

# **Addendum to Sutron XLINK 1 & XLINK 500/100 Family Operations & Maintenance Manuals**

**Part 1** – valid for devices supplied by Sutron  
**without housing** (page 2 to 3)

**Part 2** – valid for devices supplied by Sutron  
**with NEMA enclosure** (page 5 to 7)

# Additional notes on safety, installation and maintenance of the Sutron XLINK 1 (GPRSLink, HSPALink, CDMALink, IRIDIUMLINK)\* & XLINK 500/100\* product family

In order to ensure safety and reliability this addendum complements the Sutron XLINK 1 (GPRSLink, HSPALink, CDMALink, IRIDIUMLINK) & XLINK 500/100 Operations & Maintenance Manuals.

## Safety Instructions and Warnings

- ▶ Please read the Operations & Maintenance Manual before using the Sutron XLINK 1 & XLINK 500/100 for the first time! Make yourself familiar with the installation and operation of the Sutron XLINK 1 & XLINK 500/100 and accessories! Keep the Operations & Maintenance Manual for later reference.
- ▶ Only install and maintain the Sutron XLINK 1 & XLINK 500/100 and the corresponding power supply if you are qualified and trained for this purpose!
- ▶ In addition, please observe all safety instructions and warnings given in the operating manuals of the rechargeable batteries and chargers as well as those printed on the device housings.
- ▶ Always observe the electrical and climatic limit values given in the specifications!
- ▶ Only use rechargeable batteries and chargers that are suitable and specified for the expected climatic conditions! Please note that temperatures up to 20 °C higher can occur inside a protective housing, which is exposed to direct sunlight!

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### WARNING

#### Risk of fire and explosion if rechargeable batteries are handled improperly!



- ▶ Avoid electrical short circuits!
- ▶ Avoid mechanical damages!
- ▶ Do not open rechargeable batteries!
- ▶ Do not throw rechargeable batteries into fire and/or expose them to high temperatures!
- ▶ Do not perform soldering work on rechargeable batteries!
- ▶ Protect rechargeable batteries from moisture!

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### WARNING

#### Risk of burns due to accumulator acid!

Rechargeable batteries contain highly corrosive acid. This acid can escape through degassing openings or if battery housing is damaged and cause severe burns to skin and eyes.



When handling rechargeable batteries:

- ▶ Wear eye protection!
  - ▶ Wear protective gloves!
  - ▶ Do not smoke!
- 

\* for a detailed list of products see end of document

## Notes on installation

### Installation location and choice of housing:

- ▶ **Install the rechargeable battery intended for power supply exclusively in a ventilated protective housing (switch cabinet)!**

When charging rechargeable batteries, certain amounts of hydrogen and oxygen gas (oxyhydrogen gas) escape - depending on the battery technology used. This gas mixture is extremely flammable and must be transported to the outside. Therefore use for example commercially available ventilated housings. Alternatively, two diagonally opposed ventilation openings must be provided. The cross-section of these ventilation openings must be dimensioned appropriately. In addition, the openings need to be protected against water ingress and contamination (insects, ...), but at the same time they must guarantee an unobstructed air circulation.

- ▶ **It is recommended to use a solid state battery charger to be collocated with the battery.** The temp compensation will more accurately reflect the temperature of the battery and there is more physical space for the 3rd party regulator in the battery enclosure in most cases.

### Ambient temperature:

- ▶ **For protective housings that are exposed to direct sunlight: Use enclosures with bare metal surface (stainless steel) or with white/light gray color.**
- ▶ **For installation locations with *continuously* high outside temperatures ( > approx. 30 °C): Provide effective shading for the housing containing the rechargeable battery, adapted to maximize sun shading during the course of the day.** This allows a temperature reduction of up to 10 °C inside the housing.

### Electrical safety:

- ▶ **Use a safety fuse directly on the rechargeable battery to protect the Sutron XLINK 1 & XLINK 500/100 supply line.** This prevents a short circuit in case of improper handling or in case of malfunction. When selecting the fuse size, take into account the maximum current consumption of the Sutron XLINK 1 & XLINK 500/100 and all connected sensors and communication devices. Recommended tripping current:  $I_{max} \times 1.5$ ; tripping behavior medium slow blow fuse.
- ▶ **Only use a charger suitable for the battery technology and the expected ambient conditions.** Ideally, the charger should have temperature compensation of the charging voltage (e.g. a lead acid battery requires a temperature compensated solar regulator to appropriately decrease the voltage as the temperature increases). This reduces the escape of hydrogen and oxygen gas and extends the life of the rechargeable battery.
- ▶ **The battery technology dictates the charging requirements and should be followed closely** e.g. wet cell (typ. automotive) batteries have a different charging voltage than a sealed lead acid battery.

## Notes on maintenance

### Check at regular intervals...

- ▶ ... the vent openings of the battery housing to ensure unhindered air circulation. Remove any contamination;
- ▶ ... the rechargeable battery for damage, deformation of the housing and any leaking battery acid;
- ▶ ... the connection terminals of the rechargeable battery for dirt and tightly connected leads;
- ▶ ... the battery voltage (fully charged, not loaded  $U_{min} \geq 12 V$ );

### Recommendation:

- ▶ Check also regularly the remaining capacity of the rechargeable battery with an appropriate battery tester. Replace the rechargeable battery after 10 years of operation at the latest; earlier if the remaining capacity is low or in extreme climatic conditions.

## List of products this document applies for:

- |                   |                 |                  |
|-------------------|-----------------|------------------|
| ▶ X-Link-1        | ▶ XLINK100-1    | ▶ XLINK100-IR-1  |
| ▶ IridiumLink-1   | ▶ XLINK500-1    | ▶ XLINK500-IR-1  |
| ▶ IRIDIUMLINK-1-D | ▶ XLINK100-C1-1 | ▶ XLINK100-IRD-1 |
| ▶ HSPALink-1      | ▶ XLINK500-C1-1 | ▶ XLINK500-IRD-1 |
| ▶ GPRSLink-1      | ▶ XLINK100-C5-1 |                  |
| ▶ CDMAlink-1      | ▶ XLINK500-C5-1 |                  |



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## Safety Instructions and Warnings

- ▶ Please read the Operations & Maintenance Manual before using the Sutron XLINK 1 & XLINK 500/100 for the first time! Make yourself familiar with the installation and operation of the Sutron XLINK 1 & XLINK 500/100 and accessories! Keep the Operations & Maintenance Manual for later reference.
- ▶ Only install and maintain the Sutron XLINK 1 & XLINK 500/100 and the corresponding power supply if you are qualified and trained for this purpose!
- ▶ In addition, please observe all safety instructions and warnings given in the operating manuals of the rechargeable batteries and chargers as well as those printed on the device housings.
- ▶ Always observe the electrical and climatic limit values given in the specifications!
- ▶ Only use rechargeable batteries and chargers that are suitable and specified for the expected climatic conditions! Please note that temperatures up to 20 °C higher can occur inside a protective housing, which is exposed to direct sunlight!

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### WARNING

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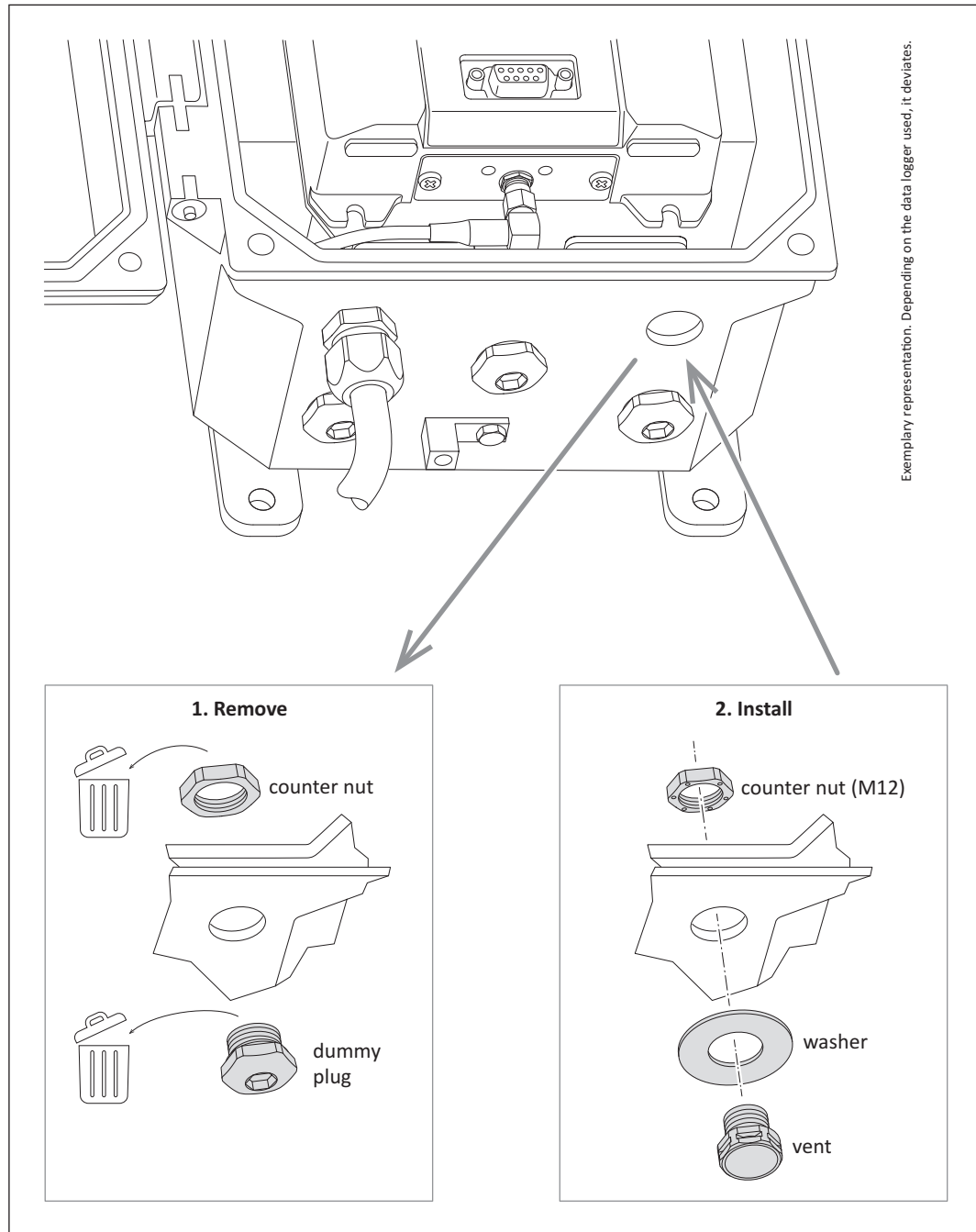
## Notes on installation

### Ventilation of NEMA enclosure:

#### ► Retrofit the NEMA enclosure with an additional vent.

When charging rechargeable batteries, certain amounts of hydrogen and oxygen gas (oxyhydrogen gas) escape, depending on the battery technology used. This gas mixture is extremely flammable and must be transported to the outside. Therefore, the NEMA enclosure must be retrofitted with the delivered venting device:

1. Remove the top right dummy plug including the counter nut <sup>1)</sup> (or any other if this inlet is already in use);  
<sup>1)</sup> wrench size: 22 (metric).
2. Install vent, washer and counter nut <sup>2)</sup>; <sup>2)</sup> wrench size: 18 (metric). Tighten the counter nut carefully; tightening torque max. 1.5 N m! Please note: there is an O-ring on the thread of the vent; don't remove.



**Ambient temperature:**

- ▶ For installation locations with *continuously* high outside temperatures ( > approx. 30 °C):  
Provide effective shading for the housing containing the rechargeable battery, adapted to maximize sun shading during the course of the day. This allows a temperature reduction of up to 10 °C inside the housing.

**Notes on maintenance**

**Check at regular intervals...**

- ▶ ... the vent openings of the battery housing to ensure unhindered air circulation. Remove any contamination;
- ▶ ... the rechargeable battery for damage, deformation of the housing and any leaking battery acid;
- ▶ ... the connection terminals of the rechargeable battery for dirt and tightly connected leads;
- ▶ ... the battery voltage (fully charged, not loaded  $U_{\min} \geq 12$  V);

**Recommendation:**

- ▶ Check also regularly the remaining capacity of the rechargeable battery with an appropriate battery tester. Replace the rechargeable battery after 10 years of operation at the latest; earlier if the remaining capacity is low or in extreme climatic conditions.

**List of products this document applies for:**

- |                    |               |                 |                  |
|--------------------|---------------|-----------------|------------------|
| ▶ X-Link-1E        | ▶ GPRSLink-1E | ▶ XLINK100-1    | ▶ XLINK100-IR-1  |
| ▶ IridiumLink-1E   | ▶ GPRSLink-1C | ▶ XLINK500-1    | ▶ XLINK500-IR-1  |
| ▶ IridiumLink-1C   | ▶ GPRSLink-1L | ▶ XLINK100-C1-1 | ▶ XLINK100-IRD-1 |
| ▶ IridiumLink-1L   | ▶ HSPALink-1E | ▶ XLINK500-C1-1 | ▶ XLINK500-IRD-1 |
| ▶ IRIDIUMLINK-1E-D | ▶ HSPALink-1C | ▶ XLINK100-C5-1 |                  |
| ▶ IRIDIUMLINK-1C-D | ▶ HSPALink-1L | ▶ XLINK500-C5-1 |                  |
| ▶ IRIDIUMLINK-1L-D | ▶ CDMAlink-1E |                 |                  |
|                    | ▶ CDMAlink-1C |                 |                  |
|                    | ▶ CDMAlink-1L |                 |                  |