OTT HydroMet provides valuable insights for experts
in water and weather applications
to help protect lives, the environment, and infrastructure.

LOW COST HYDROMET STATIONS BASED ON SUTRON SATLINK GOES DATA COLLECTION PLATFORM

PRODUCT TRAINING

- Ott Hydromet Company Overview
- Ott Hydromet – Sutron Loggers Lineup
- Satlink3
- Accessories
- LinkComm - Communicator
- XLink100/500 – Variants with Cell
- Some Example Stations

INCREASING ENVIRONMENTAL DEVELOPMENTS

call for experience and competence

Increasing Population

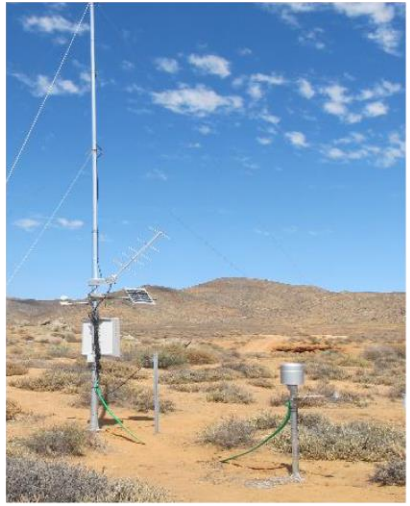
Access to clean water, pursuit of self-sufficiency in developing countries

Extreme Weather

Need for monitoring more parameters, more locations, more often

Ecological Awareness

Demand for renewable energy & smart cities



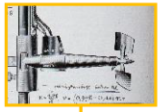
Technological Innovation

More remote sensing, IoT and data availability

OUR EVOLUTION (PART OF DANHER CORPORATION)

History and milestones of OTT HydroMet

1875 — **OTT**
1st current meter



1909 — **Lufft**
Patent on Aneorid Barometer

1927 — **Kipp & Zonen**
1st pyranometer

1993 — **ADCON**
1st RTU series A 730MD

1994 — **OTT**
Pluvio: 1st precipitation gauge based on the weighing principle

2005 — **HYDROLAB**
1st luminescent dissolved oxygen (LDO) sensor

2007 — **Kipp & Zonen**
CMP Series Pyranometers

2008 — **Lufft**
1st family of all-in-one weather stations

2016 — **SUTRON**
SatLink 3:
Transmitter & Datalogger

2017 — **OTT**
Hydromet Cloud:
1st OTT HydroMet cloud-based software solution

MEASURING THE WORLD‘S WATER CYCLE AND SURFACE WEATHER

Through a range of brands to offer complete hydrologic and meteorologic solutions that serve to monitor and protect the environment and lives.

BROAD RANGE OF HYDROMET APPLICATIONS

Climatology

Meteorological Observations

Renewable Energy

Agricultural Meteorology

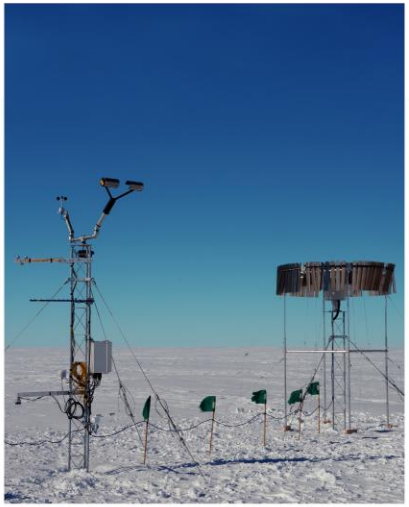
Surface Water Quantity

Flood Warning

Groundwater

Water Quality

EXPERIENCE & EXPERTISE IN METEOROLOGY



Climatology

Ambient weather, cloud height, snow depth, precipitation for long term monitoring

Meteorological Observations

Sensor to system solutions: highest precision for meteorological forecasting

Renewable Energy

Informing key decisions for solar and wind research, resource and performance monitoring

Agricultural Meteorology

Precision farming, smart agriculture, plant disease monitoring

EXPERIENCE & EXPERTISE IN HYDROLOGY

Surface Water Quantity

Water level, flow and precipitation monitoring with remote communication and data solutions

Flood warning

Water level and precipitation monitoring, alerts and data solutions

Groundwater

Short and long-term water level monitoring

Water Quality

Spot checking and long-term continuous monitoring

OTT HydroMet

Insights for Experts

LOW COST HYDROMET STATIONS BASED ON SUTRON SATLINK GOES DATA COLLECTION PLATFORM

SUTRON LOGGING TRANSMITTERS

8004

9000

8200

8210

SL1

9210A

XLINK 500

XLINK 100

1980

1990

2001

2004

2016

2018

SL2 V2

SL3

Long History of Reliable Logging Transmitters

SATLINK3 FAMILY

XLINK-100

XKLINK500

SatLink3-Lite

SatLink3

SatLink3 with Enc

One Family, Multiple applications

SUTRON'S SATLINK LOGGER/TRANSMITTER FAMILY

For hydrologists, meteorologists, scientists and consultants ,working for federal\state governments\local municipalities, or universities, who need to make accurate measurements on **hydrology** observations or on **weather** observations to make informed planning and emergency decisions quickly and without breaking their budget.

CONNECT ALMOST ANY ANALOG OR DIGITAL SENSOR

Lufft All-in-One Weather Station

LinkComm software using Sensor Template

COMMON SENSORS

HYDROLOGIC:

- Water Level
- Discharge / Flow
- Water Quality

METEROLOGICAL:

- Precipitation
- Air Temperature
- Relative Humidity
- Air Pressure
- Wind Direction
- Wind Speed

SALINK3 LOGGING TRANSMITTER

What

Ideal of advanced applications at Remote Locations

Top of SATLINK3 family.

Who

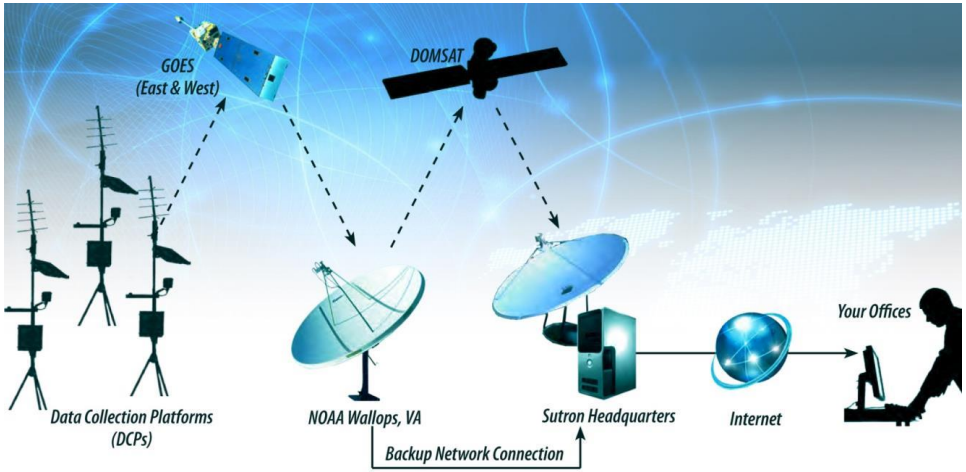
Fed/State, Municipalities, Scientists

Where

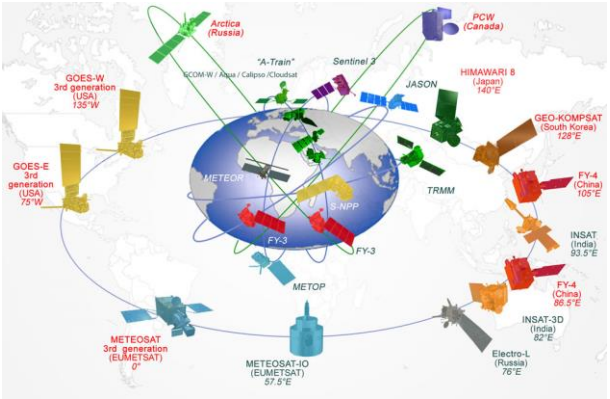
SATLINK3 – SL3-1

With SatLink3, you can send data via Geo-Stationary Satellites and additional redundancy through Cellular and Iridium

TRANSMIT DATA VIA SATELLITE



Transmit data via Geostationary satellites (GOES DCS in Western Hemisphere)



Also, operates with Eumetsat/Meteosat, INSAT …

SATELLITE TRANSMISSION

Geostationary satellite systems (GOES / EUMETSAT / INSAT)

- Ideal for remote sites: very rural, oceans, swamps, mountain tops, etc…
- Suited for long-term records and applications not requiring real-time data or two-way communication

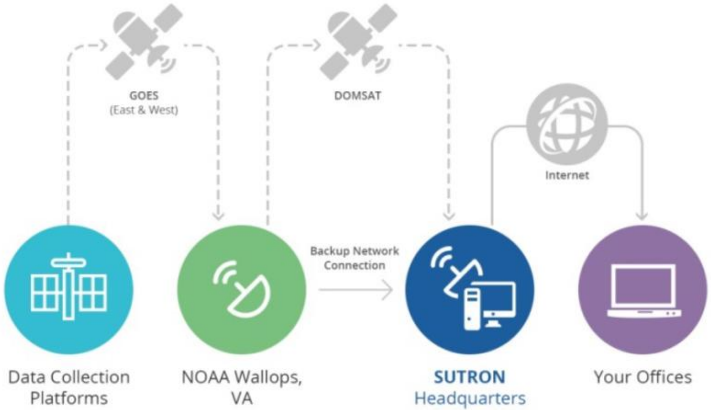
Pros:

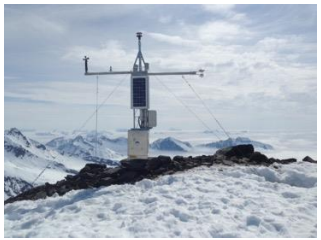
- Reliable data transmission during major events, e.g., hurricanes or floods
- For most government and local organizations data transmission is at no cost (no recurring transmission costs)
- Low power
- TDMA system provides a customer identified timeslot on a specific channel for scheduled transmissions
- Random channels set aside for Alarm transmissions

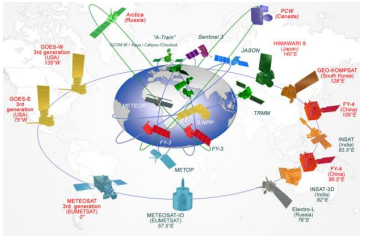
Cons:

- Low network bandwidth – limits amount of data transmitted
- Transmission window, typ. 10-secs at a defined time slot
- Does not have polar region coverage.

Active data transmission from a remote measurement station using the GOES network







SATLINK3 – SL3-1

(CE Certified)

GPS Receiver
Accurate time and position

Three differential Analogs
- Support for more traditional sensors
- High accuracy for strain gauges, thermocouples …etc

Removable Terminal Blocks
5 separate blocks on each side

Two SDI-12 Slots
Independent SDI-12 connection.

Two Module Slots
Data transmission over Cell or Iridium
Or Programmable sensor voltage references

Satellite transmission
Data transmitted over Goes\EUMETSAT\INSAT…etc

Supports all Xlink-500 functionality

NOTE: Satlink3 does no have an Internal Solar Regulator (Typical installations would require an external regulator)

ULTRA-REDUNDANT TW0-WAY FIELD UPGRADEABLE PLUG-N-PLAY MODEMS

- Field exchangeable, easily move from one telemetry type or service carrier to another
- Keep up with fast moving cellular/telecom technologies (e.g., 3G to 4G to 5G)
- Two capability at extremely low cost

	Cellular	Iridium
Pros	• High bandwidth • Bi-directional • IP protocols • Flexible formats • SMS notifications	• Free for Gov agencies. • Global coverage • Security via gateway • Service Reliability
Cons	• VPN for security • Coverage depends on provider • Service reliability during severe events	• Low bandwidth • Limited Message Length • Max 5 destinations

Q4 2019

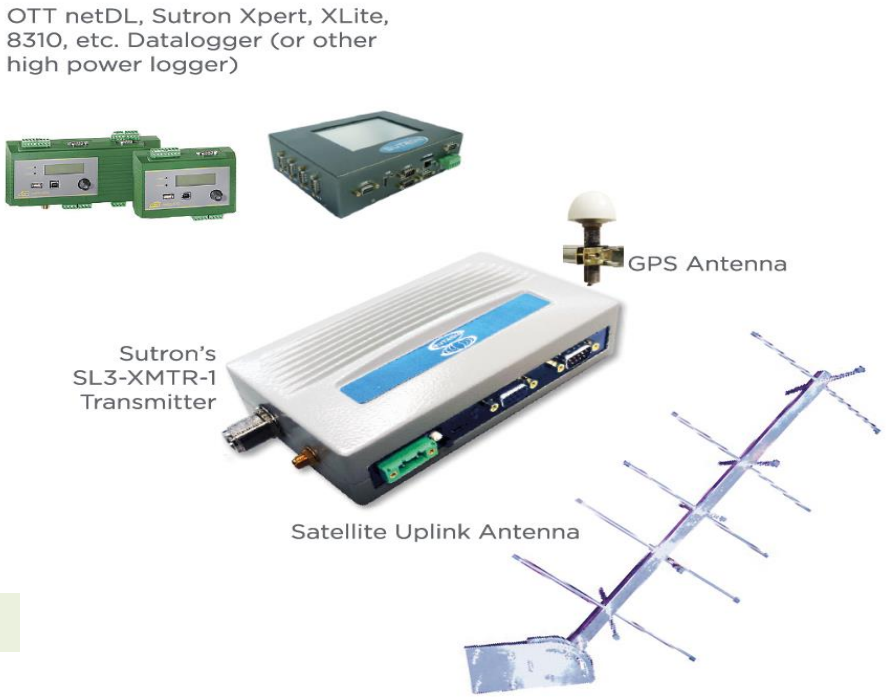
Upcoming Modem Support

- LTE CAT M1 \ NB-IoT (Global coverage, Low power)

SATLINK3 – SL3-XMTR-1

Application

- A reliable and low-cost method of adding GOES satellite transmission capability to almost any data logger via RS232.
- Data sent to sl3 using Command interface, SPC or through dummy logger configuration
- Logger can periodically sync its clock with sl3-XMTR



No Wi-Fi

SL3-LITE VALUE PROPOSITION

As a Hydrologist, I need a low cost, low power, data logger with integrated GOES transmitter, that is fully SDI-12 v1.3 compliant, that can connect 3 or more SDI-12 sensors and that has a dedicated Tipping bucket input, so I can gather my data remotely and make informed decision.

As a field technician, I need an intuitive configuration tool that allows me to configure the unit quickly and have access to local data and diagnostic so I can reduce my time on site for installation and maintenance.

Need	Benefit	Feature	Selling Proposition
I need to measure rain precip with automatic resets.	• Easily connect and configure a Tipping Bucket. • Easy resets on a schedule or during a site visit.	• Dedicated TB input • Programmable resets based on time. • Wakeup on tips • Hardware debounce	• Easy setup • Low Power
I need to be vendor agnostic connecting sensors with standard interface to my logger	• Standard sensors • Interoperability.	• 2 independent SDI-12 ports • Full compliance with v1.3 spec • Up to 32 sensors connected	• More measurements using standard SDI-12 sensors. • Data Quality (Error checking)
I need access to data while on site	• Troubleshoot while on site • Download logs and diagnostics	LinkComm allows access to local data	Local Data Access
I need to send scheduled and alarm transmissions and check content while on site	Alerts based on pre-set conditions	• Scheduled and Random transmissions	• Flexible transmissions • Ease of mind
I need to easily configure my unit	5 minutes setup	LinkComm sensor templates	Intuitive interface
I need to connect to a Modbus sensor	Industrial sensors	Modbus Master and Slave mode over RS232	• SCADA • Variety of sensors

SATLINK3 – SL3-LITE

(CE Certified)

Satellite transmission
Data transmitted over
Goes\EUMETSAT…etc.
Built in N-Type connector

Two SDI-12 Ports
2 independent ports,
Up to 32 Sensors

Optimized Tipping Bucket Input
Hardware debounce
Auto resets
Wake up on tips

GPS Receiver
Accurate time
and position

USB Device
Quick Configuration

LinkComm

RS232
Modbus (Master and Slave)
Connect External Modem
Connect Modbus Sensors
Remote configuration and diagnostics

Removable Connectors

Secure WiFi
Connect via PC,
Phone or tablet

GEO-ANT-GPS

- Transmits from a Data Collection Platform (DCP) to any Geostationary Satellite: GOES, METEOSAT, Himawari, FengYun …etc
- Beamwidth wide enough to illuminate multiple satellites
- Built-in Active GPS antenna allows for precise time synchronization
- Waterproof, UV resistant enclosure with corrosion resistant aluminum mounting bracket with 316 stainless steel hardware for extreme meteorological conditions
- Minimal aiming required
- Shape prevents snow or debris build up

Integrated Geo-stationary antenna with built-in GPS

CE, FCC/ISED Certified and RoHS Compliant

Approved by USGS HIF

GEO Antenna Vs. Yagi

Parameter	GOE-ANT-GPS	Sutron Yagi (5000-0156-1)
Gain (dB)	5.2	10
3dB Beam Wdth	110deg	45deg
Frequency (MHz)	401-403	399.8 - 403.8
VSWR	1.5 max 2.0 max (GPS antenna)	1.5 max
Cable Connector	Type-N Female	Type-N Female
Polarization	Right Hand Circular	Right Hand Circular
Max Diameter of mounting pipe	U-bolt mount fits 1.0", 2.5" pipes Flexible hose slots allow for wider pipes	2.0"
Dimensions	Cylindrical – height 13.33” (33.86 cm) - diameter 6.41” (16.28 cm)	10.5 in. X 10.5 in X 43.3 in 27 cm X 27 cm X 110 cms
Weight	794 gms or 1.75 lbs	3.63 kg or 8 lbs
Operational Temperature	"-40C to +85C"	"-65C to +65C"

GEO Antenna Part Numbers

ORDERING GUIDE	
Part Number	Description
GEO-ANT-GPS	Geostationary Antenna with GPS
GEO-ANT-GPS-K1	Geostationary Antenna with GPS and mounting bracket
GEO-ANT-GPS-K2	Geostationary Antenna with GPS, mounting bracket, UHF RF cable
GEO-ANT-GPS-K3	Geostationary Antenna with GPS, mounting bracket, UHF RF and GPS cables

SERVICE PLUS PROGRAM

The Bench Service Partnership (BSP) is a year-to-year instrument maintenance program for OTT, HYDROLAB®, and SUTRON products

Benefits:

- Maximize instrument performance
- Predictable maintenance budget
- Freedom from instrument maintenance
- Exclusive priority service

Notes:

- Each BSP applies to one specific instrument (tracked by serial #).
- BSP available for US customers only.
- NIST Temperature and Factory Calibration certificates only supplied upon customer request.

Part # **BSPSL3** - Bnch Svc SL3 (no Modem Opt)

Sensor Bench Service Partnership	FACTORY WARRANTY	BENCH SERVICE PARTNERSHIP
General		
Product Repairs – Parts and Labor Included	X	X
Firmware Upgrades	X	X
Engineering Changes In Hardware Updates	X	X
Equipment Cleaning	X	X
Calibration Check	X	X
Recalibration as Needed	X	X
Calibration Test Results	X	X
Replacement of Items which Require Regularly Scheduled Replacement (Desiccant, Internal Lithium Battery)	X	X
Return Shipping Included		
Ground	X	
2-Day		X
Instrument Turn Around Time		
Within 30 days (Standard)	X	
Within 15 days (Express)		X
Instrument Calibration Services		
Unlimited		X
Factory Maintenance		
Unlimited		X
Other		
Maintenance Parts		X
Replacement Parts	X	X
On-Site Introductory Training	X	X
3-day Training Seminar In Sterling, VA	X	X
On-Site Technician (Additional Cost)	X	X

Free Techincal Support by phone/e-mail for life of the product

FIELD UPGRADEABLE PLUG-N-PLAY MODEM

- Field exchangeable, easily move from one telemetry type or service carrier to another
- Keep up with fast moving cellular/telecom technologies (e.g., 3G to 4G)

	Cellular	Iridium
Pros	• High bandwidth • Bi-directional • IP protocols • Flexible formats • SMS notifications	• Free for Gov agencies. • Global coverage • Security via gateway • Service Reliability
Cons	• VPN for security • Coverage depends on provider • Service reliability during severe events	• Low bandwidth • Limited Message Length • Max 5 destinations

Q2 2019

Upcoming Modem Support

- LTE CAT M1 \ NB-IoT (Global coverage, Low power)

OTT HydroMet
Insights for Experts

PYTHON

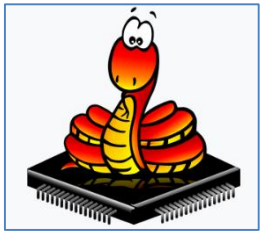
EXTENDING SATLINK3 AND XLINK500 CAPABILITIES

BACKGROUND

- Every application is unique, default setting can not possibly cover all scenarios.
- Sutron’s Xpert family loggers have developed scripting capability through BASIC programming
- Satlink3\XLINK500 could benefit from similar capability
- Market research outlined the importance to stay relevant and leverage common programming languages, good documentation, training, and support.

WHAT IS PYTHON

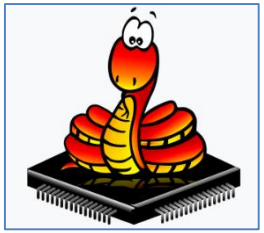
- Python is a widely used scripting language
  - 4th most commonly used language
- Python is a primary coding language taught today in secondary and higher education, where Basic is not often covered.
- Python is gaining traction and preference in the hydrologic community. For instance, it is commonly used for hydrological modeling.
- Leverages a powerful and popular scripting language, easy to learn with extensive support.



MicroPython is an open source Python interpreter optimized for embedded systems

WHY DO WE NEED SCRIPTS

- Improved Connectivity – Connect to non standard sensors
- Customized behavior – Enhanced Controls, Special Transmissions\Format
- Fast Time To Market –
  - Firmware releases are more involved
  - Scripts could be written and tested by end users



MicroPython is an open source Python interpreter optimized for embedded systems

COMPARING BASIC CODE TO PYTHON

Basic

```
Public Sub SCHED_ProcessData
   ' extract the last 300 stage readings from the log
   stageData = LogReading("ssp", "B", "Stage", 300)
   If UBound(stageData) < 200 Then
      ErrorMsg "Inadequate stage data to process"
      Exit Sub
   End If
   ' sort the stage data
   For i = 1 To UBound(stageData)
      For j = i+1 To UBound(stageData)
         If stageData(i).Data > stageData(j).Data Then
            temp = stageData(i)
            stageData(i) = stageData(j)
            stageData(j) = temp
         End If
      Next j
   Next i
   ' average all but the first 3 and last 3 readings
   total = 0.0
   For i = 4 To UBound(stageData)-3
      total = total + stageData(i).Data
   Next i
   avg = total/(UBound(stageData)-6)
   ' log the result
   Log "ssp", Reading(Now, "Average Stage", avg, "G", "meters")
End Sub
```

Python

```
def SCHED_ProcessData():
   # extract the last 300 stage readings from the log
   stageData = LogReading("B", "Stage", 300)
   if len(stageData) < 200:
      ErrorMsg("Inadequate stage data to process")
      return
   # create a simple list of just the stage data values
   data = [reading.Data for reading in stageData]
   # sort the data
   data.sort()
   # average all but the first 3 and last 3 readings
   total = sum(data[3:-3])
   avg = total/(len(stageData)-6)
   # log the result
   Log(Reading(Now(), "Average Stage", avg, "G", "meters"))
```

Python's powerful array and string functions
Enable shorter and easy to read scripts

PYTHON – BENEFITS AND CUSTOMER USE CASES

- **Connect XLink500 to ecoN**
  - Non standard behavior for Modbus devices

- **Variable triggers for a Sampler** - Department of Ecology's Fresh Water Monitoring– Washington State
  - Samples based on 24h or 2h rain accumulation, rapid rise, rapid decent or thresholds.

- **ISCO autosampler based on Volume** (USGS, Davie FL)
  - Complex trigger based on volume (Stage and Velocity) passing through the site. One and Only Sample per day.

- **DQAP** (University of Hawaii)
  - Wave processing algorithm, calculate standard deviation, mean and eliminate outliers.

- **NMEA sensor support (RWS Netherland)**
  - Support for the Ascii sensor format (NMEA) used for navigational sensors

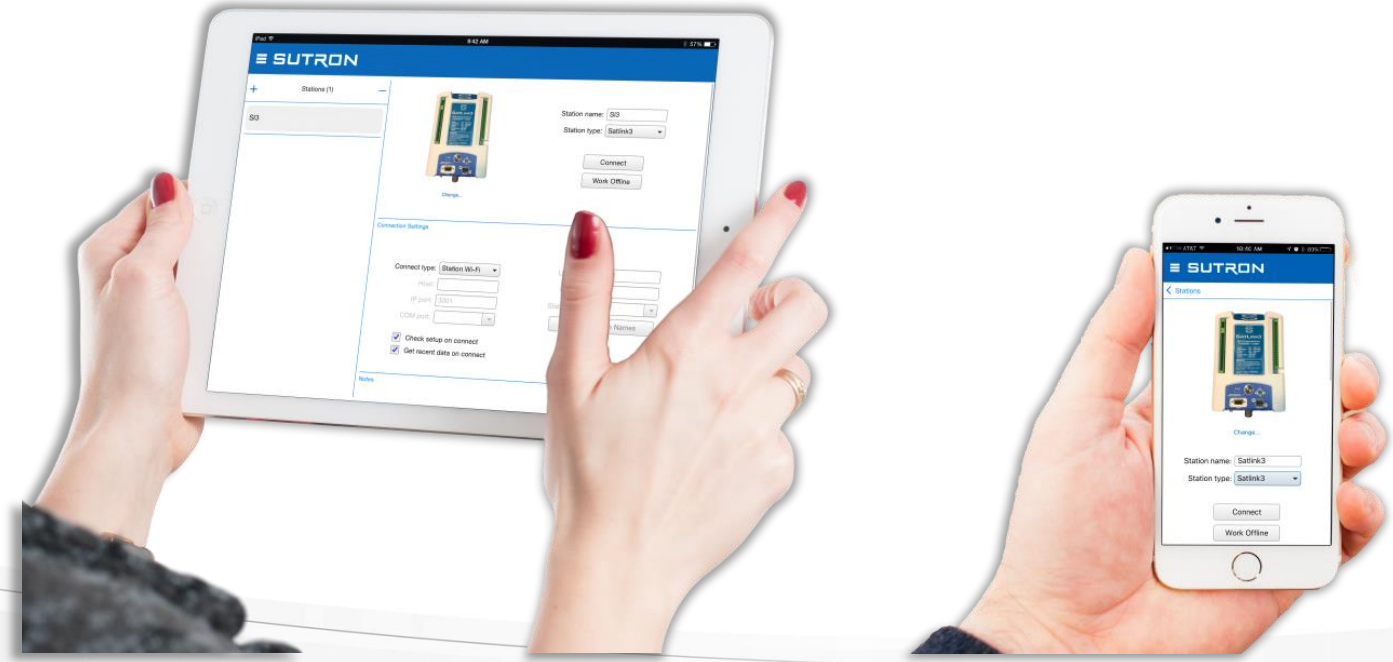
PYTHON - RESOURCES

Documentation	Location
User Manuals\Datasheets	Accessible under SatLink3\XLINK500 product page\Downloads: http://www.sutron.com/product/satlink3-loggertransmitter-sl3-1/ https://www.sutron.com/product/xlink100-500
Github Repository	Sutron Python scripts repository https://github.com/SutronPyto/LinkPython
MicroPython for Satlink3/XLINK500	http://www.sutron.com/micropython/html/index.html#
MicroPython Official Site	http://micropython.org/
Python Official Site	https://www.python.org/

LINKCOMM

LINKCOMM V3 – “COMMON COMMUNICATOR”

LinkComm can connect to SatLink 3 via WiFi to view live readings, view logged readings, view diagnostics/status, calibrate, and setup.



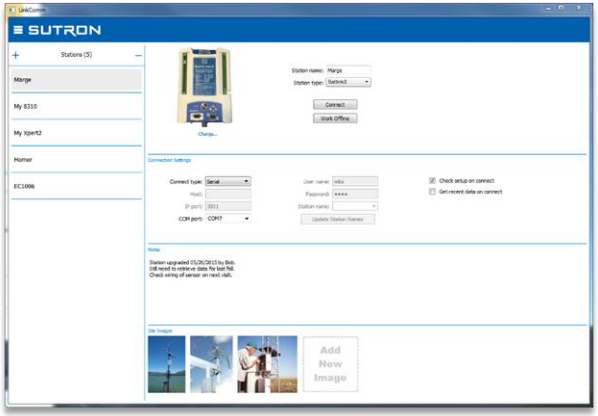
LINKCOMM V3 – “COMMON COMMUNICATOR”

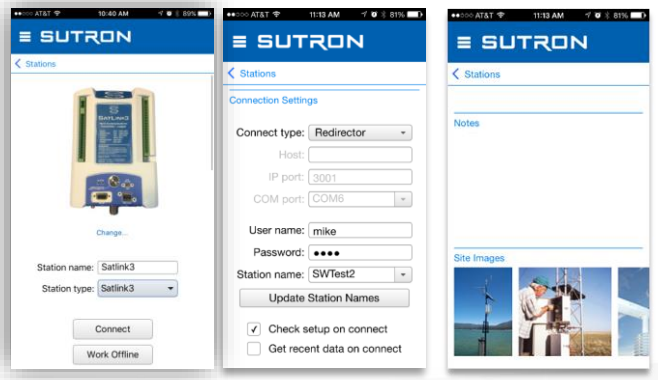
- Multi-logger
  - SatLink3, Xlink, Xpert, 8310
- Multi-platform
  - Windows, Mac, iOS, Android
- Serial & TCP/IP
  - WiFi
  - Redirector

- Multi-screen
  - Desktop, tablet, phone
- Touch enabled
- Enhanced experience
  - Graphing, pics, animations
  - High performance
- Single source

LINKCOMM V3 – STATION MANAGEMENT

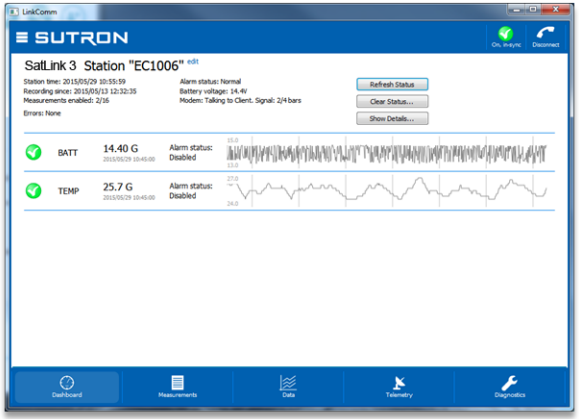
- First screen you see
- Remembers station definitions
  - Automatic saves
- Station type
- Connection Settings
  - Serial Port (incl. USB serial)
  - Station WiFi
  - Redirector
  - TCP/IP
- Enhanced setup data
  - Site notes
  - Site pictures
- Browse for pics, or use device camera
- Scroll to see more (vertical)

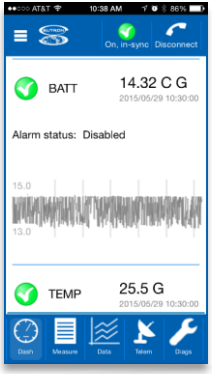




LINKCOMM V3 – DASHBOARD TAB

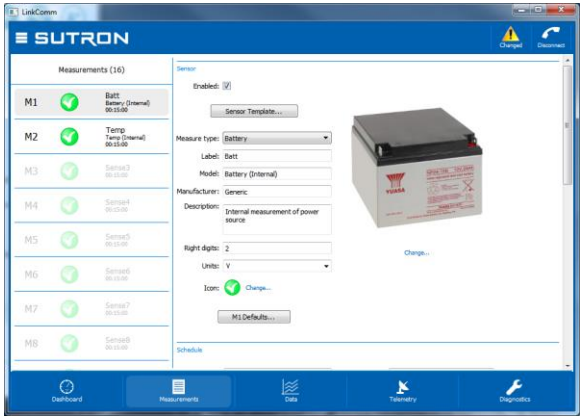
- First screen after “Connect”
- View station’s current state
  - Current status
  - Current measurement values
  - Graphs of recent values (1 week)
- Sync button in header
  - Setup in sync and recording ON
  - Setup has changed
  - Recording is OFF
- Connect button in header
- Buttons to “Refresh Status”, “Clear Data”, and “Show Details”

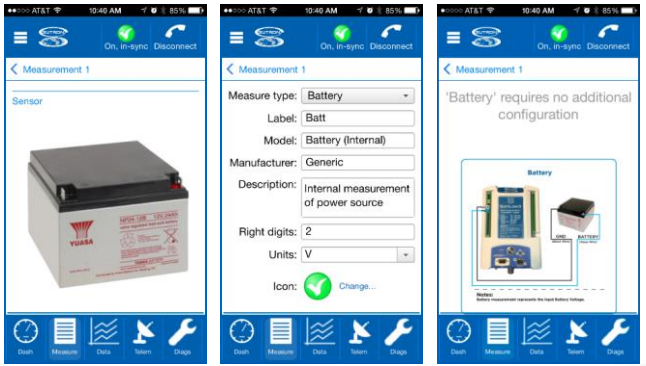




LINKCOMM V3 – MEASUREMENTS TAB

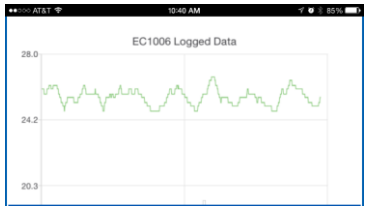
- First screen after “Work Offline”
- Define configuration and meta data for each measurement
- Select measurement in left pane
- Sensor templates
  - Default configuration
  - Sensor image
  - Wiring diagram
- Custom sensor image
- Custom wiring diagram
- Send setup after making changes!

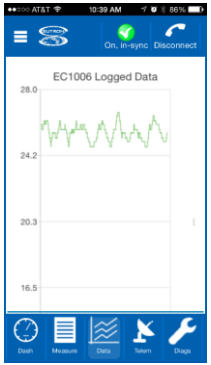


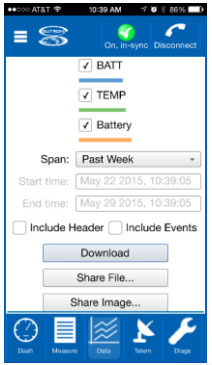


LINKCOMM V3 – DATA TAB

- Zoom-in by click-and drag
- Zoom-out by double-tap/click
- Check to show/hide data sets
- Right-click (or touch) graph for menu options to
  - Select/deselect all series
  - Show points
- Shows recent data by default
- Save download to file
- Save graph to file
- Share to DropBox

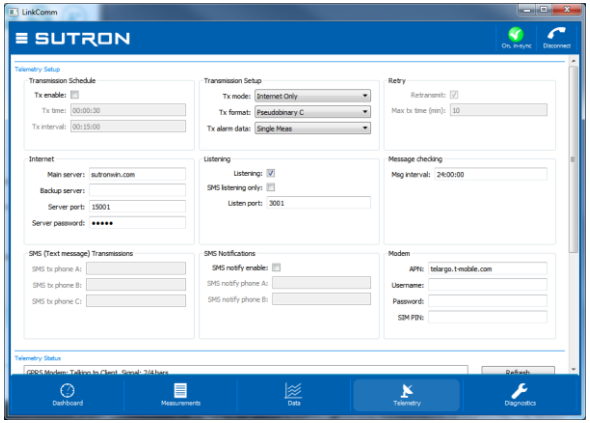


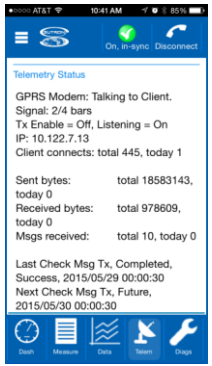




LINKCOMM V3 – TELEMETRY TAB

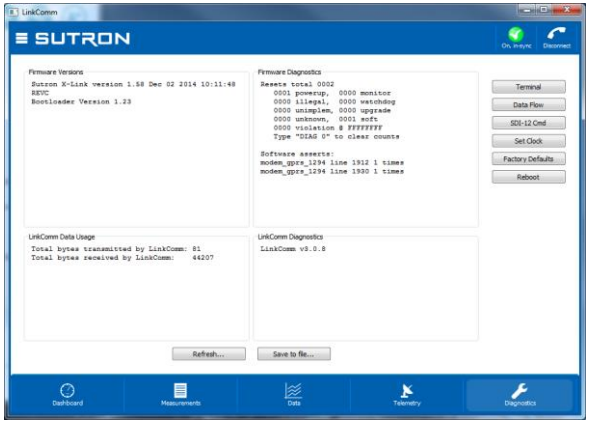
- Telemetry Configuration
  - Transmission schedule and setup
  - Internet, Listening, SMS
  - Modem settings, etc.
- Telemetry status
- Test operations
  - Tx Now
  - Message Check
  - Show Tx Data
- Other Setup
  - WiFi Settings
  - Modbus Settings

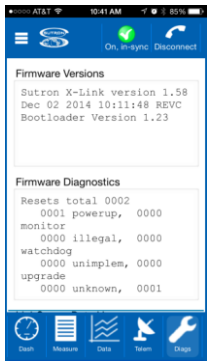




LINKCOMM V3 – DIAGNOSTICS TAB

- Firmware Versions
- Firmware Diagnostics
  - Recent asserts and exceptions
- LinkComm data usage
- LinkComm version
- Options to
  - Save file to share with customer service
  - Terminal dialog (send commands)
  - Data Flow dialog (view data in hex)
  - SDI-12 dialog to send SDI-12 commands to sensors attached to station
  - Set Clock, Factory Defaults, Reboot



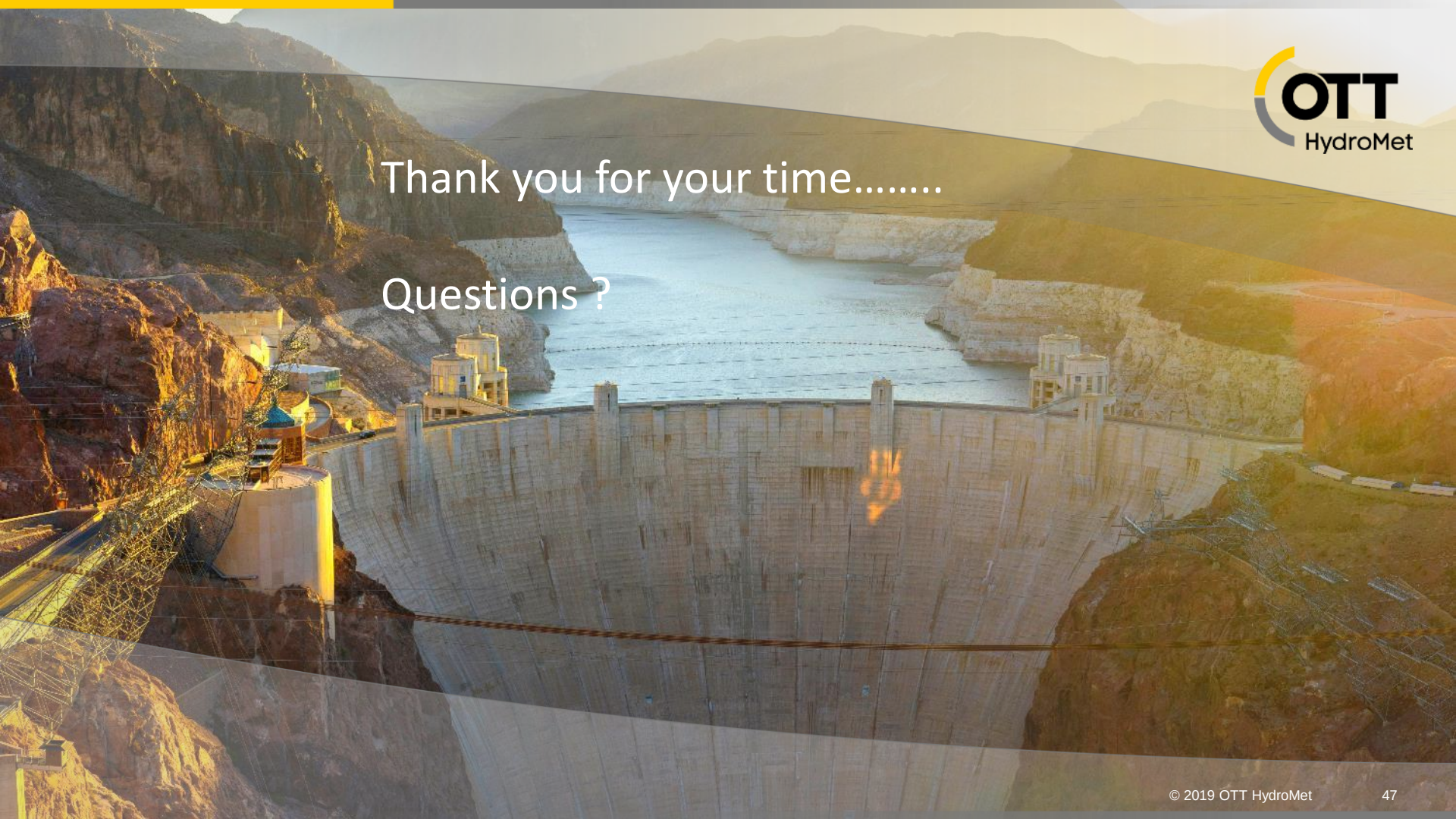


LOS VALLES HYDROELECTRIC PLANT - PANAMA

REMOTE SITES

Add text

AUTOMATIC HYDROLOGICAL STATION



Thank you for your time……..

Questions ?

NEW! SUTRON XLINK 100/500 LOGGING TRANSMITTER

What

XLink 500 ideal for **BASIC to ADVANCED** applications using analog and/or digital inputs, custom configurations
XLink 100 ideal for **BASIC** applications using **digital** inputs (ex: 1-3 sensor inputs)

Entry level of the SATLINK3 family.

Who

Fed/State, Municipalities, Scientists

Where

SUTRON'S XLINK 500/100

Sutron's XLink 500/100 product family offers a cost-effective way to measure, compute, log and transmit data from remote locations. The product comes in two model configurations to fit application needs and budget constraints.

XLINK-100

Entry level logger optimized for simple met and hydrological applications utilizing smart sensors

Removable Power Terminal Block. Easily remove power while working with the unit

smart sensors:, **RS-485\MODBUS**

Digital IO: TB, Wind Speed and Direction, SCADA

USB Host connector for instanteneous setup and data retrieval without a PC.

smart sensors: **SDI-12** (switchable power)

smart sensors: **RS232\MODBUS**

Expansion Port: Connect to SPI displays or sensors

Sturdy and **Small** foot print saving you cabinet space

Low quiescence current (**<1mA** typ @12.5VDC)

(CE Certified)

LinkComm (**PC, iPhone or Android**) enables **secure** and easy remote configuration and data access and on site connectivity via Wi-Fi, USB or Serial.

Field replaceable, **plug-n-play modems** allows you to keep up with technology and the freedom to change the service provider.

Flexible transmission (**HTTP(s), TCP/IP, FTP, SMS**) and data format (**SHEF, SHEFFIX, Pseudo-binary, MIS, ASCII, CSV**)

XLINK-500

Optimized for simple met and hydrologic applications with broad or custom measurements requirement.

Supports all Xlink-100 functionality

Lightning protection, from direct or indirect hits**,** on all pins.

(CE Certified)

Internal solar regulator to easily, and cost effectively, recharge your battery (handles up to 20 watts solar panels).

24 Bit ADC for high resolution analog (**Single Ended, Differential and 4-20mA**) signal measurements.

Protected 12V – Separate power to sensors with cutoff protection.

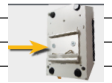
Custom programming using **Python**: Supports applications beyond standard configuration, transmissions and measurements.

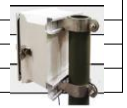
RS-232 connection to external modems, displays and others through **Python.**

XLINK500/100 PART NUMBERS - REFERENCE

	Part#	Description
Basic (Logger Only)	XLINK100-1	XLINK 100 no modem
	XLINK100-1E	XLINK 100 no modem, NEMA-4 box
	XLINK500-1	XLINK 500 no modem
	XLINK500-1E	XLINK 500 no modem, NEMA-4 box
HSPA Global	XLINK100-C5-1	XLINK 100, HSPA
	XLINK100-C5-1E	XLINK 100 HSPA, NEMA-4 box, internal antenna
	XLINK100-C5-1C	XLINK 100 HSPA, NEMA-4 box, external antenna
	XLINK500-C5-1	XLINK 500, HSPA
	XLINK500-C5-1E	XLINK 500 HSPA, NEMA-4 box, internal antenna
	XLINK500-C5-1C	XLINK 500 HSPA, NEMA-4 box, external antenna
Verizon LTE	XLINK100-C1-1	XLINK 100, Verizon LTE
	XLINK100-C1-1E	XLINK 100 Verizon LTE, NEMA-4 box, internal antenna
	XLINK100-C1-1C	XLINK 100 Verizon LTE, NEMA-4 box, external antenna
	XLINK500-C1-1	XLINK 500, Verizon LTE
	XLINK500-C1-1E	XLINK 500 Verizon LTE, NEMA-4 box, internal antenna
	XLINK500-C1-1C	XLINK 500 Verizon LTE, NEMA-4 box, external antenna
Iridium	XLINK100-IR-1	XLINK 100, IRIDIUM
	XLINK100-IR-1E	XLINK 100 IRIDIUM, NEMA-4 box, internal antenna
	XLINK100-IR-1C	XLINK 100 IRIDIUM, NEMA-4 box, external antenna
	XLINK500-IR-1	XLINK 500, IRIDIUM
	XLINK500-IR-1E	XLINK 500 IRIDIUM, NEMA-4 box, internal antenna
	XLINK500-IR-1C	XLINK 500 IRIDIUM, NEMA-4 box, external antenna
Iridium DOD (Restricted)	XLINK100-IRD-1	XLINK 100, IRIDIUM DOD
	XLINK100-IRD-1E	XLINK 100 IRIDIUM DOD, NEMA-4 box, internal antenna
	XLINK100-IRD-1C	XLINK 100 IRIDIUM DOD, NEMA-4 box, external antenna
	XLINK500-IRD-1	XLINK 500, IRIDIUM DOD
	XLINK500-IRD-1E	XLINK 500 IRIDIUM DOD, NEMA-4 box, internal antenna
	XLINK500-IRD-1C	XLINK 500 IRIDIUM DOD, NEMA-4 box, external antenna

Mounting kits	
2911-1362-1	Din Rail Mounting Kit. Installs on back of Basic unit (Din Rail not included)
2911-1365-1	Fits on 2.38" Pole outside diameter
2911-1365-2	Fits on 2.88" Pole outside diameter
2911-1365-3	Fits on 1.90" Pole outside diameter
2911-1365-4	Fits on 1.66" Pole outside diameter
2911-1365-5	Fits on 1.32" Pole outside diameter

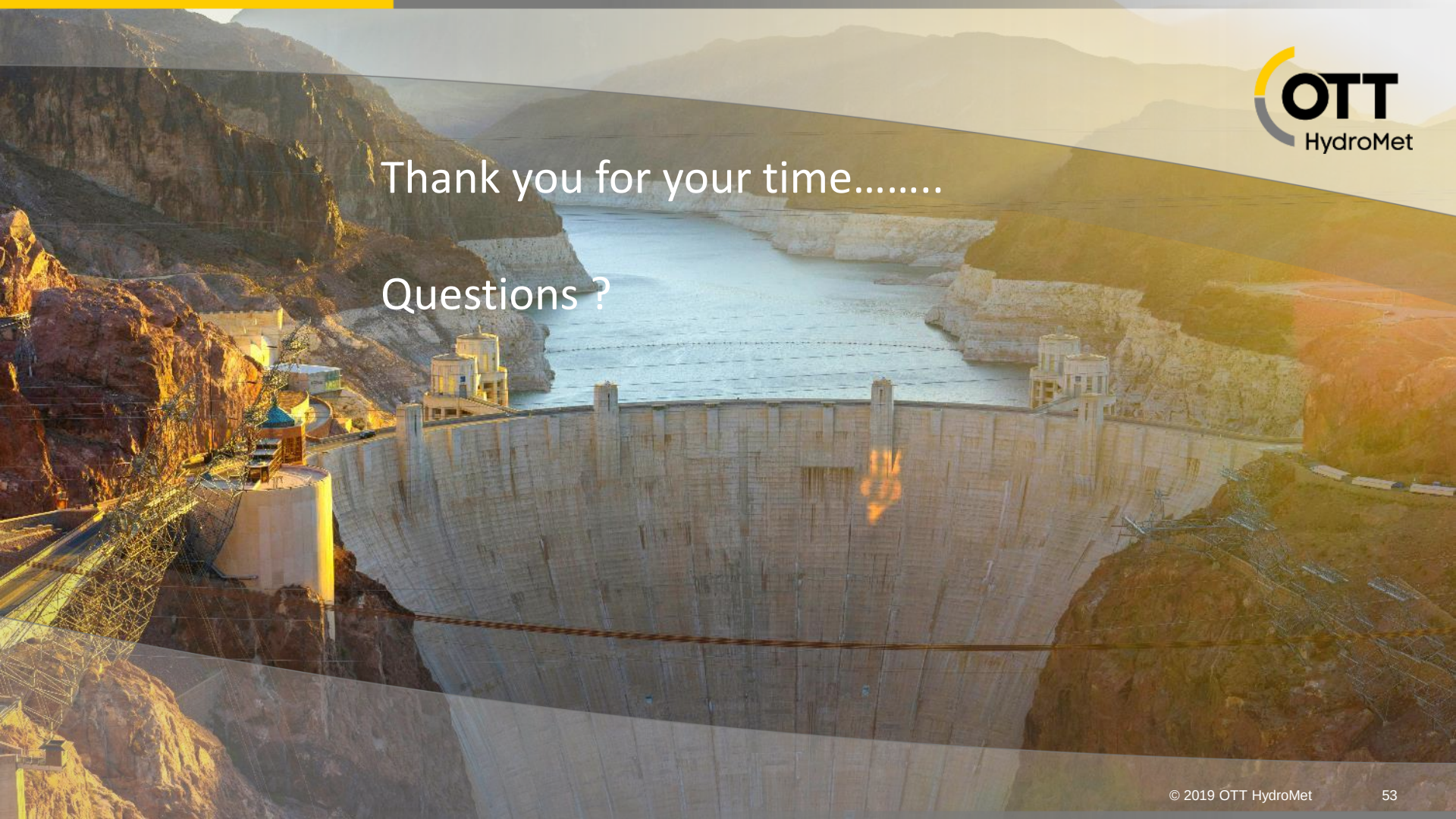




Antennas	
1291-1031-T-G	Iridium Helix Antenna TNC
1291-1036	Iridium-only antenna (external)
1291-1034	Iridium-only Antenna (internal)
1291-1045	CDMA/GPRS/LTE Antenna, 3dB Omni N Type (F)
1291-1046	CDMA/GPRS/LTE Antenna, 3dB Flat internal SMA-M

Cables	
LL400-15-N-SMA	Antenna Cable (15ft) SMA to N
LL400-20-N-SMA	Antenna Cable (20 ft) SMA to N
LL400-15-N-N	Antenna Cable (15 ft) N to N
LL400-20-N-N	Antenna Cable (20 ft) N to N
6411-1561-1	Antenna Cable (5ft) TNC to SMA

Lightning Protection Kit	
6661-1353-1	RF Bulkhead mount, N-N, Lightning protector
5100-0600-1	Ground kit w/8ft. Ground rod, copper wire, clamps and plate.



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Questions ?