

Weatherstations - Quick Guide

WEATHERSTATIONS QUICK GUIDE

Pt.1 – Sensor Wiring

Kipp and Zonen – CMP3, CMP6, CMP10, CMP11, and SP Lite 2 - POA

- type: analog
- Blue lands on P7
- Red lands on P8
- Black ground

Kipp and Zonen – CMP3, CMP6, CMP10, CMP11, and SP Lite 2 - GHI

- type: analog
- Red lands on P10
- Blue lands on P11
- Black ground

Kipp and Zonen – SMP-3, SMP-6, SMP-10, SMP-11

- type: digital
- White 24vDC +
- Blk(thin)24vDC -
- Blk(thck)shield
- Yellow data +
- Grey data -
- Blue data ground
- Red not used
- Green not used
- Brown not used

Ingenieurburo IMT – all types of IMT sensors

- type: digital
- Red 24vDC +
- Black 24vDC -
- Brown data +
- Orange data -
- Blk(thck)shield

Hukseflux – SR-05, SR-30

- type: digital
- Brown 24vDC +
- Black 24vDC -
- Yellow shield
- White data +
- Grey data -
- Blue data ground

Hukseflux – SR-15

- type: digital
- Brown 24vDC +
- Black 24vDC -
- Yellow shield
- White data +
- Grey data -
- Blue heater voltage +

Hukseflux – SR-20

- type: digital

- Red 24vDC +
- Blue 24vDC -
- Black shield
- White data +
- Green data -

Apogee - SP-110 - POA

- type: analog
- Black lands on P7
- White lands on P8
- Clear ground
- note: if the serial number is 60050 or below, consult manufacturer for wiring

Apogee - SP-110 - GHI

- type: analog
- Black lands on P11
- White lands on P10
- Clear ground
- note: if the serial number is 60050 or below, consult manufacturer for wiring

BAPI - Ambient Temp Sensor

- type: analog
- Red lands on P2
- Black lands on P6

BAPI - Module Temp Sensor

- type: analog
- Red lands on P1
- Black lands on P4

Davis Instruments - Wind Sensor (anemometer)

- type: analog
- Green lands on P10 (wind direction)
- Red lands on P11
- Yellow lands on P12
- Black lands on P14 (wind speed)

Davis Instruments - Rain Sensor

- type: analog
- Green lands on P15
- Red lands on P16

Kipp and Zonen - RT1

- type: digital
- Red 24vDC +
- Blue 24vDC -
- Blk(thck)shield
- Yellow data +
- Grey data -
- Green data ground
- Brown not used
- Black not used
- White not used

Lufft - WSxx-UMB

- type: digital
- Brown 24vDC +
- White 24vDC -
- Green data +
- Yellow data -

- Red heater voltage +
- Blue heater voltage -
- Grey not used
- Pink not used

SSI Technologies - Barometric Pressure sensor

- type: analog
- Red lands on P2
- Black lands on P7
- White lands on P6

WEATHERSTATIONS QUICK GUIDE Pt.2 – Dev Settings Guide

Dev Setting: “dev:K1”

- this defines the sensitivity of the POA pyranometer (P7 and P8)
- this must match the calibration certificate (found in site files)
- this is only for POA pyranometers (landed on P7, P8)
- note: for only Apogee POA pyranometers, this value needs to be (1)
- note: for all other pyranometers, check the calibration certificate

Dev Setting: “dev:K2”

- this defines the sensitivity of the GHI pyranometer (P10 and P11)
- this must match the calibration certificate (found in site files)
- this is only for GHI pyranometers (landed on P10, P11)
- note: for only Apogee GHI pyranometers, this value needs to be (1)
- note: for all other pyranometers, check the calibration certificate

Dev Setting: “dev:P1”

- this is for the pyranometer landing on P7 and P8 (POA) on the digitizer
- this value defines the make/brand of the pyranometer
- this value must match what is in the field or the data will be incorrect
- if the pyranometer is Apogee --> set this value to “A”
- if the pyranometer is Kipp and Zonen --> set this value to “K”
- if the pyranometer is Lufft --> set this value to “L”

Dev Setting: “dev:P2”

- this is for the pyranometer landing on P10 and P11 (GHI) on the digitizer
- this value defines the make/brand of the pyranometer
- this value must match what is in the field or the data will be incorrect
- if the pyranometer is Apogee --> set this value to “A”
- if the pyranometer is Kipp and Zonen --> set this value to “K”
- if the pyranometer is Lufft --> set this value to “L”
- this dev setting is also for anemometers (wind sensors), but you cannot land a pyro and a wind sensor on P10 and P11 and the same time
- if the device is an anemometer (wind sensor) --> set this value to “W”

Dev Setting: “dev:SWAP”

- this allow us to swap POA and GHI values on powertrack
- note: this setting is usually employed when the weather station needs to have both a GHI Pyranometer as well as a Wind Sensor (anemometer) because it allows us to install the GHI on P7 and P8 (which normally is only for POA’s) but still get the data to populate on powertrack in the GHI field
- note: this setting can also be used when you have POA and BPOA on the same weatherstation, but the data for each is populating reverse of what we’d expect

Dev Setting: “dev:T1”

- this setting is used when you have (2) mod temp sensors on the same digitizer
- if dev:T1 = 1 --> then ports P2 / P6 will be read as Ambient Temp (default)
- if dev:T1 = 0 --> then ports P2 / P6 will be read as Mod Temp

Dev Setting: "dev:TR1"

- this specifies what kind of temp sensor is landed on P2 and P6 (ambient temp)
- note: if using BAPI Ambient Temp Sensor --> set dev:TR1 = "S"
- if dev:TR1 = "S" --> Standard
- if dev:TR1 = "H" --> High
- if dev:TR1 = "A" --> AlsoEnergy
- if dev:TR1 = "W" --> Wide

Dev Setting: "dev:TR2"

- this specifies what kind of temp sensor is landed on P1 and P4 (module temp)
- note: if using BAPI Module Temp Sensor --> set dev:TR2 = "W"
- if dev:TR2 = "S" --> Standard
- if dev:TR2 = "H" --> High
- if dev:TR2 = "P" --> Precise
- if dev:TR2 = "W" --> Wide
- if dev:TR2 = "HH" --> High Special
- note: if using a Module Temp Sensor that is a small disk --> set dev:TR2 = "W"
- note: if using a Module Temp Sensor that is a small rod --> set dev:TR2 = "S"

Dev Setting: "MinTemp"

- this is not configurable and is not used in calculations

Dev Setting: "MaxTemp"

- this is not configurable and is not used in calculations

Dev Setting: "Weather"

- this is not configurable and is not used in calculations
- this is just a value that helps describe what all sensors are scheduled

WEATHERSTATIONS QUICK GUIDE

Pt.3 – oddball drivers

If your weatherstation has GHI and BPOA, use this driver: "AE Integrated WS Standard (FW 114+) BPOA/GHI/Temps/Wind"

If your weatherstation has POA and BPOA, use this driver: "AE Integrated WS Albedo - POA & BPOA"

WEATHERSTATIONS QUICK GUIDE

Pt.4 – the Blue Digitizer

Blue Weather Station Digitizers

- the blue device where the weather sensors land
- . sensors -> digitizer -> datalogger
- . the digitizer takes analog signal from the sensors and converts it to digital

- LED Indicator Lights at bottom center

- . "ON" -- Power -- Green
- . "TXD" -- Data Transmit -- Yellow
- . "RXD" -- Data Receive -- Yellow

- Terminal Landings at bottom left

- . "+24VDC" -- 24vDC Power +
- . "GND" -- 24vDC Power -
- . "B+" -- RS485 Data +
- . "A-" -- RS485 Data -

- Dipswitch settings at bottom right

- . these define the Modbus Address of the Blue Digitizer Device
- . example: (Dipswitch 1 Up) and (Dipswitch 16 Up) = (Modbus Address 17)
- . check on PT -> Admin -> Hardware to make sure the Modbus Address matches

- P1 to P16 Terminals at the top

- . where the weather station sensors land

- Pulse 1 and Pulse 2 Indicator LED's at top right

- . light up when the sensors are sending data to the digitizer correctly

- Internal Dipswitch Settings

- . remove the front cover to access these dipswitches
- . these internal dipswitches control the gain for POA and GHI sensors
- . if your data is incorrect by approximately a factor of 10, it could indicate the dipswitches need to be adjusted
- . Left Set of (2) Dipswitches -> for POA sensors (P7 and P8)
- . Right Set of (2) Dipswitches -> for GHI sensors (P10 and P11)
 - .. for (K&Z, Hukseflux, and LiCor) POA -> Down / Down
 - .. for (K&Z, Hukseflux, and LiCor) GHI -> Down / Down
 - .. for (Apogee) POA -> Down / Up
 - .. for (Apogee) GHI -> Down / Up
 - .. for (Wind sensor) Right set -> Up / Up

Wire Lead Maximum Length

- Apogee 20 meters or 65ft
- Kipp and Zonen 10 meters or 32ft
- LiCor 10 meters or 32ft
- Hukseflux 10 meters or 32ft
- note: leads for DIGITAL sensors can be extended up to 300ft max.
- note: leads for ANALOG sensors should not be extended.

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