow the steps below to install terminal blocks for analog input channels as new devices to an empty DIN rail in CAB100B.

You can apply this installation procedure also when expanding the number of analog input channels in the cabinet. For example, to increase the number of analog input channels on a DIN rail from 4 to 12, order 2 Analog Wiring Sets and 2 data loggers.

For order codes, see Spare Parts and Accessories (page 91).

Refer to CAB100B Layout Diagrams (page 98) when planning the installation.

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\(^1\) Required only when introducing analog input channels as new devices in CAB100B.

\(^2\) You need 3 Analog Wiring Sets (Vaisala order code: ASM213078SP) to assemble a 12-channel terminal block.
1. De-energize the cabinet:
   a. Switch off mains power.
   b. Switch off the circuit breaker located inside the cabinet.

1 Circuit breaker

   c. **Only when expanding the analog terminal block installation on a DIN rail:**
      Disconnect the analog channel 24 VDC power cable connector from the power block, located on the right-hand side of the cabinet.

2. Remove the cable duct cover below the empty DIN rail reserved for the analog terminal block.
   Remove also the long vertical cable duct cover in the middle of the cabinet.

3. Assemble the new analog channel terminal block.
   See the instructions in *Vaisala CAB100 Assembling Analog Channel Terminal Block Technical Note* (M212262EN), included in the Analog Wiring Set (ASM213078SP).

4. Mount the analog channel terminal block on the DIN rail.
5. Assemble the data logger holder.
   a. Place the data logger in the logger holder.
   b. Fit the cover into place.
   c. Tighten the screw by hand.

6. Connect the logger data cable to the RS-232 serial port in the data logger.
   Use a small flat head screwdriver to tighten the screw attached to the connector.

7. Mount the data logger on the DIN rail, preferably at the right end of the rail.
   Rest the logger holder locking mechanism on the DIN rail and push down firmly. This will click the device into place.
8. Connect the logger data cable to a free port in the serial port server.

9. Connect the analog channel terminal block to the data logger and to the 24 VDC power block, as shown in step 10 to step 12 below. Use the cables in the Analog Wiring Set (Vaisala order code: ASM213078SP).

1 Cable set for connecting data logger to analog terminal block
2 Cable set for connecting 24 VDC power block to analog terminal block
10. Connect the cable sets to the analog channel terminal block.

1. Logger to analog cable set
2. Power cable set

11. Connect the black terminal connector of the logger to analog cable set to the DL4000 data logger.
12. Connect the power cable set to the power block located on the right-hand side of the cabinet.

13. Route the wires along the cable ducts.

14. The new analog channel terminal blocks are now mounted and connected.

15. Insert any extra length of wire into the cable ducts and replace the cable duct covers.
16. **Only when expanding the analog terminal block installation on a DIN rail:**
Reconnect the 24 VDC power cable connector (disconnected in step 1.c) in the power block.

17. Reconnect power in the cabinet.
   a. Switch on the circuit breaker.
   b. Switch on mains power.

For instructions on configuring measurement units and scaling in DL4000 data loggers, see *Vaisala viewLinc Enterprise Server Version 5.0 User Guide* (M211975EN).

**More Information**
- CAB100B Wiring Diagrams (page 94)
- CAB100B Layout Diagrams (page 98)

### 5.3.1 Analog Input Channel Wiring in CAB100 Analog Terminal Block

- Small screwdriver
- Cable cutters
- Cable stripper

**CAUTION!** Before connecting any external measurement device to CAB100, refer to the wiring instructions in the device-specific user documentation.
**CAUTION!** CAB100 analog input channels are not surge protected. Therefore, note the following:

- The analog input channel wiring must not exceed 30 meters.
- The wiring must not come from outside the building where CAB100 is installed.

If CAB100 cannot be installed in an environment that meets the above criteria, use a suitable surge protection device that has been installed following local regulations.

The following figures show the analog input channel wiring of an external measurement device in the CAB100 analog terminal block. The example is for a 2-channel device, the Vaisala Humidity and Temperature Transmitter Series HMT120 transmitter. See the HMT120 user documentation for more information on wiring inside the HMT120.

1. Strip approximately 10 mm (0.4 in) from the analog input wire ends.
2. Insert the wires in the push-type terminals of the CAB100 analog terminal block.
3. Connect the wires to the corresponding wire terminals inside the external measurement device.
5.4 Adding Safety Barriers as New Modules

- Safety Barrier Wiring Set (Vaisala order code: ASM213201SP). The set contains the following:
  - Cable set for PDT or safety
  - Data logger data cable
  - Partition plate
  - Data logger holder
  - DL4000 data logger(s), 1 logger per 4 safety barriers
  - Empty DIN rail in the cabinet
  - Small flat head screwdriver

For order codes, see Spare Parts and Accessories (page 91).

The partition plate is needed for isolating the intrinsically safe area from the non-intrinsically safe area inside the cabinet.

Each set of 4 safety barriers requires a Safety Barrier Wiring Set and a data logger of its own.

You can install only one type of device or measurement point (PDT101 transmitters, analog input channels, safety barriers, or galvanic isolators) per row in the cabinet.

In cabinet models with 5 to 8 data loggers, you need 2 serial port servers. One serial port server controls the traffic of maximum 4 data loggers.

Make sure to number the data loggers as well as the cable sets and wires in the Safety Barrier Wiring Set before you install and connect them.

Follow the steps below to install safety barriers as new devices to an empty DIN rail in CAB100B. Refer to CAB100B Layout Diagrams (page 98) when planning the installation.

For instructions on expanding the number of safety barriers installed in the cabinet, see Expanding Safety Barrier Installation (page 50).
1. De-energize the cabinet:
   a. Switch off mains power.
   b. Switch off the circuit breaker located inside the cabinet.

2. Remove the cable duct from the bottom left corner of the cabinet, where the safety barriers will be installed.
   Set the cable duct and the screws aside, as you will need them in step 18.
3. Mount the partition plate.
   Use the pre-drilled screw holes in the backplate and the screws provided in the Safety Barrier Wiring Set (Vaisala order code: ASM213201SP).

1. Partition plate
2. Mounting screw M4×8 ECO-Fix Zn TX20 (2 pcs)
4. Remove the cable duct cover above the area reserved for the safety barriers.

5. Mount the DL4000 data logger (or loggers), as shown in step 6 to step 9.

6. Assemble the data logger holder.
   a. Place the data logger in the logger holder.
   b. Fit the cover into place.
   c. Tighten the screw by hand.

7. Connect the logger data cable to the RS-232 serial port in the data logger. Use a small flat head screwdriver to tighten the screw attached to the connector.

8. Mount the data logger on the DIN rail, preferably at the right end of the rail. Rest the logger holder locking mechanism on the DIN rail and push down firmly. This will click the device into place.
9. Connect the logger data cable to a free port in the serial port server.

10. Take note of the wiring instructions printed on the side of the safety barrier device. The information will be relevant when connecting wires in the intrinsically safe screw terminals of the safety barrier (step 17).

11. Mount the safety barrier on the DIN rail.
   a. Make sure the blue end of the device, with the intrinsically safe screw terminals, faces down.
   b. Rest the upper part of the locking mechanism on the DIN rail and push down firmly. This will click the device into place.
12. Using the cable set for safety, connect the safety barriers, the data loggers, and the 24 VDC power block, as shown in step 13 to step 16.

![Cable set diagram]

1 24 VDC power wires and connector  
2 Safety barrier wires  
3 Data logger connector

The cable set for safety contains wiring for 4 safety barriers. If you install only 1 to 3 devices, leave the extra wires unconnected and the wire end plugs in place.

13. Observing polarity, connect the safety barrier wires to the connectors at the back of the safety barriers.
14. Connect the black terminal connector of the cable set to the DL4000 data logger.

15. Connect the 24 VDC power wire connector to the power block located on the right-hand side of the cabinet.

1  Vertical cable duct
2  Power wires connected to power block
16. Route the wires along the cable ducts.

17. For wiring of the intrinsically safe screw terminals in the safety barriers, refer to the wiring instructions printed on the device and the Operating Instructions leaflet provided in the safety barrier packaging.

18. Cut the original cable duct and its cover to the appropriate length and screw it back into place, to the left of the partition plate. Vaisala recommends that you label the cable duct cover with the text INTRINSICALLY SAFE CONNECTIONS. Alternatively, use a blue cable duct as shown in step 16.

19. Insert any extra length of wire into the cable ducts and replace the cable duct covers.

20. Reconnect power in the cabinet.
   a. Switch on the circuit breaker.
   b. Switch on mains power.

For instructions on configuring measurement units and scaling in DL4000 data loggers, see Vaisala viewLinc Enterprise Server Version 5.0 User Guide (M211975EN).

More Information
- CAB100B Wiring Diagrams (page 94)
- CAB100B Layout Diagrams (page 98)
5.5 Expanding Safety Barrier Installation

- Safety Barrier Wiring Set (Vaisala order code: ASM213201SP). The set contains the following:
  - Cable set for PDT or safety
  - Data logger data cable
  - Partition plate
  - Data logger holder
  - DL4000 data logger(s), 1 logger per 4 safety barriers
  - Small flat head screwdriver

For order codes, see Spare Parts and Accessories (page 91).

The partition plate is needed for isolating the intrinsically safe area from the non-intrinsically safe area inside the cabinet.

Each set of 4 safety barriers requires a Safety Barrier Wiring Set and a data logger of its own.

You can install only one type of device or measurement point (PDT101 transmitters, analog input channels, safety barriers, or galvanic isolators) per row in the cabinet.

In cabinet models with 5 to 8 data loggers, you need 2 serial port servers. One serial port server controls the traffic of maximum 4 data loggers.

Make sure to number the data loggers as well as the cable sets and wires in the Safety Barrier Wiring Set before you install and connect them.

Follow the steps below to add new safety barriers to an existing set of devices in CAB100B. Refer to CAB100B Layout Diagrams (page 98) when planning the installation.

For instructions on introducing safety barriers as new devices to an empty DIN rail in the cabinet, see Adding Safety Barriers as New Modules (page 42).

The Safety Barrier Wiring Set consists of wiring for 4 devices. Any unused wires in the Wiring Set have been placed in the cable duct at the factory. If you have, for example, 3 safety barriers installed on a DIN rail, and want to complete the set by installing a 4th one, use the existing safety barrier wires present in the cable duct.
1. De-energize the cabinet:
   a. Switch off mains power.
   b. Switch off the circuit breaker located inside the cabinet.

   ![Circuit breaker](image)

   **1 Circuit breaker**

   c. Disconnect the safety barrier power wire connector from the power block located on the right-hand side of the cabinet.

2. Remove the cable duct cover above the safety barriers.

3. Mount the DL4000 data logger (or loggers), as shown in step 4 to step 7.

   Each set of 4 safety barriers requires a data logger of its own. If you are installing the 2nd, 3rd, or 4th safety barrier to complete a set of 4, step 4 to step 7 are not relevant, as you can connect the new safety barrier(s) to the existing data logger.
4. Assemble the data logger holder.
   a. Place the data logger in the logger holder.
   b. Fit the cover into place.
   c. Tighten the screw by hand.

5. Connect the logger data cable to the RS-232 serial port in the data logger. Use a small flat head screwdriver to tighten the screw attached to the connector.

6. Mount the data logger on the DIN rail, preferably at the right end of the rail. Rest the logger holder locking mechanism on the DIN rail and push down firmly. This will click the device into place.
7. Connect the logger data cable to a free port in the serial port server.

8. Take note of the wiring instructions printed on the side of the safety barrier device. The information will be relevant when connecting wires in the intrinsically safe screw terminals of the safety barrier (step 15).

9. Mount the safety barrier on the DIN rail.
   a. Make sure the blue end of the device, with the intrinsically safe screw terminals, faces down.
   b. Rest the upper part of the locking mechanism on the DIN rail and push down firmly. This will click the device into place.
10. Using the cable set for safety, connect the safety barriers, the data loggers, and the
24 VDC power block, as shown in step 11 to step 14.

1. 24 VDC power wires and connector
2. Safety barrier wires
3. Data logger connector

The cable set for safety contains wiring for 4 safety barriers. If you install only 1 to 3
devices, leave the extra wires unconnected and the wire end plugs in place.

11. Observing polarity, connect the safety barrier wires to the connectors at the back of the
safety barriers.
12. Connect the black terminal connector of the cable set to the DL4000 data logger.

13. Connect the 24 VDC power wire connector to the power block.

1  Vertical cable duct
2  Power wire connected to power block
14. Route the wires along the cable ducts.

1. Safety barrier wires connected
2. Safety barrier power wire connected to power block
3. Data logger wires connected

15. For wiring of the intrinsically safe screw terminals in the safety barriers, refer to the wiring instructions printed on the device and the Operating Instructions leaflet provided in the safety barrier packaging.

16. Insert any extra length of wire into the cable ducts and replace the cable duct covers.

17. Reconnect power in the cabinet.
   a. Switch on the circuit breaker.
   b. Switch on mains power.

More Information
- CAB100B Wiring Diagrams (page 94)
- CAB100B Layout Diagrams (page 98)
5.6 Adding Galvanic Isolators as New Modules

- Galvanic Isolator Wiring Set (Vaisala order code: ASM213143SP). The set contains the following:
  - Galvanic isolator cable
  - Data logger data cable
  - Partition plate
  - Data logger holder
  - DL4000 data logger(s), 1 logger per 4 galvanic isolators
  - Empty DIN rail in the cabinet
  - Small flat head screwdriver

For order codes, see Spare Parts and Accessories (page 91).

The partition plate is needed for isolating the intrinsically safe area from the non-intrinsically safe area inside the cabinet.

Each set of 4 galvanic isolators requires a Galvanic Isolator Wiring Set and a data logger of its own.

You can install only one type of device or measurement point (PDT101 transmitters, analog input channels, safety barriers, or galvanic isolators) per row in the cabinet.

In cabinet models with 5 to 8 data loggers, you need 2 serial port servers. One serial port server controls the traffic of maximum 4 data loggers.

Make sure to number the data loggers as well as the cable sets and wires in the Galvanic Isolator Wiring Set before you install and connect them.

Follow the steps below to install galvanic isolators as new devices to an empty DIN rail in CAB100B. Refer to CAB100B Layout Diagrams (page 98) when planning the installation.

For instructions on expanding the number of galvanic isolators installed in the cabinet, see Expanding Galvanic Isolator Installation (page 65).
1. De-energize the cabinet:
   a. Switch off mains power.
   b. Switch off the circuit breaker located inside the cabinet.

![Circuit breaker](image)

1. Circuit breaker

2. Remove the cable duct from the bottom left corner of the cabinet, where the galvanic isolators will be installed. Set the cable duct and the screws aside, as you will need them in step 18.
3. Mount the partition plate. Use the pre-drilled screw holes in the backplate and the screws provided in the Galvanic Isolator Wiring Set (Vaisala order code: ASM213143SP).

1. Partition plate
2. Mounting screw M4×8 ECO-Fix Zn TX20 (2 pcs)
4. Remove the cable duct cover above the area reserved for the galvanic isolators.

5. Mount the DL4000 data logger (or loggers), as shown in step 6 to step 9.

6. Assemble the data logger holder.
   a. Place the data logger in the logger holder.
   b. Fit the cover into place.
   c. Tighten the screw by hand.

7. Connect the logger data cable to the RS-232 serial port in the data logger. Use a small flat head screwdriver to tighten the screw attached to the connector.

8. Mount the data logger on the DIN rail, preferably at the right end of the rail. Rest the logger holder locking mechanism on the DIN rail and push down firmly. This will click the device into place.
9. Connect the logger data cable to a free port in the serial port server.

10. Take note of the wiring instructions printed on the side of the galvanic isolator device. The information will be relevant when connecting wires in the intrinsically safe screw terminals of the galvanic isolator (step 17).

11. Mount the galvanic isolator on the DIN rail.
   a. Make sure the blue end of the device, with the intrinsically safe screw terminals, faces down.
   b. Rest the upper part of the locking mechanism on the DIN rail and push down firmly. This will click the device into place.
12. Using the galvanic isolator cable, connect the galvanic isolators, the data loggers, and the 24 VDC power block, as shown in step 13 to step 16.

![Diagram of connections](image)

1. Data logger connector  
2. Galvanic isolator wires  
3. 24 VDC power wires and connector

The galvanic isolator cable contains wiring for 4 galvanic isolators. If you install only 1 to 3 devices, leave the extra wires unconnected and the wire end plugs in place.

13. Observing polarity, connect the galvanic isolator wires to push-type terminals 1 and 2, and the power wires to terminals 7 and 9 at the back of the galvanic isolator.
14. Connect the black terminal connector of the cable set to the DL4000 data logger.

15. Connect the 24 VDC power wire connector to the power block located on the right-hand side of the cabinet.

1  Vertical cable duct
2  Power wires connected to power block
16. Route the wires along the cable ducts.

1. Galvanic isolator wires connected
2. Galvanic isolator power wires connected to power block
3. Data logger wires connected

17. For wiring of the intrinsically safe screw terminals in the galvanic isolators, refer to the wiring instructions printed on the device and the Safety Manual leaflet provided in the galvanic isolator packaging.

18. Cut the original cable duct and its cover to the appropriate length and screw it back into place, to the left of the partition plate. Vaisala recommends that you label the cable duct cover with the text INTRINSICALLY SAFE CONNECTIONS. Alternatively, use a blue cable duct as shown in step 16.

19. Insert any extra length of wire into the cable ducts and replace the cable duct covers.

20. Reconnect power in the cabinet.
   a. Switch on the circuit breaker.
   b. Switch on mains power.

For instructions on configuring measurement units and scaling in DL4000 data loggers, see Vaisala viewLinc Enterprise Server Version 5.0 User Guide (M211975EN).

More Information
- CAB100B Wiring Diagrams (page 94)
- CAB100B Layout Diagrams (page 98)
5.7 Expanding Galvanic Isolator Installation

- Galvanic Isolator Wiring Set (Vaisala order code: ASM213143SP). The set contains the following:
  - Galvanic isolator cable
  - Data logger data cable
  - Partition plate
  - Data logger holder
  - DL4000 data logger(s), 1 logger per 4 galvanic isolators
  - Small flat head screwdriver

For order codes, see Spare Parts and Accessories (page 91).

The partition plate is needed for isolating the intrinsically safe area from the non-intrinsically safe area inside the cabinet.

Each set of 4 galvanic isolators requires a Galvanic Isolator Wiring Set and a data logger of its own.

You can install only one type of device or measurement point (PDT101 transmitters, analog input channels, safety barriers, or galvanic isolators) per row in the cabinet.

In cabinet models with 5 to 8 data loggers, you need 2 serial port servers. One serial port server controls the traffic of maximum 4 data loggers.

Make sure to number the data loggers as well as the cable sets and wires in the Galvanic Isolator Wiring Set before you install and connect them.

Follow the steps below to add new galvanic isolators to an existing set of devices in CAB100B. Refer to CAB100B Layout Diagrams (page 98) when planning the installation.

For instructions on introducing galvanic isolators as new devices to an empty DIN rail in the cabinet, see Adding Galvanic Isolators as New Modules (page 57).
The Galvanic Isolator Wiring Set consist of wiring for 4 devices. Any unused wires in the Wiring Set have been placed in the cable duct at the factory. If you have, for example, 3 galvanic isolators installed on a DIN rail, and want to complete the set by installing a 4th one, use the existing galvanic isolator wires present in the cable duct.

1. De-energize the cabinet:
   a. Switch off mains power.
   b. Switch off the circuit breaker located inside the cabinet.
   c. Disconnect the galvanic isolator power wire connector from the power block located on the right-hand side of the cabinet.

2. Remove the cable duct cover above the galvanic isolators.
3. Mount the DL4000 data logger (or loggers), as shown in step 4 to step 7.

Each set of 4 galvanic isolators requires a data logger of its own. If you are installing the 2nd, 3rd, or 4th galvanic isolator to complete a set of 4, step 4 to step 7 are not relevant, as you can connect the new galvanic isolator(s) to the existing data logger.
4. Assemble the data logger holder.
   a. Place the data logger in the logger holder.
   b. Fit the cover into place.
   c. Tighten the screw by hand.

5. Connect the logger data cable to the RS-232 serial port in the data logger. Use a small flat head screwdriver to tighten the screw attached to the connector.

6. Mount the data logger on the DIN rail, preferably at the right end of the rail. Rest the logger holder locking mechanism on the DIN rail and push down firmly. This will click the device into place.
7. Connect the logger data cable to a free port in the serial port server.

8. Take note of the wiring instructions printed on the side of the galvanic isolator device. The information will be relevant when connecting wires in the intrinsically safe screw terminals of the galvanic isolator (step 15).

9. Mount the galvanic isolator on the DIN rail.
   a. Make sure the blue end of the device, with the intrinsically safe screw terminals, faces down.
   b. Rest the upper part of the locking mechanism on the DIN rail and push down firmly. This will click the device into place.
10. Using the galvanic isolator cable, connect the galvanic isolators, the data loggers, and the 24 VDC power block, as shown in step 11 to step 14.

![Diagram of galvanic isolator cable connections](image)

1. Data logger connector
2. Galvanic isolator wires
3. 24 VDC power wires and connector

The galvanic isolator cable contains wiring for 4 galvanic isolators. If you install only 1 to 3 devices, leave the extra wires unconnected and the wire end plugs in place.

11. Observing polarity, connect the galvanic isolator wires to push-type terminals 1 and 2, and the power wires to terminals 7 and 9 at the back of the galvanic isolator.
12. Connect the black terminal connector of the cable set to the DL4000 data logger.

13. Connect the 24 VDC power wire connector to the power block located on the right-hand side of the cabinet.

1  Vertical cable duct
2  Power wires connected to power block
14. Route the wires along the cable ducts.

1 Galvanic isolator wires connected
2 Galvanic isolator power wires connected to power block
3 Data logger wires connected

15. For wiring of the intrinsically safe screw terminals in the galvanic isolators, refer to the wiring instructions printed on the device and the Safety Manual leaflet provided in the galvanic isolator packaging.

16. Insert any extra length of wire into the cable ducts and replace the cable duct covers.

17. Reconnect power in the cabinet.
   a. Switch on the circuit breaker.
   b. Switch on mains power.

More Information
• CAB100B Wiring Diagrams (page 94)
• CAB100B Layout Diagrams (page 98)
5.8 Installing Serial Port Server and Ethernet Switch

- Serial port server (order code DIGIKNNN)
- Logger data cable(s), delivered with the spare part Wiring Set for the specific cabinet model (PDT101, analog channel, safety barrier, or galvanic isolator model)
- Ethernet switch (for installation locations with only 1 Ethernet cable available)
- Small flat head screwdriver

For setup instructions of the DIGI serial port server, see DIGI PortServer® TS Family Quick Start Guide.

When adding more measurement devices in CAB100B, you may need to add more data loggers in the installation. A 2nd serial port server is needed when the number of data loggers exceeds 4.

For installation sites with only 1 Ethernet cable available for the 2 serial port servers, an Ethernet switch is available as an option.

To order the 2nd serial port server, a serial port server holder, an Ethernet switch, and the cabling for them, contact Vaisala.

1. De-energize the cabinet:
   a. Switch off mains power.
   b. Switch off the circuit breaker located inside the cabinet.

2. Before mounting the 2nd serial port server and the Ethernet switch (if using) on the DIN rail, insert the power wires in the devices’ screw terminals and tighten the screws. For the locations of the screw terminals, see step 3.
3. Mount the serial port server (and the Ethernet switch) on the DIN rail.

4. For installations including an Ethernet switch:
   Connect the serial port servers to the Ethernet switch using 2 RJ45 cables.

5. Route the power wires through the cable duct to the power block, located under the serial port server and the Ethernet switch.
6. Using the logger data cables provided in the spare part Wiring Set, connect the new data logger(s) and the serial port server. Route the data logger data cable along the vertical cable duct from the left side of the cabinet.

7. Insert any extra length of wire into the cable ducts and replace the cable duct covers.

8. Switch on the circuit breaker and mains power.
More Information

• Third Party Component Specifications (page 90)
• Spare Parts and Accessories (page 91)
• CAB100B Wiring Diagrams (page 94)
• CAB100B Layout Diagrams (page 98)
6. Replacing Devices

6.1 Replacing PDT101 Transmitters

- Small flat head screwdriver

Follow the steps below to replace calibrated or faulty PDT101 transmitters.

1. Switch off mains power.
2. De-energize CAB100B:
   a. Switch off the circuit breaker located inside the cabinet.
   b. Disconnect the PDT101 power wire connector from the power block located on the right-hand side of the cabinet.
3. Unplug the wire terminal connector from the PDT101 transmitter.

4. To release the PDT101 from the DIN rail, insert a small flat head screwdriver into the black plastic clip extending slightly below the transmitter case.

5. Force the spring clip down to release the PDT101 from the DIN rail.

6. Mount the new PDT101 on the DIN rail.
   Rest the upper part of the locking mechanism on the DIN rail and push down firmly. This will click the device into place.

7. Use the existing wire terminal connector, and plug in the connector to its mating connector in the PDT101.
8. Reconnect power in CAB100B:
   a. Reconnect the power wires in the power block located on the right-hand side of the cabinet.
   b. Switch on the circuit breaker.
   c. Switch on mains power.

9. The replacement PDT101 is now mounted and connected. Insert any extra length of wire into the cable duct below the PDT101 and replace the cable duct cover.

More Information
- PDT101 Calibration (page 82)
- Wiring Diagrams (page 93)

6.2 Replacing DL4000 Data Loggers

Small flat head screwdriver

When sending a data logger for calibration to Vaisala, you do not need to remove the data logger from the logger holder.

Follow the steps below to replace calibrated or faulty DL4000 data loggers.

1. Switch off mains power.
2. De-energize CAB100B:
   a. Switch off the circuit breaker located inside the cabinet.
   b. Disconnect the 24 VDC power wire connector from the power block located on the right-hand side of the cabinet.

3. To unmount an existing data logger, first disconnect the data logger connector from the data logger.

4. Unmount the logger holder from the DIN rail.
   Release the locking clip and pull out from the bottom of the holder.
5. Disconnect the logger data cable from the data logger. Use a small flat head screwdriver to loosen the screw attached to the connector, then pull out the connector.

6. Assemble the data logger holder of the replacement data logger.
   a. Place the data logger in the logger holder.
   b. Fit the cover into place.
   c. Tighten the screw by hand.

7. Connect the logger data cable to the RS-232 serial port in the replacement data logger. Use a small flat head screwdriver to tighten the screw attached to the connector.

8. Mount the new data logger on the DIN rail. Rest the logger holder locking mechanism on the DIN rail and push down firmly. This will click the device into place.
9. Reconnect the data logger connector.

10. Reconnect power in CAB100B:
    a. Reconnect the power wires in the power block located on the right-hand side of the cabinet.
    b. Switch on the circuit breaker.
    c. Switch on mains power.

For instructions on configuring measurement units and scaling in DL4000 data loggers, see *Vaisala viewLinc Enterprise Server Version 5.0 User Guide* (M211975EN).

More Information
- Wiring Diagrams (page 93)
7. Maintenance

7.1 PDT101 Calibration

1. Pneumatically connect the transmitter’s pressure ports to each other. The barbed pressure connections accept O.D. 1/4 in × I.D. 1/8 in tubing.

2. Measure the analog output of the transmitter to establish the zero offset reading in the as-installed position.

3. If the reading is not at the middle of the output range (for example, 12 mA for 4 … 20 mA output), the zero point of the transmitter has shifted. To remove the zero shift, adjust the transmitter as described in PDT101 Adjustment (page 82).

7.2 PDT101 Adjustment

- High accuracy pressure standard and high quality electrical meter for adjustment
- 2.5 mm (3/32 in) flat head or crosshead screwdriver

1. Connect the pressure standard to the ports of the PDT101.

2. Bring the pressure to 0 % of the transmitter’s span (-60 Pa or -0.25 in H₂O, depending on model).

3. Adjust the zero potentiometer (on the front, left side of the transmitter) so that the analog output value is at the low end of its range. Use a 2.5 mm (3/32 in) flat head or crosshead screwdriver to turn the potentiometer.
4. Bring the pressure to 100 % of the transmitter’s span (+60 Pa or +0.25 in H₂O, depending on model).

5. Adjust the span potentiometer (on the front, right side of the transmitter) so that the analog output value is at the high end of its range.

For the full PDT101 transmitter specifications and user instructions, see Vaisala Differential Pressure Transmitter PDT101 Datasheet (B211082EN) and Vaisala Differential Pressure Transmitter PDT101 Quick Guide (M211284EN), available for download at www.vaisala.com/pdt101.

7.3 Cleaning

You can clean the CAB100 enclosure by wiping with a clean cloth moistened with mild detergent.

You can use clean instrument air to gently blow out any loose dust and dirt that may accumulate over time on the measurement devices.

When cleaning, follow these precautions:

- Do not use solvents.
- Do not spray anything directly on the enclosure or the measurement devices.
- Do not immerse any part of the enclosure or a measurement device in liquid to clean it.
8. Technical Data

8.1 CAB100 Specifications

Table 4  CAB100 Operating Environment

<table>
<thead>
<tr>
<th>Property</th>
<th>Description/Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating temperature</td>
<td>0 … +55 °C (+32 … +131 °F)</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>−40 … +70 °C (−40 … +158 °F)</td>
</tr>
<tr>
<td>Operating humidity</td>
<td>5 … 90 %RH, non-condensing</td>
</tr>
<tr>
<td>Maximum operating altitude</td>
<td>2000 m (6561 ft)</td>
</tr>
</tbody>
</table>

Table 5  CAB100 Powering Specifications

<table>
<thead>
<tr>
<th>Property</th>
<th>Description/Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC (mains) power</td>
<td>100 … 240 VAC, 50 … 60 Hz</td>
</tr>
<tr>
<td></td>
<td>0.5 A maximum (120 VAC)</td>
</tr>
<tr>
<td>Power supply module within cabinet</td>
<td>24 VDC / 2.5 A / Fused 2 A</td>
</tr>
<tr>
<td>Power over Ethernet 1)</td>
<td>12 … 30 VDC</td>
</tr>
<tr>
<td></td>
<td>IEEE 802.3af, 10Base-T</td>
</tr>
<tr>
<td>Mains fuse (nominal)</td>
<td>4 A</td>
</tr>
<tr>
<td>Maximum power consumption</td>
<td>CAB100B: 40 W</td>
</tr>
</tbody>
</table>

1)  In CAB100A PDT101 models only.

Table 6  CAB100 Environmental Compliance

<table>
<thead>
<tr>
<th>Property</th>
<th>Description/Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP rating 1)</td>
<td>IP66 / NEMA 4</td>
</tr>
<tr>
<td>Rough handling / topple test</td>
<td>IEC60068-2-31</td>
</tr>
</tbody>
</table>

1)  Applicable when using the existing flanges on the top and bottom of the cabinet.
Table 7  CAB100 EMC Compliance

<table>
<thead>
<tr>
<th>Property</th>
<th>Description/Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMC Compliance</td>
<td>EN/IEC 61326-1: Basic electromagnetic environment.1) EN55032 Class B. EN/UL/IEC 61010-1: Safety requirements for electrical equipment for measurement, control, and laboratory Use – Part 1: General requirements 2)</td>
</tr>
</tbody>
</table>

1) Excluding CAB100 analog input channels, which are not surge protected.
2) Safety listing pending.

8.1.1 CAB100B Specifications

Table 8  CAB100B Mechanical Specifications

<table>
<thead>
<tr>
<th>Property</th>
<th>Description/Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Materials</strong></td>
<td></td>
</tr>
<tr>
<td>Backplate</td>
<td>Fe/Zn</td>
</tr>
<tr>
<td>Flanges</td>
<td>Stainless steel AISI 316                                               Rubber (EPDM, Fermasil)</td>
</tr>
<tr>
<td>Cable glands</td>
<td>Nickel-plated brass</td>
</tr>
<tr>
<td>Enclosure</td>
<td>Stainless steel AISI 316, painted white</td>
</tr>
<tr>
<td><strong>Outer Dimensions (Length × Width × Height)</strong></td>
<td></td>
</tr>
<tr>
<td>Enclosure and mounting frame, incl. door with lock, and top and bottom flanges</td>
<td>618 × 500 × 257 mm (24.33 × 19.69 × 10.12 in)</td>
</tr>
<tr>
<td>Shipping package</td>
<td>Approx. 775 × 591 × 290 mm (31 × 23 × 11 in)</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td></td>
</tr>
<tr>
<td>Fully populated cabinet and mounting frame in shipping package</td>
<td>Approx. 30 kg (66 lb) (depending on model)</td>
</tr>
<tr>
<td>Enclosure (with backplate)</td>
<td>18.7 kg (41 lb)</td>
</tr>
<tr>
<td>Mounting frame only</td>
<td>2.9 kg (6.4 lb)</td>
</tr>
</tbody>
</table>
8.1.1.1 Enclosure Dimensions

Figure 5  CAB100B Enclosure Dimensions

8.2 Component Specifications

8.2.1 Vaisala Differential Pressure Transmitter PDT101 Specifications

Table 9  PDT101 Measurement Performance

<table>
<thead>
<tr>
<th>Property</th>
<th>Description/Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measurement ranges (bidirectional)</td>
<td>±60 Pa</td>
</tr>
<tr>
<td></td>
<td>±0.25 in H₂O</td>
</tr>
<tr>
<td>Accuracy (incl. non-linearity, hysteresis, repeatability and zero/span calibration settings)</td>
<td>0.4 % span</td>
</tr>
<tr>
<td>Long-term stability</td>
<td>≤0.5 % span/year</td>
</tr>
<tr>
<td>Response time (10 ... 90 %)</td>
<td>250 ms</td>
</tr>
<tr>
<td>Warm-up time</td>
<td>15 s</td>
</tr>
<tr>
<td>Compensated temperature range</td>
<td>+2 ... +54 °C</td>
</tr>
<tr>
<td></td>
<td>(+35.6 ... +129.2 °F)</td>
</tr>
<tr>
<td>Temperature dependence</td>
<td>±(0.065 Pa + 0.054 % of reading) / °C</td>
</tr>
<tr>
<td></td>
<td>or ±(0.00015 in H₂O + 0.03 % of reading) / °F</td>
</tr>
<tr>
<td></td>
<td>(reference 21 °C or 70 °F)</td>
</tr>
</tbody>
</table>
### Table 10  
**PDT101 Operating Environment**

<table>
<thead>
<tr>
<th>Property</th>
<th>Description/Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating temperature</td>
<td>−18 ... +70 °C (−0.4 ... +158 °F)</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>−40 ... +82 °C (−40 ... +179.6 °F)</td>
</tr>
<tr>
<td>EMC compliance</td>
<td>EN 61326-1, Basic immunity test requirements</td>
</tr>
</tbody>
</table>

Note: If used in an electromagnetic field of 3 V/m, with narrow frequency area of 80 ... 120 MHz, it is possible that the current output of PDT101 can deviate max. 0.8 % (with accuracy specified 0.4 %)

### Table 11  
**PDT101 Inputs and Outputs**

<table>
<thead>
<tr>
<th>Property</th>
<th>Description/Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process connection</td>
<td>1/4” barbed fittings</td>
</tr>
<tr>
<td>Max. loop resistance for 4 ... 20 mA</td>
<td>≤ (Supply voltage - 12 V)/0.022 A</td>
</tr>
<tr>
<td>Supply current</td>
<td>Max. 20 mA for 4 ... 20 mA output signal</td>
</tr>
<tr>
<td>Optical process diagnostics</td>
<td>LED visual indicator</td>
</tr>
<tr>
<td>Electrical connection</td>
<td>Euro style pluggable terminal block accepts 12 ... 26 AWG wire (0.13 up to 3.31 mm²)</td>
</tr>
</tbody>
</table>

#### Output Signal

- **2-wire**: 4 ... 20 mA
- **3-wire**: 0 ... 5 VDC (user selectable 0 ... 10 VDC)

#### Operating Voltage

- **2-wire output 4 ... 20 mA**: 12 ... 36 VDC
- **3-wire output 0 ... 5 VDC**: 11.5 ... 36 VDC
- **3-wire output 0 ... 10 VDC**: 14 ... 36 VDC or 24 VAC
### Table 12 PDT101 Mechanical Specifications

<table>
<thead>
<tr>
<th>Property</th>
<th>Description/Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medium (measured gas)</td>
<td>Clean and dry air, non-conducting and non-corrosive gases</td>
</tr>
<tr>
<td>Mounting</td>
<td>Threaded fastener for wall mounting or DIN rail type EN50022</td>
</tr>
<tr>
<td>IP rating</td>
<td>IP40</td>
</tr>
<tr>
<td>Weight</td>
<td>0.07 kg</td>
</tr>
</tbody>
</table>

#### Material
- Process connection: Brass
- Sensor element: Silicon, aluminium, glass
- Case: NEMA type 1 fire-retardant ABS 1 (meets UL94-5VA)

### 8.2.2 Vaisala DL4000 Universal Data Logger Specifications

### Table 13 DL4000 General Specifications

<table>
<thead>
<tr>
<th>Property</th>
<th>Description/Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating range</td>
<td>−40 ... +85 °C (−40 ... +185 °F) and 0 ... 100 %RH (non-condensing)</td>
</tr>
<tr>
<td>Interfaces</td>
<td>RS-232 serial, USB, Wifi module, Ethernet and Power over Ethernet (vNet)</td>
</tr>
<tr>
<td>Weight</td>
<td>76 g (2.7 oz)</td>
</tr>
<tr>
<td>Size</td>
<td>85 × 59 × 26 mm (3.4 × 2.3 × 1 in)</td>
</tr>
<tr>
<td>Mounting</td>
<td>3M Dual Lock™ fasteners</td>
</tr>
<tr>
<td>PC software</td>
<td>Graphing &amp; Reporting Software, vLog SP for SP-series, vLog VL for VL-series, viewLinc for continuous monitoring &amp; alarming, OPC Server to add on to existing OPC compatible monitoring systems</td>
</tr>
<tr>
<td>Internal clock</td>
<td>Accuracy ±1 min/month at −25 ... +70 °C (−13 ... +158 °F)</td>
</tr>
<tr>
<td>Property</td>
<td>Description/Value</td>
</tr>
<tr>
<td>--------------------------</td>
<td>-----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>RoHS compliance</td>
<td>2011/65/EU</td>
</tr>
<tr>
<td>Power source</td>
<td>Internal 10-year lithium battery (Battery life specified with sample interval of 1 min or longer)</td>
</tr>
</tbody>
</table>

Table 14  DL4000 Memory Specifications

<table>
<thead>
<tr>
<th>Property</th>
<th>Description/Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memory type</td>
<td>Non-volatile EEPROM</td>
</tr>
<tr>
<td>Data sample capacity</td>
<td>120 000 12-bit samples</td>
</tr>
<tr>
<td>Memory modes</td>
<td>User-selectable wrap (FIFO) or stop when memory is full. User-selectable start and stop times.</td>
</tr>
<tr>
<td>Sampling rates</td>
<td>User-selectable from once every 10 seconds to once a day. (Battery life specified with sample interval of 1 min or longer)</td>
</tr>
<tr>
<td>Recording span</td>
<td>Recording span depends upon sample interval selected and number of channels enabled. Please see table above.</td>
</tr>
</tbody>
</table>

Table 15  DL4000 Recording Span

<table>
<thead>
<tr>
<th>Sample Interval</th>
<th>Number of Channels</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>10 seconds</td>
<td>13.8 days</td>
</tr>
<tr>
<td>1 minute</td>
<td>2.7 months</td>
</tr>
<tr>
<td>5 minutes</td>
<td>1.1 years</td>
</tr>
<tr>
<td>15 minutes</td>
<td>3.4 years</td>
</tr>
<tr>
<td>1 hour</td>
<td>13.6 years</td>
</tr>
</tbody>
</table>

Table 16  DL4000 Current Loop and Voltage Inputs

<table>
<thead>
<tr>
<th>Input Type</th>
<th>Current Loop</th>
<th>Analog Voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Available ranges</td>
<td>0 ... 20mA</td>
<td>0 ... 5 VDC</td>
</tr>
<tr>
<td>Resolution</td>
<td>5.5 μA</td>
<td>0.025 % F.S.</td>
</tr>
<tr>
<td>Accuracy</td>
<td>±0.15 % F.S. at +25 °C (+77 °F)</td>
<td>±0.15 % F.S. at +25 °C (+77 °F)</td>
</tr>
<tr>
<td>Input impedances</td>
<td>75 Ω</td>
<td>&gt; 1 MΩ</td>
</tr>
<tr>
<td>Isolation</td>
<td>One common per logger</td>
<td>One common per logger</td>
</tr>
<tr>
<td>Input Type</td>
<td>Current Loop</td>
<td>Analog Voltage</td>
</tr>
<tr>
<td>---------------------</td>
<td>---------------------------------------</td>
<td>-----------------------------------------</td>
</tr>
<tr>
<td>Overload protection</td>
<td>40 mA max. (reverse-polarity protected)</td>
<td>±24 VDC max. (reverse-polarity protected)</td>
</tr>
</tbody>
</table>

8.2.3 Third Party Component Specifications

For the technical specifications of third party components, see the relevant documentation on the manufacturer websites listed below.

Table 17  Power Supply Module Product Information

<table>
<thead>
<tr>
<th>Property</th>
<th>Description/Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product description</td>
<td>STEP-PS/ 1AC/24DC/2.5 power supply unit</td>
</tr>
<tr>
<td>Manufacturer</td>
<td>Phoenix Contact, [<a href="http://www.phoenixcontact.com">www.phoenixcontact.com</a>]</td>
</tr>
<tr>
<td>Manufacturer part number</td>
<td>2868651</td>
</tr>
</tbody>
</table>

Table 18  Circuit Breaker Product Information

<table>
<thead>
<tr>
<th>Property</th>
<th>Description/Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product description</td>
<td>Miniature circuit breaker - S200M - 2P - D - 4 ampere</td>
</tr>
<tr>
<td>Manufacturer</td>
<td>ABB, [<a href="http://www.new.abb.com">www.new.abb.com</a>]</td>
</tr>
<tr>
<td>Manufacturer part number</td>
<td>S202M-D4</td>
</tr>
</tbody>
</table>

Table 19  Safety Barrier Product Information

<table>
<thead>
<tr>
<th>Property</th>
<th>Description/Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product description</td>
<td>Single-channel safety barrier, type 9001/51-280-091-141</td>
</tr>
<tr>
<td>Manufacturer</td>
<td>R. STAHL, [<a href="http://www.r-stahl.com">www.r-stahl.com</a>]</td>
</tr>
<tr>
<td>Manufacturer part number</td>
<td>158524</td>
</tr>
</tbody>
</table>

Table 20  Galvanic Isolator Product Information

<table>
<thead>
<tr>
<th>Property</th>
<th>Description/Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product description</td>
<td>Transmitter supply unit Ex i field circuit, type 9160/13-11-1lk</td>
</tr>
<tr>
<td>Manufacturer</td>
<td>R. STAHL, [<a href="http://www.r-stahl.com">www.r-stahl.com</a>]</td>
</tr>
<tr>
<td>Manufacturer part number</td>
<td>214896</td>
</tr>
</tbody>
</table>
Table 21  Serial Port Server Product Information

<table>
<thead>
<tr>
<th>Property</th>
<th>Description/Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product description</td>
<td>DIGI PortServer® TS 4 Serial Port Server</td>
</tr>
<tr>
<td>Manufacturer</td>
<td>DIGI International, <a href="http://www.digi.com">www.digi.com</a></td>
</tr>
<tr>
<td>Manufacturer part number</td>
<td>70002045</td>
</tr>
</tbody>
</table>

Table 22  Ethernet Switch Product Information

<table>
<thead>
<tr>
<th>Property</th>
<th>Description/Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product description</td>
<td>N-Tron® 105TX-SL unmanaged industrial Ethernet switch</td>
</tr>
<tr>
<td>Manufacturer</td>
<td>Red Lion, <a href="http://www.redlion.net">www.redlion.net</a></td>
</tr>
<tr>
<td>Manufacturer part number</td>
<td>105TX-SL</td>
</tr>
</tbody>
</table>

8.3 Spare Parts and Accessories

Table 23  CAB100 Spare Parts and Accessories

<table>
<thead>
<tr>
<th>Item</th>
<th>Order Code</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>DL4000 data logger</td>
<td>DL4000VCNNNN</td>
<td>Used with PDT101 transmitter voltage models and analog input channels. Input range 0 ... 5 VDC.</td>
</tr>
<tr>
<td>DL4000 data logger</td>
<td>DL4000VKNNNN</td>
<td>Used with PDT101 transmitter current models, safety barriers, and galvanic isolators. Input range 0 ... 20 mA.</td>
</tr>
<tr>
<td>Data logger data cable</td>
<td>ASM213402SP</td>
<td></td>
</tr>
<tr>
<td>Data logger holder for DIN35 rail</td>
<td>ASM213068SP</td>
<td></td>
</tr>
<tr>
<td>PDT101 transmitter, current output model</td>
<td>PDT101-W4C</td>
<td>Measurement range ±0.25 in H₂O.</td>
</tr>
<tr>
<td>PDT101 transmitter, current output model</td>
<td>PDT101-P4C</td>
<td>Measurement range ±60 Pa.</td>
</tr>
<tr>
<td>Safety barrier</td>
<td>210664</td>
<td></td>
</tr>
<tr>
<td>Galvanic isolator</td>
<td>212483</td>
<td></td>
</tr>
<tr>
<td>Serial port server</td>
<td>DIGIKNNN</td>
<td>4-port model.</td>
</tr>
<tr>
<td>Item</td>
<td>Order Code</td>
<td>Notes</td>
</tr>
<tr>
<td>------------------------------</td>
<td>------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Analog Wiring Set:</td>
<td>ASM213078SP</td>
<td>Needed when adding a new data logger with 4 analog channels to CAB100. Note that the data logger is not included in the Analog Wiring Set, and must be ordered separately.</td>
</tr>
<tr>
<td>• Cable set, 24 VDC power block to analog terminal block</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Cable set, data logger to analog terminal block</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Data logger data cable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Data logger holder</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Terminal block accessories for 4 analog input channels</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Document Vaisala CAB100 Assembling Analog Channel Terminal Block Technical Note (M212262EN)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PDT Wiring Set:</td>
<td>ASM213079SP</td>
<td>Needed when adding PDT101 transmitters to CAB100. Note that the data logger is not included in the PDT Wiring Set, and must be ordered separately.</td>
</tr>
<tr>
<td>• Cable set for PDT or safety</td>
<td></td>
<td></td>
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<tr>
<td>• Data logger data cable</td>
<td></td>
<td></td>
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<tr>
<td>• Data logger holder</td>
<td></td>
<td></td>
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<tr>
<td>Safety Barrier Wiring Set:</td>
<td>ASM213201SP</td>
<td>Needed when adding safety barriers to CAB100. Note that the data logger is not included in the Safety Barrier Wiring Set, and must be ordered separately.</td>
</tr>
<tr>
<td>• Cable set for PDT or safety</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Data logger data cable</td>
<td></td>
<td></td>
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<tr>
<td>• Partition plate</td>
<td></td>
<td></td>
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<tr>
<td>• Data logger holder</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Galvanic Isolator Wiring Set:</td>
<td>ASM213143SP</td>
<td>Needed when adding galvanic isolators to CAB100. Note that the data logger is not included in the Galvanic Isolator Wiring Set, and must be ordered separately.</td>
</tr>
<tr>
<td>• Galvanic isolator cable</td>
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<tr>
<td>• Data logger data cable</td>
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<tr>
<td>• Partition plate</td>
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<tr>
<td>• Data logger holder</td>
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</table>

If the spare part you need is not listed in the table, please contact Vaisala.

Information on spare parts, accessories, and calibration products is available online at [www.vaisala.com](http://www.vaisala.com) and [store.vaisala.com](http://store.vaisala.com).
Appendix A. Wiring Diagrams

To examine the wiring diagrams in detail, download the CAB100 Installation Guide or CAB100 Wiring Diagrams Technical Reference at www.vaisala.com/cab100.
A.1 CAB100B Wiring Diagrams

Figure 6  Wiring Diagram for CAB100B PDT101 Model
Figure 7  Wiring Diagram for CAB100B Analog Channel Model
Figure 8  Wiring Diagram for CAB100B Safety Barrier Model
Figure 9  Wiring Diagram for CAB100B Galvanic Isolator Model
Appendix B. Layout Diagrams

B.1 CAB100B Layout Diagrams

Figure 10  Main Components Inside CAB100B, Mixed Model with PDT101s, Analog Input Channels, and Safety Barriers

1  Cable duct for intrinsically safe connections
2  Safety barriers (8 pcs)
3  Terminal block for analog input channels
4  Holders for tubing (3 pcs)
5  PDT101 transmitters (4 pcs)
6  DL4000 data loggers (6 pcs)
7  Serial port servers (2 pcs)
8  Ethernet switch
9  24 VDC power block
10  24 VDC fuses T2.5A, 5 × 20 mm (2 pcs)
11  Cover plate
12  Circuit breaker and power supply module
<table>
<thead>
<tr>
<th></th>
<th>Description</th>
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<tr>
<td>13</td>
<td>110 ... 240 VAC mains input (under cover plate)</td>
</tr>
<tr>
<td>14</td>
<td>Cable strain relief</td>
</tr>
<tr>
<td>15</td>
<td>Grounding terminal block</td>
</tr>
<tr>
<td>16</td>
<td>Partition plate separating intrinsically safe and non-intrinsically safe connections</td>
</tr>
</tbody>
</table>
Figure 11  Main Components Inside CAB100B, PDT101 Model

1. Cable duct
2. PDT101 transmitters (12 pcs)
3. Holders for tubing (3 pcs)
4. DL4000 data loggers (3 pcs)
5. Serial port server
6. 24 VDC power block
7. 24 VDC fuses T2.5A, 5 × 20 mm (2 pcs)
8. Cover plate
9. Circuit breaker and power supply module
10. 110 ... 240 VAC mains input (under cover plate)
11. Cable strain relief
12. Grounding terminal block
Figure 12  Main Components Inside CAB100B, Analog Channel Model

1  Cable duct
2  Terminal block for analog input channels (3 pcs)
3  Holders for tubing (3 pcs)
4  DL4000 data loggers (8 pcs)
5  Serial port servers (2 pcs)
6  Ethernet switch
7  24 VDC power block
8  24 VDC fuses T2.5A, 5 × 20 mm (2 pcs)
9  Cover plate
10  Circuit breaker and power supply module
11  110 ... 240 VAC mains input (under cover plate)
12  Cable strain relief
13  Grounding terminal block
Figure 13  Main Components Inside CAB100B, Mixed Model with PDT101s and Safety Barriers

1  Cable duct for intrinsically safe connections
2  Safety barriers (8 pcs)
3  PDT101 transmitters (8 pcs)
4  Holders for tubing (3 pcs)
5  DL4000 data loggers (4 pcs)
6  Serial port server
7  24 VDC power block
8  24 VDC fuses T2.5A, 5 × 20 mm (2 pcs)
9  Cover plate
10  Circuit breaker and power supply module
11  110 ... 240 VAC mains input (under cover plate)
12  Cable strain relief
13  Grounding terminal block
14  Partition plate separating intrinsically safe and non-intrinsically safe connections
Figure 14 Main Components Inside CAB100B, Safety Barrier Model

1. Cable duct for intrinsically safe connections
2. Safety barriers (16 pcs)
3. DL4000 data loggers (4 pcs)
4. Holders for tubing (3 pcs)
5. Serial port server
6. 24 VDC power block
7. 24 VDC fuses T2.5A, 5 × 20 mm (2 pcs)
8. Cover plate
9. Circuit breaker and power supply module
10. 110 ... 240 VAC mains input (under cover plate)
11. Cable strain relief
12. Grounding terminal block
Figure 15  Main Components Inside CAB100B, Galvanic Isolator Model

1  Cable duct for intrinsically safe connections
2  Galvanic isolators (8 pcs)
3  PDT101 transmitters (8 pcs)
4  Holders for tubing (3 pcs)
5  DL4000 data loggers (4 pcs)
6  Serial port server
7  24 VDC power block
8  24 VDC fuses T2.5A, 5 × 20 mm (2 pcs)
9  Cover plate
10  Circuit breaker and power supply module
11  110 ... 240 VAC mains input (under cover plate)
12  Cable strain relief
13  Grounding terminal block
14  Partition plate separating intrinsically safe and non-intrinsically safe connections
Appendix C. Removing and Recycling Data Logger Battery

Vaisala data loggers contain a non-chargeable lithium primary battery. When disposing of data loggers, remove the battery first. Recycle it separately from the rest of the data logger parts.

- Pliers or wrench
- Screwdriver
- Wire cutters

1. Remove the 2 threaded nuts next to the connector on the logger body with pliers or wrench (for example, a 5 mm box wrench or an adjustable wrench).
2. Use a screwdriver or pen to open the logger housing; push down the clips in the two openings on the side of the logger (next to the ventilation grille) and pull the housing open.
3. Cut the pins that connect the battery to the circuit board from the ends of the battery.
4. Twist the battery off the circuit board. To prevent short circuits, protect the battery contacts with tape (or put the battery in a plastic bag) before putting it to the battery recycling bin.

CAUTION! The lithium inside the battery can cause a fire hazard or injury if handled incorrectly. Follow these precautions:

- Do not break the battery or attempt to open it.
- Do not expose the battery to temperatures over +100 °C (212 °F).
- Do not expose the contents of the battery to water.

Recycle the battery and the data logger electronics and housing in accordance with local waste management practices and regulations. Do not dispose of with regular household refuse.
Warranty

For standard warranty terms and conditions, see www.vaisala.com/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.

Technical Support

Contact Vaisala technical support at helpdesk@vaisala.com. Provide at least the following supporting information as applicable:

- Product name, model, and serial number
- Software/Firmware version
- Name and location of the installation site
- Name and contact information of a technical person who can provide further information on the problem

For more information, see www.vaisala.com/support.

Recycling

Recycle all applicable material.

Follow the statutory regulations for disposing of the product and packaging.