Date __5/19/201̄__   Station __LHS__   1

INSTALL SHEET (Q330 Surface Site with Wilan Telemetry)

Local Date/Time:_____   GMT Date/Time:_____

Field Team: ____Gary, Patrick, Daniel, Iann_____

GPS Location of Site:_____

Equipment

Sensor S/N: ____60108____   Sensor Type: __STS-2____

Q330 S/N: ____1006188____   Q330 TagID: __187____

Wilan S/N: ____C060816____   Wilan IP: __172.24.46.30__

Clock S/N: ____1006240____

Baler S/N: ____05569__

INSTALL SENSOR

__Check that compass declination is set to 8° E

Place an arrow on the figure below showing where the declination marks is position on this compass (cross check against above to avoid sign errors)
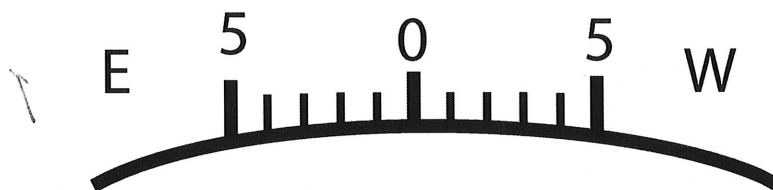
Guralp 3T
___Add layers of landscaping timber to provide clearance for this larger sensor
___Sweep any dirt from the top of the concrete base
___Attach the alignment jig and use it to simultaneously level and orient the sensor
___Lock feet of sensor
___Connect the sensor cable to the sensor and then to the DAS (leave enough slack to allow you to reattach the alignment jig)
___Reattach the alignment jig and fill out the alignment table below (4 measurements). If initial orientation is off by more than degree align and relevel before making final measurements.

Trillium or STS2
_x_ Sweep any dirt from the top of the concrete pad
_x_ Use a ruler and sharpie to scribe an alignment line on the concrete base for this sensor
_x_ Connect the sensor cable to control box and sensor
_x_ Align the sensor using the mark and the alignment rod, level, repeat until level and aligned (fill out table below)

ALL SENSORS
_x_ Cut a length of 2" fire hose to run from sensor vault to DAS enclosure
_x_ Use a fish tape to pull the DAS to control box cable through the fire hose and connect both ends
_x_ Unlock masses
_x_ Center masses
_x_ Working with your partner verify the sensor is functional with a stomp test
___Install vault cover with screws
___Cover vault with at least 2 layers of black plastic
___Bury sensor using sandbags filled with dirt, mound dirt ton top of vault cover, and add mulch to top

Use Brunton compass adjacent to sensor measurement jig, measuring North (N) and South (S). Reverse the jig and repeat recording the 4 measurements below. Record to your best guess of the nearest 0.1 degree. If orientation is more than 1 degree away from NS try to realign. For Trillium and STS2 sensors use left and right side of alignment rod

Brunton Left (N)	Brunton Left (S)	Brunton Right (N)	Brunton Right (S)

√

Q330 Hardware Setup
NA___Install solar panels on post using brackets and wood screws.
NA___Reconfigure guy wires if necessary
X___Place the dog house near the solar panel pole with the door facing downhill to allow water to drain
X___Install GPS on top of pole (must see the sky)
X___Install Wilan radio on the pole (make sure the antenna is on the side facing Yates)
X___Run GPS and network cables and connect to Q330 (do not bundle up until testing is finished)
X___Connect the baler to the Q330

Power system tests:
Initial battery voltage (V)___12.54___
Solar panel output test:
    Sun condition when tested (circle one): (a) sun on panels, (b) cloudy, (c) sun on panels at low angle
NA   Panel 1 output (V)_____   Battery tender
     Panel 2 output (V)_____   on A/c.
Equipment power up:
NA___Make sure power box is set for sealed battery mode
NA___Plug battery into power box. Record voltage showing on LCD display (V) _____
NA___Connect both solar panels to power box. Record voltage on display (V)_____
X___If all looks ok, connect the Q330 to power (Note with Guralp unlock cannot happen till now)
√___Check here when the GPS LED goes yellow

Q330 Operations with the Clie (program Q330B147 on the SONY Clie PDA)
☐ Clone the program into the Q330
        Commands->Cloning
                >*Select file to clone based on sensor type*
                >Station names
                        >Palm overrides 330
                        >"Check" Edit/Verify
                >IP Addresses
                        >Palm overrides 330
                        >"Un-Check" Edit/Verify
        !Send
                >Station Names
                        >DP4 >New
                                !*Enter current station name (All CAPS and up to 5 letter/number characters)*
                                !*Ok*
        !Save/Reboot
        !Ok
☐ **Views ->Data Recording ->DP3** *Station name_____LHS_____(SENSOR TYPE)
                Note: DP3 station name should correspond to sensor type.

☐ **Views ->Data Recording ->DP4** *Station LHS_____(STATION NAME) *Net X6____(NETWORK CODE)

☐ Connect sensor to Q330 AFTER Cloning the Q330 for correct sensor type

☐ **SENSOR Unlock Procedure**

    CMG-3T: Attach extra power to 3T BOB. Use the BOB to test if the sensor is locked. Press and hold both the *Lock* and *Enable* Buttons for about 10 seconds. Watch the LED light (4-6 blinks in ~3 sec = Locked: indicates OK to use.)

    Next, unlock the sensor. Press and hold both the *Unlock* and *Enable* Buttons for about 10 seconds. Release buttons when the LED light illuminates (2 blinks and solid red indicates unlocking.)

<div align="center">TURN OVER •</div>

    STS-2: Use an STS-2 screwdriver to smoothly unlock all 3 elements. Give the STS-2 and initial centering pulse using the button on the host box.

    Views >Sensor: !Center A (STS-2)

☐ **Views->System:** *Main Current: _74 mA_   *Input Volts: _12·6_   (>12.5 full sun, >11.5 no sun)
    *Ant. Current: _9 mA_   *Temp: _13C_
    *Q330 SW Vers: _1.145_   *Last Boot: _15-05-19 18:25_ *Last Resync: _18:26_

☐ **Views -> Clock:** *Last Lock: _____   *Phase error: _____
    *Clock Quality: _____

☐ **Status ->GPS** *GPS Time: _18:31:37_   *GPS Date: _19/05/2015_ (given in DD/MM/YYYY)
    *Height: _1684.4_   *Latitude: _44.3472533_   *Longitude: _103.7747650_

☐ **Views ->Sensors** !Refresh *Boom Positions (within +/-15, i.e. within +/-1.5 volts)
    1 _____5_____   2 ___11___   3 ___11___
    ** If the Boom Positions are out – recenter sensor: **Views ->Sensors** !Center A

☐ **Views ->Quickview ->chan 1,2,3 -> !Start** Stomp test:
ch 1: ☒ OK
ch 2: ☒ OK
ch 3: ☒ OK (stomp seen?) -> **!Stop**
Write values:
ch 1: max_____min_____ RMS_____
ch 2: max_____min_____ RMS_____
ch3 max_____ min_____ RMS_____
    (Values should be ~10,000 counts)

☐ **Status ->Data Port Txfr ->Data4** *Packet buffer used (increasing?)   (YES)   NO

☐ **Commands ->Baler Cmds** Turn on baler power control
    ☐ !Send Baler Command (Baler should turn on) Do NOT use ATTN button to power baler
    Note: If the baler times out BEFORE finishing REPEAT

☐ **Status ->Data Port Txfr ->Data4** *Packet Buffer (Decreases to zero)   YES   NO
    *Data packets sent _____1047_____

NOTE: If the Q330 does not transfer data to the Baler try clearing the Baler "association" by holding in the baler Attention button in until the light turns solid red (~5 sec). Release the button and then, after the light begins to flash green, press the Attention button once to shut down the Baler. Repeat the process once more and then try to transfer data to the Baler.

☐ **Status->General** *Total ReSyncs _____9421_____

☐ **Views ->Sensor:** *Boom Positions (less than +/-15, i.e. less than +/-1.5 volts)
    1 _____3_____   2 ___1___   3 ___9___

☐ **App ->Make Docfile**   !OK to default filename Conf-YrMoDy-Q330 _____

SITE NOTES (Anything strange or notable)
Contacts: Jamie Hohn – network IT person (not local)
    Susan Mollman – LHS IT
    Wayne Karpinen – physical plant manager
    Dan Leikvold – superintendent
    Thomas Tieszen – ES teacher
    Jacob Perry – Physics teacher

Checklist

Paperwork
__Completed pages 1-3
Sensor
__Compass declination set and recorded
__Oriented
__Level
__Feet locked
Power system
__Battery terminals tight
__All power box connection tight
__Any external power cables to box secured from rodent damage
__Cables in the air have drip lines
__No cables are on the ground without protection
__SOLAR: panel boxes closed
__AC: battery minder plugged in powered
Q330
__Completed paperwork on pages 1-2
__Acquiring data
__All unused connectors capped
Site
__Multiple layers of plastic on top of vault
__Plastic configured to not collect water around sensor vault
__Vault well covered with sandbags and dirt (6 inches minimum)
__Cables all secured
__Dog house door is secured
__Cable entry plugged with plumber's putty