Verify Functionality

Before mounting the sensor, verify that the sensor possesses enough voltage level to operate. Press the sensor’s “Teach” button momentarily and the Status LED should flash RED to indicate the sensor is powered. If the LED does not flash, then place the sensor so that the solar cell faces the sun or in good proximity to a light source delivering greater than 200 lux to the sensor for about 5 minutes. (Watch out for excessive heating from non-LED light sources if the sensor is too close to the source.) Alternatively, attach the Quick-Charge Portable Power Source (P/N: WDSX 1X9V AS BK) to the Quick Charge port on the sensor for approximately 2 minutes.

Verify Communication

Before mounting the sensor, it is beneficial to verify the sensor’s communication signal strength at the intended mounting position. Install the MechoNet Wireless Controller.

The RF signal strength is confirmed by reading the LED indicator on the WDS as follows:

1. Connect the Quick-Charge Portable Power Source.
2. Press and hold the Teach button for about 6 seconds until the red LED illuminates. Release the button. The red LED begins flashing every 0.5 seconds.
3. Within 5 seconds, press and release the Teach button again. The LED flash rate will change and the Status LED will flash different colors to indicate signal strength:
   - green for the strongest signal level,
   - amber for good signal level, and
   - red for a poor signal level.
4. Position the sensor where it flashes ideally yellow or green while still maintaining the proper view of the daylight conditions (See Mounting Position Planning on page 4 for recommendations).
5. RF Range Confirmation Mode will flash the LED for about 1 minute before it automatically returns the sensor to standard operation. Remove the portable power source.

Signal strength can be determined on the MWC also:

1. Push the Teach button momentarily on the sensor. The YELLOW Comm LED should flash on the MWC verifying that it heard the transmission from the sensor.
2. Also, the RED LED on the MWC will light for a period of time indicating signal strength:
   - RED LED On for 5 seconds - Excellent signal.
   - RED LED On for 4 seconds - Good signal.
   - RED LED On for 2 seconds - Low signal strength.

Alternate Method to Verify Communication

1. Make sure the WDS is charged.
2. On the back of the Daylight Sensor, press the Teach button 3 times to jog the shades. This indicates communications between devices.
3. Verify that Controller and Daylight Sensor are a paired device which have the same UIDs.
4. Verify that wiring is USOC.
6. Contact Techsupport at 718-729-2020, ext. 2001 and request to speak with a tech if there are any issues.

Troubleshooting

<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status LED does not flash when button is pressed.</td>
<td>Sensor is not charged.</td>
<td>Charge using a good light source for 10 min. or attach quick charger.</td>
</tr>
<tr>
<td>Sensor data is not found by MWC.</td>
<td>Weak or no RF signal.</td>
<td>Position sensor within RF range or away from RF obstructions.</td>
</tr>
<tr>
<td>Sensor readings are not accurate.</td>
<td>Sensor is positioned in a shaded area or indirect sunlight.</td>
<td>Position the sensor such that Mullions or overhangs do not cast shadows over the sensor.</td>
</tr>
<tr>
<td>Warranty</td>
<td>Limited warranty on motors and electronics to be free of manufacturing defects in factory materials or workmanship for five years from the date of shipment. For exact terms and conditions, refer to the MechoSystems Warranty.</td>
<td></td>
</tr>
</tbody>
</table>

Technical Support

MechoSystems, Inc.
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E: techsupport@mechosystems.com

MechoSystems, Inc. reserves the right to make improvements or changes in its products without prior notice. However, every attempt is made to ensure the information herein is accurate and up to date. Verify with MechoSystems to confirm the product availability, latest specifications and suitability for your application.

Description

MechoSystems’ Wireless Daylight Sensor (WDS) employs innovative EnOcean RF technology to deliver self‐powered, wireless daylight measurement and automation for today’s intelligent buildings and homes. Designed for indoor use, the sensor uses energy‐harvesting solar cells to draw power directly from the sunlight it is monitoring instead of requiring batteries or wiring to other sources of power. The lack of wires for both power and communication enables the sensor to mount flexibly and inconspicuously by the window mullion. Adhesive pads attach the sensor horizontally, vertically or even upside down as conditions require to ensure the sensor has the best view of glare sources while limiting the sensor’s impact to the window condition.

Employing EnOcean’s EEP AS-06-04 for CurtainWall Brightness Sensor, the WDS communicates the daylight conditions at the curtain wall to other EnOcean devices such as the MechoSystems’ MechoNet Wireless Controller (MWC). The sensor sends out readings whenever the daylight level has changed by more than 3%. Heartbeat messages of the current condition are sent out every minute during daylight hours and every hour during night hours. The sensor automatically detects the transitions between night and day. Using the MWC the illuminance (16 bit) and temperature (8 bit) data can be employed to support automation algorithms for shading via SolarTracTM or using the Solar Activated Control (SAC) modes within the MWC to operate shades directly.

*For interior use only*
Variations in urban landscape typically affect the spacing between sensors along a façade. The general rule of thumb is to space sensors every 25 feet. Sensors can be spaced closer to handle more diverse daylight conditions. Since MWCs can support up to 16 channels each, sensors can typically be added easily to a project if glare conditions prove to be more complicated than originally expected.

WARNING
- These installation instructions contain important safety information.
- Read all instructions before installing this equipment. If you are unsure about any part of these instructions, stop and contact a qualified installer.
- Before installing or servicing, remove unnecessary cords and disable unnecessary equipment to avoid unexpected hazards.
- Do not connect terminals to voltages greater than the specifications.
- Do not use the product in a location with strong magnetic or electrical interference.
- Improper wiring may result in injury and damage to equipment and surroundings.
- Do not chase low voltage cables in the same conduit with line voltage cables.
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- Improper wiring may result in injury and damage to equipment and surroundings.
- Do not chase low voltage cables in the same conduit with line voltage cables.

MECHANICAL
- Size: 3.10" (78.7mm) w x 1.20" (30.5mm) h x 0.88" (22.4mm)
- Weight: 1.20 oz (34.0 g)

ENVIRONMENTAL
- Type 1 – INDOOR USE ONLY
- Temperature: 32 to 140 deg F (0 to 60 deg C)
- Humidity: <90% relative humidity, non-condensing

FEATURES
- Quick Charge Port: Charger: P/N WDSX 1X9V AS BK
- Full charge time: < 1 minute
- Power Supply: Integrated solar cells, NO BATTERIES OR WIRES
- Solar Level: Operational Level >100 lux
- Startup period: < 2 minutes @ 100 lux, Day mode > 200 lux for more than 2 min.
- Night mode < 200 lux for more than 5 min.
- PhotoSensor: Field Of View 60 degree cone angle (horizontal, vertical)

COMMUNICATION
- Radio Frequency: 902 MHz
- Transmit/Receive Range: 80 feet typical in an open commercial office setting
- 25 ft max at curtainwall between the sensor and the MWC.

CERTIFICATION
- FCC Part 15.231 Compliant
- Contains FCC ID: SZZ-STI300U
- Industry Canada RSS-210
- Contains IC ID: 5713A-STI300U
- EnOcean Equipment Profile: EEP A5-06-04 – Curtainwall Brightness Sensor
- Illuminance: 16 bit, 0 – 65,535 lux, +/- 5%
- Temperature: 8 bit, 0…255 = 0° - 60 deg C, +/- 1%
- Energy storage: 4 bit, 0…15 = 0 – 100%

Agency Listings and Compliance
- FCC Part 15.231 Compliant
- Contains FCC ID: SZZ-STI300U
- Industry Canada RSS-210
- Contains IC ID: 5713A-STI300U
- Operation is subject to the following two conditions:
  1. This device may not cause harmful interference
  2. This device must accept any interference received, including interference that may cause undesired operation.

COMMISSIONING/PROGRAMMING
Each Wireless Daylight Sensor (WDS) is to be paired with a MechoNet Wireless Controller (MWC). The WDS can be purchased already paired with a MWC or it can be paired during the time of installation. Please refer to the MechoNet Wireless Controller Installation and Setup Guide, Pairing a Sensor or Switch to the MWC.

LOCATION PLANNING
The Daylight sensor is designed for open loop operation. This means that the sensor must be positioned between any window covering and the glass so that the solar cell and photo sensor are facing directly through the glass with no obstructions.

- Position the sensor right up against the window to ensure reflections from interior lights cannot affect its light level readings. In addition, this can help ensure that dust and other obstacles cannot build up between the sensor and the glass.
- Ensure no dirt on the glass that is located directly in front of the sensor. Dirt can cause an obstructed view.
- Consider the FOV of the sensor, and ensure no overhangs outside the window block or shadow its view of any glare sources.

The sensor mounts horizontally or vertically along either side of a mullion. See the examples below.

Refer to the Installation section on page 6 for installation instructions.