LX: External power supply

1 Description

"**EPS**" (External Power Supply) Data Loggers in the LX range are designed to be connected to an **external power source** (battery, solar panel, microturbine, 230 V mains power supply, etc.) instead of the case having a built-in battery.

This choice is offered **on FLEX cases** for several types of Data Loggers: LS42-SMS, LS42, LS-Flow, LS-V, LT42, LT-US and LT-Radar, to address **special use** requirements.

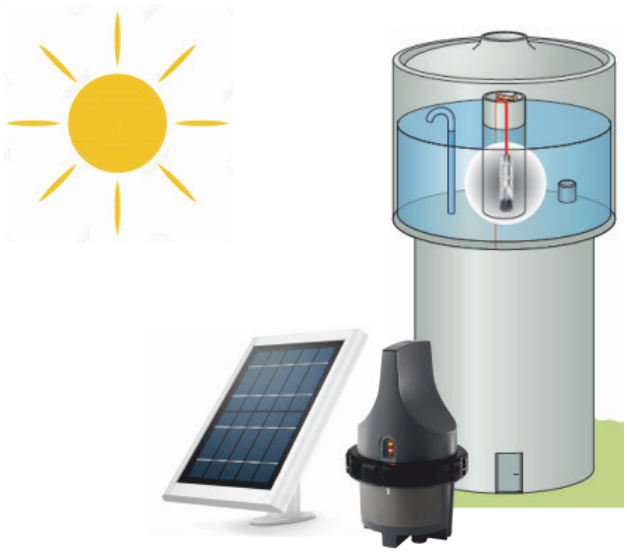
With an external power supply, a Data Logger makes it possible to**communicate at a frequency of less than five minutes,** either between sites with a remote terminal unit, or when transmitting data to one or two Central Station(s).

For example, in summer, a drinking water reservoir can empty very quickly and the network's contract operator can be promptly alerted about this high consumption.

This solution provides operators with **more consistent and accurate network control** by the Data Logger and delivers a better service to subscribers:

- ✓ Frequently communicating with the SCADA Central Station for regular monitoring of networks (Drinking water, District metering, Pressure check, etc.)
- ✓ Adjusting the pressure on a PRV valve at a critical point on the network
- ✓ Monitoring water hammer phenomena
- ✓ Powering and controlling higher powered sensors (speed sensors, height radar, physico-chemical, pH, conductivity, chlorine, etc.)
- ✓ Remotely controlling an electrovalve
- ✓ Equipping a site with a mains supply
- ✓ Monitoring data in real time during a maintenance operation

♦ **Example of a LS42 Data Logger powered by a solar panel:**



2 Installation

2.1 Connection

The case, identified by its EPS label, is fitted with a circuit board for adjusting the voltage.

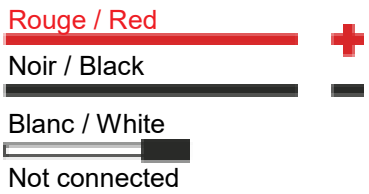
Its watertight connector allows the Data Logger to be connected to an external power source (12 or 24 V solar panels, 6, 12 or 24 V microturbine, 230 V mains supply, etc.).

- Power supply voltage **between 5 and 30 VDC** (12 V or 24 V recommended).
- TBTS power supply circuit (in accordance with IEC 61010-1, clauses 6.3.1 and 6.3.2)
- Recommended power supply: **3 W**
- Inrush current : **3 A** (1 ms)

Interior view

Exterior view

VDC power supply:



If it is necessary to extend the cable, ensure an appropriate section is used (section to be determined depending on power consumption and the distance from the source). The Data Logger's power supply can be backed up by the installation of an external battery.

In case of intervention on the external power supply of the Data Logger, it is recommended to the user to configure a derogation; this to prevent loss Data Logger archives which can then be transmitted to the Centralization System before power failure.

3 Configuration

Normal operating conditions remain unchanged compared with a battery-powered LX (acquisition of two meters every 15 minutes, AI measurement obtained every 5 minutes).

3.1 Functional features of a "EPS" Data Logger

The differences with a battery-powered Data Logger are as follows:

- ✓ The GSM modem remains powered on during the "Diagnostics-Installation" via SOFTOOLS
- ✓ In the **periodic transmission configuration, either between sites or to a centralisation system,** the periodic values permitted are: 8 hrs, 4 hrs, 2 hrs, 1 hr, 30 min, 15 min, and 5 min. These periodic transmissions can be disabled

Data point no. 44 "Remaining battery life" is not a feature of an "EPS" Data Logger.

3.2 Real-time control

The exceptions entered from the Softools, or Web Server interface, make it possible to **trigger a cycle of several periodic transmissions** to the Centralisation System(s) (in addition to configured transmissions) or to **modify archiving periods** for meters or AI inputs, for a given period of time. The table below sets out the **parameters for these exceptions,** which apply to all LX Data Loggers.

To enable **real-time monitoring** of the measurements taken, for example, during a maintenance operation, **the user can enter the 2-minute value** for the transmission period (parameter 1), solely for an **"EPS" Data Logger**.

When the time period for this exception has elapsed, the Data Logger resumes normal operation, defined in its configuration settings.

Parameters modifiable via exceptions

Function		Web Server values		
		Parameter no.	Authorised values	
Periodic transmissions	Transmission period to the Centralisation System	**1**	2, 5, 15, 30, 60 or 240 min	
	Periodic transmissions cycle length	**2**	60, 240, 480, or 1,440 min 0 to stop current cycle	(*)
Archiving	Meter and flow archiving period	**3**	1, 2, 3, 5 or 10 min	
	Length of application of this meter and flow archiving period	**4**	24, 48, 72, etc. Up to 720 hours 0 to stop current cycle	(*)
	AI archiving period (analogue measurements)	**5**	1, 2, 3, 5 or 10 min	
	Length of application of this AI archiving period	**6**	24, 48, 72, etc. Up to 720 hours 0 to stop current cycle	(*)
Centralisation system	Choice of Centralisation System (1, 2, or 3) for Data Logger's periodic transmissions.	**7**	1 denotes recipient Central Station no.1 (Central Station or Web Server), 2 denotes recipient Central Station no.2 3 denotes all configured Centralisation Systems	
LS-V electrovalve	Electrovalve command: - 1 to lock the electrovalve on track 1 - 3 to lock the electrovalve on track 3 - 0 to unlock (return to configured operating mode)	**51**	0, 1, or 3.	

(*) Please note: The "Softools" and "Web Server" interfaces do not use the same values for measurements.

4 Specific operating features

4.1 Power outage

In the event of a power outage (mains failure, voltage drop, etc.), the product stops working.

Once the power supply has returned to the Data Logger:

- ✓ All the data is lost (current statuses and archived values)
- ✓ Al current processing is stopped
- ✓ The system “date and time” is restored to its factory settings

4.2 Setting the time and archiving

Once connected to power, **data archiving functions are disabled** by the Data Logger until the time has been set.

Synchronising the Data Logger’s time is performed using a local connection with SOFTOOLS, or when communicating with the supervision system.