# TABLE OF CONTENTS

1. **Introduction** ........................................................................................................................................... 1

2. **Operation** ............................................................................................................................................. 3
   - 2.1 Connecting With Stereo Connector .......................................................................................... 3
   - 2.2 Connecting With Pigtail Adapter ............................................................................................... 5
   - 2.3 Viewing Sensor Data ................................................................................................................... 5
   - 2.4 Changing Sensor Units ................................................................................................................ 7
   - 2.5 Changing Digital Sensor SDI-12 Address .................................................................................. 9
   - 2.6 Sensor-Specific Functionality ................................................................................................... 10

3. **System** .................................................................................................................................................. 11
   - 3.1 Specifications .............................................................................................................................. 11
   - 3.2 Components ............................................................................................................................... 12

4. **Service** ................................................................................................................................................ 13
   - 4.1 Maintenance ............................................................................................................................... 13
   - 4.2 ZSC Firmware Update ............................................................................................................... 13
   - 4.3 Troubleshooting ......................................................................................................................... 15
   - 4.4 Customer Support ...................................................................................................................... 17
   - 4.5 Terms and Conditions ................................................................................................................ 18

Appendix A. **Compliance Certifications** ............................................................................................. 19

**Index** ....................................................................................................................................................... 21
1. INTRODUCTION

Thank you for choosing the ZSC Bluetooth® Sensor Interface from METER Group.

The ZSC is a hardware accessory to support METER ZENTRA system sensors. The ZSC pairs wirelessly with iOS™ and Android™ mobile devices through the ZENTRA Utility Mobile app to display sensor measurement data and metadata (firmware version, serial number, etc.). The ZSC works with most analog, pulse, and digital sensors supported by the ZENTRA system. Changing the sensor SDI-12 address for use on third-party loggers is also supported.

Verify the ZSC and its two AA alkaline batteries appear in good condition.

The latest version of the ZENTRA Utility Mobile app must be downloaded from the device’s app store (Figure 1) or the ZENTRA Apps website (Figure 2) prior to connecting to a sensor and viewing sensor data.

![Figure 1  ZENTRA Utility Mobile app](image)

![Figure 2  QR code to ZENTRA Apps website](image)
INTRODUCTION

Use the In-App Tutorial to become familiar with the app screens and capabilities prior to connecting to a sensor (Figure 3).

Figure 3  ZENTRA Utility Mobile In-App Tutorial
2. OPERATION
Please read all instructions before operating the ZSC to ensure it performs to its full potential.

⚠️ PRECAUTIONS
METER instruments are built to the highest standards, but misuse, improper protection, or improper installation may damage the sensor and possibly void the manufacturer’s warranty. Before using the ZSC, follow the recommended user instructions and arrange proper protections to safeguard the instrument from damage.

2.1 CONNECTING WITH STEREO CONNECTOR
The ZSC communicates with mobile devices through Bluetooth® Low Energy (BLE) and the ZENTRA Utility Mobile app (available for iOS and Android). The latest version of the app must be downloaded prior to connecting to a sensor and viewing sensor data (Section 1).

1. Insert the two AA batteries (included) into the ZSC (Figure 4).

![Figure 4 Batteries in the ZSC](image)

2. Plug the sensor stereo connector into the ZSC stereo port (Figure 5).

   NOTE: If the sensor has three stripped and tinned wires, contact Customer Support to purchase a pigtail-to-stereo adapter cable to use with the ZSC. See Section 2.2 for using the adapter.
3. Press the button on the ZSC.
4. Confirm that the LED on the ZSC begins blinking blue.
5. Open ZENTRA Utility Mobile app on the mobile device.
   The Connect screen will appear. ZENTRA Utility Mobile will search for and display nearby Bluetooth-enabled ZENTRA devices (Figure 6).

![Figure 5 Plug sensor cable into ZSC](image)

![Figure 6 Connect screen with ZSC](image)
6. Select the ZSC.

   The ZSC main screen will appear. The ZSC is connected and ready to show sensor measurements (Section 2.3).

2.2 CONNECTING WITH PIGTAIL ADAPTER

For METER sensors to be used with non-METER loggers, the connection may have been stripped and tinned. To connect these sensors back to the ZSC or other METER loggers, a pigtail-to-stereo adapter cable will be needed. Contact Customer Support to obtain an adapter cable.

The adapter cable has a connector for the stereo plug connector on one end and three wires (or pigtail adapter) for connection to a data logger on the other end. The stripped and tinned wires have the same termination as in Figure 7: the brown wire is excitation, the orange is output (either digital or analog, depending on the sensor), and the bare wire is ground. Connect each end of the adapter cable to the corresponding color on the stripped cable. Plug the adapter stereo connector to the ZSC (Section 2.1).

![Pigtail wiring diagram]

Figure 7 Pigtail wiring

NOTE: Some early adapters may have the older wiring scheme where the power supply is white, the output is red, and the bare wire is ground.

After the sensor is properly connected to the pigtail adapter, follow the instructions in Section 2.1 to connect the adapter to the ZSC.

2.3 VIEWING SENSOR DATA

After connecting the ZSC and the sensor (Section 2.1), the most recent scan of the connected sensor will show on the screen (Figure 8).
If the sensor is not automatically recognized, choose the sensor from the dropdown list (Figure 9).
Swipe down to refresh the measurements as desired.

2.4 Changing Sensor Units

The displayed sensor units can be changed at any time through the ZENTRA Utility Preferences menu.

NOTE: Device Defaults in the Preferences menu do not apply to the ZSC. Defaults apply to METER data loggers only.

1. Select Preferences at the bottom of the Measurement screen (Figure 10).

2. Select on the measurement of interest (Figure 11).
3. Scroll through the units to highlight the desired units (Figure 12).
4. Select Done to save changes.
   Select Cancel to exit without saving changes.
5. Select Device at the bottom of the screen to return to the connected ZSC.
6. Swipe down to refresh the measurement page and see the new units.

### 2.5 CHANGING DIGITAL SENSOR SDI-12 ADDRESS

METER digital sensors have the default SDI-12 address of 0. If the sensors are being used with a non-METER logger using SDI-12 protocol on a bus, use the ZSC and the ZENTRA Utility Mobile app to change the sensor SDI-12 address. See the individual sensor integrator guide for more information about the SDI-12 protocol in the sensors.

**NOTE:** The sensor SDI-12 address must be 0 to work with ZENTRA loggers.

1. Open the ZENTRA Utility Mobile app (Section 1).
2. Connect the sensor to the ZSC (Section 2.1).
3. Under Sensor Information, select the SDI Address dropdown (Figure 13).

![Figure 13 SDI-12 Address dropdown](image)

4. Scroll through the options and select the desired SDI-12 address.
   **NOTE:** Address options include 0-9, A-Z, and a-z.
2.6 SENSOR-SPECIFIC FUNCTIONALITY

The ZSC can also perform some sensor-specific functionalities. Consult the specific sensor manual for details on how to use these functionalities.

- ATMOS 41 pyranometer calibration coefficient changes after funnel component replacement (ATMOS 41 Manual)
- ATMOS 22/41 Wind Speed Zero (ATMOS 41 Manual)
3. SYSTEM
This section describes the specifications and components of the ZSC.

3.1 SPECIFICATIONS

COMMUNICATION SPECIFICATIONS

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measurement Time</td>
<td>&lt;1 s (depends on sensor)</td>
</tr>
<tr>
<td>Device Operating System Compatibility</td>
<td></td>
</tr>
<tr>
<td>Android OS 4.3 or greater</td>
<td></td>
</tr>
<tr>
<td><strong>NOTE:</strong> Location services must be enabled to use the Bluetooth capabilities of the ZSC. This is a requirement set by the Android operating system (OS).</td>
<td></td>
</tr>
<tr>
<td>iOS 10 or greater</td>
<td></td>
</tr>
<tr>
<td>Sensor Input Port</td>
<td></td>
</tr>
<tr>
<td>3.5-mm stereo plug connector (supports METER analog, digital, or pulse sensors)</td>
<td></td>
</tr>
<tr>
<td><strong>NOTE:</strong> A pigtail-to-stereo adapter cable can be ordered to connect sensors with pigtail wiring (Section 2.2).</td>
<td></td>
</tr>
</tbody>
</table>

PHYSICAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions</td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td>3.60 in (9.14 cm)</td>
</tr>
<tr>
<td>Width</td>
<td>1.44 in (3.66 cm)</td>
</tr>
<tr>
<td>Height</td>
<td>1.32 in (3.35 cm)</td>
</tr>
<tr>
<td>Operating Temperature Range</td>
<td></td>
</tr>
<tr>
<td>Minimum</td>
<td>−40 °C</td>
</tr>
<tr>
<td>Typical</td>
<td>NA</td>
</tr>
<tr>
<td>Maximum</td>
<td>50 °C</td>
</tr>
<tr>
<td><strong>NOTE:</strong> Sensors may be used at higher temperatures under certain conditions; contact Customer Support for assistance.</td>
<td></td>
</tr>
<tr>
<td>Data Storage</td>
<td>None</td>
</tr>
<tr>
<td>Power</td>
<td>Two AA alkaline batteries</td>
</tr>
</tbody>
</table>
### Battery Life
Approximately 2 to 3 months with normal use and up to 6 months with daily use.

### Enclosure
UL94 HB, RoHS-compliant ABS plastic

### COMPLIANCE
EM ISO/IEC 17050:2010 (CE Mark)

Additional compliance information is in [APPENDIX A](#).

### 3.2 COMPONENTS
The ZSC has a single button to wake the ZSC and enable Bluetooth connections ([Figure 14](#)). There is also an LED to indicate the unit status:
- Off: the ZSC is in sleep mode
- Blinking: the ZSC is advertising and ready to connect
- Solid Blue: the ZSC is connected via Bluetooth to a device
- Blinking Red: the batteries are too low to take a measurement
- Blinking Red and Purple: the firmware of the ZSC is being updated.

The ZSC is powered by two AA alkaline batteries.

![ZSC components](#)
4. SERVICE
This section describes maintenance and updates for the ZSC. Troubleshooting solutions and customer service information are also provided.

4.1 MAINTENANCE
The ZSC is designed for minimal maintenance and will only require a periodic change of batteries. The batteries in the ZSC will last approximately 2 to 3 months under normal use (approximately 2 h of use per day). To change the batteries of the ZSC:

1. Slide back the panel on the bottom of the case.
2. Remove the old batteries and discard.
3. Replace with new AA alkaline batteries.
4. Replace the panel on the bottom of the case.

NOTE: If the ZSC will be stored for a prolonged period (greater than 2 weeks), remove the batteries.

4.2 ZSC FIRMWARE UPDATE
METER releases firmware updates for ZSC to improve product performance. ZENTRA Utility Mobile will automatically check the firmware version upon connecting with the ZSC. If a newer firmware version exists, ZENTRA Utility Mobile will display an Update ZSC firmware banner at the top of the app screen (Figure 15).

![Figure 15 Update firmware banner](image)
1. Press the Update ZSC firmware banner.
Additional instructions will appear on screen (Figure 16).

![Figure 16](image)

**Figure 16** Notes prior to updating firmware

2. Carefully read and follow the instructions.

3. When ready, press Start Update.

   The screen will automatically advance through the process. The app will display that the firmware was successfully updated (Figure 17).

   **NOTE:** The firmware may take several minutes to update. This is normal.
4. Select Close.

### 4.3 TROUBLESHOOTING

Table 1 lists common problems and their solutions.

<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZSC cannot connect to Android over Bluetooth</td>
<td>Ensure location services are enabled on the Android device.</td>
</tr>
<tr>
<td></td>
<td>Ensure Bluetooth is enabled on the device.</td>
</tr>
<tr>
<td></td>
<td>Check the Android OS, and confirm that it is v4.3 or higher. Upgrade the OS if necessary.</td>
</tr>
<tr>
<td></td>
<td>Confirm the LED on the ZSC turns on after the button is pressed. If the light does not come on, replace the batteries in the ZSC.</td>
</tr>
<tr>
<td>ZSC cannot connect to iPhone over Bluetooth</td>
<td>Ensure Bluetooth is enabled on the device.</td>
</tr>
<tr>
<td></td>
<td>Check the iPhone OS, and confirm that it is v10 or higher. Upgrade the OS if necessary.</td>
</tr>
<tr>
<td></td>
<td>Confirm the LED on the ZSC turns on when after the button is pressed. If the light does not come on, replace the batteries in the ZSC.</td>
</tr>
<tr>
<td>LED on ZSC will not turn on</td>
<td>Change the batteries in the ZSC.</td>
</tr>
</tbody>
</table>
Table 2  Troubleshooting the ZSC (continued)

<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensor measurements will not show up on app</td>
<td>Ensure that the sensor is supported by the ZSC (only METER-brand sensors are supported).</td>
</tr>
<tr>
<td></td>
<td>Ensure the sensor connector is fully inserted in the ZSC.</td>
</tr>
<tr>
<td></td>
<td>Ensure proper sensor wiring if using the pigtail-to-stereo adapter.</td>
</tr>
<tr>
<td>Sensor measurement looks wrong</td>
<td>Ensure the sensor connector is fully inserted in the ZSC.</td>
</tr>
</tbody>
</table>

ZENTRA Utility Mobile app also has tools in the More screen to help troubleshoot a problem: Frequently Asked Questions pages (Figure 18) and a Send Feedback option (Figure 19). If these suggestions do not help solve the issue, contact Customer Support.

![FAQ list](Figure 18)
4.4 CUSTOMER SUPPORT

NORTH AMERICA
Customer service representatives are available for questions, problems, or feedback Monday through Friday, 7:00 am to 5:00 pm Pacific time.

Email: support.environment@metergroup.com
      sales.environment@metergroup.com
Phone: +1.509.332.5600
Fax: +1.509.332.5158
Website: metergroup.com

Figure 19  Send Feedback
SERVICE

EUROPE
Customer service representatives are available for questions, problems, or feedback Monday through Friday, 8:00 to 17:00 Central European time.

Email: support.europe@metergroup.com
      sales.europe@metergroup.com
Phone: +49 89 12 66 52 0
Fax:   +49 89 12 66 52 20
Website: metergroup.com

If contacting METER by email, please include the following information:

Name       Email address
Address    Instrument serial number
Phone      Description of the problem

NOTE: For products purchased through a distributor, please contact the distributor directly for assistance.

4.5 TERMS AND CONDITIONS
By using METER instruments and documentation, you agree to abide by the METER Group, Inc. Terms and Conditions. Please refer to metergroup.com/terms-conditions for details.
APPENDIX A. COMPLIANCE CERTIFICATIONS
This appendix contains compliance statements that apply to the ZSC.

A.1 USA
This device complies with Part 15 of the FCC Rules. Operation is subject to the following conditions:
1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

This device contains FCC ID SH6MDBT42Q.

A.2 CANADA
Industry Canada (IC) Notices
This device complies with Industry Canada license-exempt RSS Standard(s). Operation is subject to the following two conditions:
1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

Avis d'Industrie Canada (IC)
Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence.L'exploitation est autorisée aux deux conditions suivantes:
1. l'appareil ne doit pas produire de brouillage, et
2. l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

This device contains IC ID 8017A-MDBT42Q.

A.3 EUROPEAN UNION
The ZSC is tested to comply with CE mark requirements. A full CE declaration of conformity for the ZSC is available on request from METER.
A.4 JAPAN
   201-160496

A.5 TAIWAN
本產品內含射頻模組: ID 編號 CCAM16LP1180T2
INDEX

B
battery 3, 11, 12, 13

c
compliance 12, 19
components 12
connecting
pigtail adapter 5–14
stereo connector 3–5
customer support 17

F
firmware update
ZSC 13–15

L
LED 4, 12

M
maintenance 13

O
operating system compatibility
Android 1, 11, 15
iOS 1, 11, 15

P
pigtail-to-stereo adapter 5

S
SDI-12 address 9
sensor measurements
connecting 3–5
storage 11
units 7–9
view 5–6
specifications 11–14

c
communication 11
physical 11

t
terms and conditions 18–20
troubleshooting 15

V
viewing data 5–6

Z
ZENTRA 1
ZENTRA Utility Mobile app 1, 3
connecting 4
FAQ 16
In-App Tutorial 2
installation 1
Preferences 7
sensor-specific module 10
updating firmware 13–15