



# AUTOMATIC WATER LEVEL RECORDER SYSTEM

Constant Bubble Type AL-131-BS

## ABOUT:

The AL-131-BS is a purpose built automatic water level record- ing system which combines the worlds best data logging equipment, water level sensing instrumentation and state of the art supporting hardware and software

## FEATURES:

- Built for harsh environments with the toughest Stainless Steel enclosure for long life. Design protects against harsh weather with sloping roof to protect from heavy rain and reflects heat away to keep instrumentation cool. Is fully sealed, has louvered vents for airflow and mesh for pro- tection against insects.
- The enclosure door is fitted with a security switch and a waterproof LCD scrolling display enabling real time data
- to be viewed without the need to access the data logger. The Bubble System is equipped with its own LCD and
- push buttons for configuration and setting the water level Because of the high quality fit for purpose components used in the AL-131-BS means installation is quick, operation is user friendly, and will provide years of reliable trouble free service.
- The system requires minimal onsite maintenance with the ability to add additional monitoring instrumentation.
- The system allows for integration with either cloud based or enterprise SCADA systems, using GSM, Radio Telemetry, Satellite,or cable.
- All solutions are configurable according to individual requirements
- Highly accurate and reliable results are guaranteed if installed in accordance with our instructions

## **APPLICATIONS:**

- Dam reservoir water level monitoring
- Catchment water level monitoring
- Many other general water level monitoring purposes

## SPECIFICATIONS:

- 316 Stainless Steel IP66 enclosure complete with 30 degrees sloping roof for outdoor de-ployment,.
- HYQUEST Air Bubble System including pressure
- sensor to 30m range
- Campbell Scientific CR800 or CR310 data log-
- ger, program and CD295 font door mounted Dataview for external viewing of water level
- Solar regulator and 20W solar panel and bracket
- Electrical main switch, fuses and terminals earth
- cable and fittings
- Security Door Switch
- Drawings and Manuals Included
- Telemetry options include: GSM, Satellite,
- Radio Transmission, RS485 or Fibre Optic cable

#### Telemetry: AL-131-BS (no Telemetry)

#### **Options:**

AL-131-BS-GSM (with GSM Telemetry) AL-131-BS-RT (with Radio Telemetry)

#### Power

Max Power Consumption 35A Solar Panel Size: 12V 20W Batteries : 2 x 212V 28Ah Solar Regulator: 12V 5AAC powered version available upon request

#### Enclosure:

IP66 SS 316 - Two door locks - 2 air vents

#### Data Logger:

12V DC, <1mA quiescent - Temperature 12V LCD

#### Display:

Pressure 200m of pressure tubing

#### Line:

Outlet: Gas Chamber Orifice with fittings

## Range: 50m

**Dimensions:** Packed 66cm x 115cm x 33cm **Weight:** 51kg

Provide full details of your rainfall monitoring requirements and we will tailor engineer the most appropriate system for you.





# AUTOMATIC WATER LEVEL RECORDING FLOAT SYSTEM AL-131-FS Series

## ABOUT:

The AL-131-FS is a simple method of measuring water level is a stilling well equipped with a float and shaft encoder. The components of this type of gauge include

- A stilling well,
- Inlet pipes from the water,
- Float tape,
- Wheel and shaft encoder which electronically sends signals to the data collection platform (pictured above)

## FEATURES:

- Built for harsh environments with the toughest Stainless Steel enclosure for long life.
- Design protects against harsh weather with a sloping roof to protect from heavy rain and reflects heat away to keep instrumentation cool. Is fully sealed, and has louvered vents for airflow and mesh for protection against insects.
- The enclosure door is fitted with a security switch and a waterproof LCD scrolling display enabling real-time data to be viewed without the need to access the data logger.
- The Shaft Encoder is equipped with its own LCD and push buttons for configuration and setting the water level
- The float system is suited for retrofit to existing systems or for new applications where a floatwell system is economically viable.
- The system requires minimal onsite maintenance with the ability to add additional monitoring instrumentation.
- The system allows for integration with either cloud-based
- or enterprise SCADA systems, using GSM, Radio Telemetry, Satellite, or cable.
- All solutions are configurable according to individual requirements
- Highly accurate and reliable results are guaranteed if installed in accordance with our instructions.

## **APPLICATIONS:**

- Dam reservoir water level monitoring
- Catchment water level monitoring

## SPECIFICATIONS:

- Stainless Steel fully sealed enclosure complete with 30 degrees sloping roof for outdoor deployment.
- Automatic Water Level Recorder System complete with Shaft Encoder and Float system
- \* < 25m uses Single Wire System
- $\cdot$  > 25m uses Endless Wire System
- Campbell Scientific CR800 data logger, program, and CD295 External Dataview for external viewing of water level
- Solar regulator and 20W solar panel and bracket
- Electrical main switch, fuses and terminals earth cable, and fittings
- Security Door Switch
- Drawings and Manuals Included
- Telemetry options include: GSM, Satellite, Radio Transmission, RS485, or Fibre Optic cable
- Telemetry AWL-131-BS Standalone
- Options: AWL-131-BS-GSM (with GSM Telemetry)
- AWL-131-BS-RT (with Radio Telemetry)

# Power12V DC, 0.5A maximum 12V 20W

20 20 00

12V 56Ah minimum Use 2 x 12V 28Ah in parallel **Enclosure:** P65 SS 316 - Two door locks - 2 air vents vents

Data Logger: 12V DC, <1mA quiescent Display: 12V LCD

**Pressure:** 200m of pressure tubing **Line:** Outlet: Gas Chamber Orifice with fittings

Packed Dimensions:

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#### www.emalte.com

Contact Us: +61 402 432 472 info@emalte.com





Radar Sensors VEGAPLUS WL S61



# AUTOMATIC WATER LEVEL RECORDING RADAR SENSOR SYSTEM AL-131-RS Series

## ABOUT:

The AL-131-RS is a purpose built automatic water level recording system which combines the worlds best data logging equipment, with the worlds best Radar Sensors.

Multiple sensors can attach to the data logger provide accurate readings from specific locations that are unsuitable for cabinet

## FEATURES:

- Built for harsh environments with the toughest Stainless Steel enclosure for long life.
- Design protects against harsh weather with a sloping roof to protect from heavy rain and reflects heat away to keep instrumentation cool. Is fully sealed, and has louvered vents for airflow and mesh for protection against insects.
- The enclosure door is fitted with a security switch and a waterproof LCD scrolling display enabling real-time data to be viewed without the need to access the data logger.
- Setting the water level is undertaken using a notebook device
- The radar-based system is ideal for V-Notch weir monitoring providing repeatable and accurate measurements. Other applications include locations where a suitable mount for a radar sensor is available or can be constructed.
- The system requires minimal onsite maintenance with the ability to add additional monitoring instrumentation.
- The system allows for integration with either cloud-based or enterprise SCADA systems, using GSM, Radio Telemetry, Satellite,or cable.
- All solutions are configurable according to individual requirements
- · Highly accurate and reliable results are guaranteed if in-
- stalled in accordance with our instructions.

## **APPLICATIONS:**

- Dam reservoir water level monitoring
- Catchment water level monitoring
- V-Notch water level and seepage monitoring

## SPECIFICATIONS:

- Stainless Steel fully sealed enclosure complete with 30 degrees sloping roof for outdoor deployment.
- Radar Sensor- the VEGAPULS WL S 61r
- V-notch Structure
- Campbell Scientific CR800 data logger,
- program and CD295 External Dataview for external viewing of water level
- Solar regulator and 20W solar panel and bracket
- Electrical main switch, fuses and terminals earth cable and fittings
- Security Door Switch
- Drawings and Manuals Included
- Telemetry options include: GSM, Satellite,
- Radio Transmission, RS485 or Fibre Optic cable

Telemetry Options:	AWL-131-RS no Telemetry AWL-131-RS- GSM (with GSM Telemetry) AWL-131-RS-RT (with Radio Telemetry)
Power	Max Power Consumption 35A Solar Panel Size: 12V 20W Batteries : 2 x 212V 28Ah Solar Regulator: 12V 5A AC powered version available upon request
Enclosure:	Enclosure 1 - IP66 S Sloping Roof Two door locks 2 air vents
Data Logger:	12V DC, <1mA quiescent
Temperature Display	12V LCD
Pressure Line:	200m of pressure tubing
Range:	50M
Packed Dimensions:	44cm x 90cm x 27cm size 21kg weight

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# AUTOMATIC RAINFALL RECORDING SYSTEM

**ARR** - Series

## ABOUT:

The ARR-200 is a 200mm diameter 0.2mm, 0.5mm or 1.00mm Tipping Bucket Rain Gauge complete with Calibration Certificate. Telemetry System – GSM including: AL-131 316 enclosure with sloping roof and insect meshed ventilation and mounting brackets

## FEATURES:

- Resolutions are available in 0.2mm 0.5mm and 1.0 Accuracy: 0-250mm per hour +/-2% and 250-500mm per hour +/-3%
- Range 700mm per hour
- Enclosure Powder-coated aluminium
- Base Powder-coated aluminium
- Pivots Ground sapphire pivots with hard stainless steel shaft
- Bucket Material, available in painted brass OR chrome plated ABS

## **APPLICATIONS:**

- Use for Real Time Data Acquisition where GSM packet data service is available and application is for non- critical purposes.
- Use with Emalte Enterprise, SCADA and Cloud based eagle.io
- Can be used where radio not feasible. Modem oper- ates primarily on GSM but automatically swaps to BGAN data service if the GSM service fails - requires combined GSM Data and Satellite

## TIPPING BUCKET TYPE:

#### EM-TB-200-2

Tipping Bucket Rain Gauge 0.2mm bucket For Meteorological purposes

# **EM-TB-200-5 Tipping Bucket Rain Gauge** 0.5mm bucket For General Purpose

### EM-TB-200-10

Tipping Bucket Rain Gauge 1.0mm bucket For Flood Warning

#### EM-TB-200-MB

Mounting Bracket with levelling bolts Fits 2" BSP threaded Pipe

#### EM-TB-DL100

Mini Data Logger, battery and cable Fits inside EM-TB-200

## SPECIFICATIONS:

- CR310 Data Logger with Program and Ethernet
   Port.
- HS TB4 0.2mm Rain Gauge and brackets Enclosure – SS with rain hood
- Lightning rod and grounding
- Solar power 20W panel and bracket, solar regulator
- RV50 GSM Ethernet Modem
- Antenna and bracket
- · Co-axial Cable and connectors
- Surge arrester
- Calibration certificates for rain gauge Manuals
   and documents
- Data radio frequency to be specified Combined GSM Data and Satellite for GS3

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### Emalte Dam Structure Monitoring Instrumentation



**V-NOTCH SEEPAGE WEIRS** 





## ABOUT

- V-Notch is used for water seepage monitor- ing at the dam wall structure.
- V-Notch can be also used for dam reservoir water level monitoring and catchment water level monitoring
- The basic principle is that discharge is directly related to the water depth above the crotch (bottom) of the V; this distance is called head (h).
- The V-notch design causes small changes in discharge to have a large change in depth allowing more accurate head measurement than with a rectangular weir.

## SPECIFICATIONS

- Automatic Water Level Recorder System
- WL61 Radar Sensor 1m range and 10m of cable.
- Bracket included.
- Data logger CR800, CD295 display and program.
- Stainless Steel cabinet with 30 degree slop-ing roof, side vents.
- Security door switch.
- Solar Power supply.
- Drawings and manual included
- Telemetry options include: GSM, Satellite, Radio Transmission, RS485 or Fibre Optic cable

## The V-notch design Data Logger Campbell Scientific CR300



## FEATURES

- Vega WL61 Radar type water level sensor V-Notch Frame
- AL-131 with Campbell Scientific Data Log- ger, GSM or Radio Telemetry package Solar power equipped
- Ability to connect mutiple sensors to one data logger

## RADAR SENSOR:

The VEGAPULS WL S 61 uses radar sensor for continuous level measurement of water and wastewater and is the ideal sensor for all typical application in water and waste water. It is particularly suitable for level measurement in the water processing, in pump stations and overflow basins.



Radar Sensor The VEGAPULS WL61

Telemetry Options Cable Radio



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#### www.emalte.com

Contact Us: +61 402 432 472 info@emalte.com





Automatic Pore Pressure Recording System AL-131-VWP



Gecko SMA-HR Strong Motion Accelerograph

## ABOUT

- A sensor is positioned deep into the ground to mea- sure **pore water pressure in the dam.**
- The data logger sends signal to the pressure plate which can detect the port water pressure.
- The data logger records the neasured pore water pressure sensed by the vibrating wire piezometers (VWP)
- The calibration factors are programmed into the data logger for each VWP.
- The data is stored locally and can be view on the enclosure front door mounted display screen.
- Data is acquired by the Supervisory Control and Data Acquisition System software application EM1000 via GSM or Radio Telemetry.

## FEATURES

- VWP can system include 1 or 2 multiplexers depend- ing on the number of VWP's and whether 2 wire or 4 wire.
- One multiplexer caters for 16 VWPS including pres- sure and temperature monitoring (4 wires).
- One multiplexer caters for 32 VWPS if only pressure and 2 wires.
- System is designed for AC power.
- Up to 22 VWPS's (4 wires) or 44 VWPS (2 wires)
- Up to 38 VWPS's (4 wires) or 64 VWPS (2 wires)

## **SPECIFICATIONS**

- Automatic VWP System complete with AM16/32
   Multiplexer.
- Data logger CR6 with program display.
- IP66 Stainless Steel cabinet, side vents.
- Security door switch.
- AC supply with surge protection.
- Drawings and manual included.
- Includes GSM Telemetry or Radio Telemetry

## ABOUT:

For structural monitoring of your dam, power station building, or any asset at risk of **earthquake damage** You can install multiple Seismic Monitoring Alarms to record synchronised response of status of structure

## FEATURES:

- Use the Seismic Alarm to record events and trigger its own control system
- Set trigger level as a percentate of full scale, or to a ratio of change in average signal level

## SPECIFICATIONS:

- 24-bit ADC
- up to 2kHz sampling
- Internal triaxial ±2g accelerometer Locked to absolute time using GPS USB data storage
- Continuous recording
- Absolute Level triggered recording Average Signal Level triggering Ethernet for remote web login Optional LCD panel & keypad Optional internal battery
- Optional alarm outputs
- Bolts to wall or floor
- Includes mounting plate & toookit

Provide full details of your rainfall monitoring requirements and we will tailor engineer the most appropriate system for you.



## ABOUT:

The Emmet-100 Suite Climatological Station is our Professional Meteorological Monitoring Suite

## FEATURES:

- Tripod or Tower (optional)
- Prewired Stainless Steel Enclosure
- Solar Power Supply
- High Quality Sensors
- Campbell Scientific CR1000X Data Logger 4G Packet data modem
- Antenna equipment
- Lightening protection
- Grounding kit
- Meteorological monitoring Instrumentation

## **APPLICATIONS:**

- Dam reservoir rainfall & climatic monitoring
- Catchment rainfall & climatic monitoring
- General Meteorological monitoring



# EMMET-100 SUITE METEOROLOGICAL STATION

## SPECIFICATIONS:

## **Enclosure:**

## Cabinet

AL-131 Series 316 Stainless Steel Enclosure with sloped roof to deter extreme rain and heat

**Telemetry** GSM Packet Data Modem - RV50

## Data Logger & Software

Campbell Scientific CR1000X Campbell PC200W software Loggernet software available upon request

## Instrumentation:

**Precipitation:** Hyquest TB4 0.2mm Tipping Bucket Rain Gauge

#### Wind Speed & Direction: RM Young 05103 including cros

RM Young 05103 including cross-arm and cable

## **Temperature & Humidity**

VIASALA HMP60L including RAD06 Shield

## **Solar Radiation**

KIPPS and ZONEN SP LITE2 & brackets

Barometric Pressure Setra 208

Provide full details of your climate monitoring requirements and we will tailor engineer the most appropriate system for you.



# **ENCLOSURE**

## CABINET

## 316 STAINLESS STEEL ENCLOSURE WITH RAIN ROOF



## 316 Stainless Steel Enclosure 400Hx-400Wx200D 30 Degress Sloping Roof Includes:

- Insect screened ventilation top & bottom alternate sides
- Powder Coated backing board
- All wiring
- Glands
- Fuses
- Ducting
- Wiring diagram
- Optional front panel display

## SOLAR POWER SUPPLY

- Solar panel 12V 20W
- Solar regulator 12V 6A
- Batteries 12V 28Ah Sealed Lead Acid Solar panel frame and clamps

Packet Data 3G/4G Modem with Ethernet Port

## **TELEMETRY** GSM PACKET DATA



connectivity to Campbell CR1000X Proven in Indonesia.		
Network Technology	4G with automatic fallback to 3G and 2G).	
RF Connectors	3 female SMA jacks (for primary	
Operating Temperature Range	cellular and optional diversity cellular and GPS). -30° to +70	
Host Interface	> 10/100/1000 Ethernet RJ45 > RS-232 Serial DTE D89 Female > USB 2.0 Micro-8	
Dimensions Weight	11.9 x 9.4 x 3.4 cm (4.69 x 3.7 x 1.34 in) 320 b (11.3 oz)	

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# DATA LOGGER

## **SPECIFICATIONS**

Operating Temperature Range	-40° to +70°C (standard)
Analog Inputs	16 single-ended or 8 differential (individually configured).
Pulse Counters	10 (P1 to P2 and C1 to C8)
Voltage Excitation Terminals	4 (VX1 to VX4)
Communicatons Ports	<ul> <li>Etherne</li> <li>t USB</li> <li>CS I/O</li> <li>RS-232</li> <li>CPI RS-</li> <li>485</li> </ul>
Data Storage Ports	microsSD
Switched 12 Volt	2 terminals
Digital I/O	8 terminals (C1 to C8) con- figurable for digital input and output includes status high/ low, pulse width modulationi, external interrupt, edge timing, switch closure pulse counting, high frequency pulse counting, UART, RS-232, RS-485, SDM, SDI-12, 12C, and SPI function. Terminals are configurable in pairs for 5 V or 3.3 V logic for some functions
Analog Voltage Accuracy	<pre>&gt; Accuracy specifications do not include sensor or measurement noise &gt; ±(0.04% of measure- ment + offset) at 0° to 40°C &gt; ±(0.06% of measure- ment + offset) at -40° to +70°C &gt; ±(0.08% of measure- ment + offset) at -55° to +85°C   (extended temperature range)</pre>

## Emmett 100 Climate Monitoring Instrumentation



## CAMPBELL SCIENTIFIC CR1000X6

Data Logger including Campbell PC200W software.

Input Limits	±5 V
ADC	24-bit
Power Requirements	10 to 18 Vdc
Real-Time Clock Ac- curacy	±3 min. per year (Optional GPS correction to 10 us)
Internet Protocols	Ethernet, PPP, CS I/O IP.RNDIS, ICMP/Ping. Auto-IP9APIPA), IPv4, IPv6, UDP, TCP, TLS, DNS, DHCP, SLAAC, SNMPv3, NTP, Telnet, HTTP(S), FTP(S), SMPT/ TLS, POP3/TLS
Communicatons Pro- tocols	PakBus, Modbus, DNP3, SDI-12, TCP, UDP, and others
Warranty	3 years (against defects in mate- rials and worksmanship)
Battery-backed SRAM for CPU Usage & Final Storage	4 MB
Data Storage	4 MB SRAM + 72 MB flash Storage expansion of up to 8 GB with removable microSD flash memory card
Idle Current Drain, Average	,< 1 mA (@ 12 Vdc)
Active Current Drain, Average	> 1 mA (1 Hz scan @ 12 Vdc) > 55 mA (20 Hz scan @ 12 Vdc)
Dimensions	23.8 c 10.1 x 6.2 cm (9.36 x 3.98 x 2.42 in) Additional clearance required for cables and leads

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WIND SPEED AND





DIRECTION

## CROSSARM

#### ABOUT CROSSARM AND CROSSARM BRACKET

## **RM YOUNG -05103-L**

#### SPECIFICATIONS

Operating Temperature Range	-50° to +50°C (assuming non-riming conditions)
Mounting Pipe Descrip- tion	>34 mm (1.34 in ) OD > Standard 1.0-in IPS schedule 40
Housing Diameter	5 cm (2.0 in.
Propellar Diameter	18 cm (7.1 in)
Height	37 cm (14.6 in.(
Length	55 cm (21.7 in.)
Weight	1.5 kg (3.2 lb()

The crossarm provides a rugged attachment point for securing the 05103-L to our tripods and towers. The design of the crossarm places the sensor at a distance away from the midline of the tower or tripod thereby serving to reduce the effects of the mount on the sensor measurement

#### WIND DIRECTION

Mechanical Range0 to 360°Electrical Range355° (5° open)Accuracy±3°Starting Threshold1.1 m/s (2.4 mph) at 10° displacementDistance Constant1.3 m (4.3 ft) 50%Damping Rationrecovery 0.3Dampened Natural Wavelength7.4 m (24.3 ft)Undampened Natural Output7.4 m (23.6 ft)Wavelength Output> Analog DC voltage from potentiometer (resistance 10 kohm) > Linearity is 0.25% > Life expectancy is 50 million revolutionsVoltagePower Switched excita- tion voltage supplied by datalogger			
Accuracy±3°Starting Threshold1.1 m/s (2.4 mph) at 10° displacementDistance Constant1.3 m (4.3 ft) 50%Damping Rationrecovery 0.3Dampened Natural7.4 m (24.3 ft)Wavelength7.4 m (23.6 ft)Undampened Natural7.4 m (23.6 ft)Wavelength> Analog DC voltage from potentiometer (resistance 10 kohm)Output> Linearity is 0.25% > Life expectancy is 50 million revolutions Power Switched excita- tion voltage supplied by		Mechanical Range	0 to 360°
Starting Threshold1.1 m/s (2.4 mph) at 10° displacementDistance Constant1.3 m (4.3 ft) 50%Damping Rationrecovery 0.3Dampened Natural7.4 m (24.3 ft)Wavelength7.4 m (23.6 ft)Undampened Natural7.4 m (23.6 ft)Wavelength> Analog DC voltage from potentiometer (resistance 10 kohm) > Linearity is 0.25% > Life expectancy is 50 million revolutions Power Switched excita- tion voltage supplied by		Electrical Range	355° (5° open)
VoltagedisplacementDistance Constant1.3 m (4.3 ft) 50%Damping Rationrecovery 0.3Dampened Natural7.4 m (24.3 ft)Wavelength7.4 m (23.6 ft)Undampened Natural7.4 m (23.6 ft)Wavelength> Analog DC voltage from potentiometer (resistance 10 kohm) > Linearity is 0.25% > Life expectancy is 50 million revolutions Power Switched excita- tion voltage supplied by		Accuracy	±3°
Distance Constant1.3 m (4.3 ft) 50%Damping Rationrecovery 0.3Dampened Natural7.4 m (24.3 ft)Wavelength7.4 m (23.6 ft)Undampened Natural7.4 m (23.6 ft)Wavelength> Analog DC voltage from potentiometer (resistance 10 kohm) > Linearity is 0.25% > Life expectancy is 50 million revolutions Power Switched excita- tion voltage supplied by		Starting Threshold	•
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WavelengthUndampened Natural7.4 m (23.6 ft)Wavelength> Analog DC voltage from potentiometer (resistance 10 kohm) > Linearity is 0.25% > Life expectancy is 50 million revolutions Power Switched excita- tion voltage supplied by		Damping Ration	recovery 0.3
WavelengthOutput> Analog DC voltage from potentiometer (resistance 10 kohm) > Linearity is 0.25% > Life expectancy is 50 million revolutions Power Switched excita- tion voltage supplied by		•	7.4 m (24.3 ft)
Output> Analog DC voltage from potentiometer (resistance 10 kohm) > Linearity is 0.25% > Life expectancy is 50 million revolutions Power Switched excita- tion voltage supplied by		•	7.4 m (23.6 ft)
10 kohm)> Linearity is 0.25%> Life expectancy is 50million revolutionsPower Switched excita-tion voltage supplied by			> Analog DC voltage from
Voltage Power Switched excita- tion voltage supplied by			10 kohm) > Linearity is 0.25% > Life expectancy is 50
		Voltage	Power Switched excita- tion voltage supplied by

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## Range

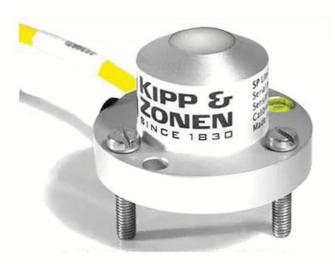
WIND SPEED

	0 10 100 11/3 (0 10 22 1
Accuracy	mph)
riccardey	±0.3 m/s (±0.6 mph) or
Starting	1% reading
	1.0 m/s (2.2 mph)
Threshold	2.7 m (8.9 ft) 63% recov-
	ery
Distance Constant	AC voltage (three pulses
Output	per revolution)
Output	(0.0980 m s
Resolution	(0.2192 mph
	-1) / (scan rate in
	seconds) or) / (scan
	rate in seconds)

0 to 100 m/s (0 to 224



## **SOLAR RADIATION:**



## **SP LITE 2**



## **MOUNTNG BRACKET KIT**

## KIPPS AND ZONEN SP LITE 2 WITH MOUNTING BRACKET

## **SPECIFICATIONS**

- Spectral range: 400 to 1100 nm
- $\bullet$  Sensitivity 60 to 100 (option, 10  $\pm$  0.5) uV/W/m2
- Response time SP LITE2 (95%) < 500 ns
- Directional error (up to 80° with 1000 W/ m2 beam): < 5 W/m2
- Temperature dependence: ,-0.15 % /°C
- Operating temperature range: -40° C to +80°C
- Maximum solar irradiance: 2000 W/m2
- Field of view: 180°
- Cable Length: 48m standard (user specified optional)
- Warranty 2 years

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# TEMPERATURE & RELATIVE HUMIDITY



## VIASALA HMP60L

## **SPECIFICATIONS**

Supply Voltage5 to 28 Vdc (typically powered by datalogger's 12 V Supply Current Consumption> 1 mA (typical) > 5 mA (maxiumum) Filter Description0.2 µm Teflon membrane

Air	
Temperature	1000 chnm Platinum
Sensor	Resistance Thermometer (PRT)
Measurement Range	-40° to +60°C
Accuracyt	±0.6°C

40° to 60°C

House Classification	°65
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Housing Material	AISI 316 stainless steel
Filter Cap Material	Chrome-coated ABS plastic
Sensor Diameter	1.2 cm (0.5 in.)
Filter Diameter	1.2 cm (0.5 in.)
Length	7.1 cm (2.8 in)
Weight	0.05 kg (0.1 lb) with 1.83 (6ft) cable
Sensor	Vaisala's INTERCAP ca- pacitive chip 0 to 100% RH (non-con-
Measurement Range Typical Accuracy at -40° to 0°C	densing) > ±5% (0 to 90% RH)
Typical Accuracy at 0° to 40°C	> ±7% (90 to 100% RH) > ±3% (0 to 90% RH) > ±5% (90 to 100% RH)
Typical Accuracy at	> ±5% (0 to 90% RH)

## **RAD06 RADIATION SHIELD**

Included with HMP60L



The RAD06 includes a 2 in. U-bolt with a plastic V-block. The U-bolt is placed in the holes on the side of the bracket for attachment to a mast or vertical pole. The U-bolt is placed in the holes on the bottom of the bracket for attachment to a cross-arm.

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> ±7% (90 to 100% RH)



# **BAROMETRIC PRESSURE**

## **SETRA 278**



## **SPECIFICATIONS**

- NOTE -	1 HPA = 1 MBAR
Pressure Range	600 to 1100 hPa
Long-Term Stability	±0.1 hPa per
Response Time	year < 100 ms
Resolution	±0.01 hPa
Excitation	9.5 to 28 Vdc
Linearity	±0.4hPa
Hysteresis	±0.05 hPa
Repeatability	±0.03 hPa

Accuracy		> Accuracy refers to the root sum squared (RSS) of end point non-linearity, hysteresis, repeatability, and cali- bration uncertainty > ±0.5 hPa (@+20°C) > ±1.0 hPa (@ 0° to 40°C) > ±1.5 hPa (@ -20° to +50°C) > ±2.0 hPa (@ -40° to +60°C)
Warm up Time		< 1 s
External Trigger Voltage		> 0 Vdc (sleep mode) > 3 to 28 Vdc (operating mode)
Current Consumption	٦	> <3 mA (active) > <1 μA (sleep mode) -40° to +60°C
Operating Tem	perature	0.8 cm (0.3 in.)
Range Cable Diameter		
Dimensions Weight		9.1 x 6.1 x 2.5 cm (3.6 x 2.4 x 1.0 in.)
		135 g (4.8 oz)

Provide full details of your climate monitoring requirements and we will tailor engineer the most appropriate system for you.



# PRECIPITATION



#### **TB4 RAIN GAUGE**



#### **EM-240 LEVELLING BASE**

## HYQUEST 200mm 0.2mm TIPPING BUCKET RAIN GAUGE with LEVELLING BASE

## **SPECIFICATIONS**

Sensor TypeTipping bucket with siphon

Accyracy> ±2% @ ,250 mm/h (9.8 in./h)

> 3% @ 250 to 500 mm/h

(9.8 to 19.7 in./h) Resolution0.254 mm (0.01 in.)

Measurement Range0 to 700 mm/h (0 to 27.6 in./h) 0° to 70°C

Operating Tempera- ture Range

0 to 100%

Humidity Range

Cable Type

Drain Tuybe Size Both Filters accept 12 mm (0.47 in.) ID tubing

20 cm (7.9 in.)

Two-conductor shielded

Office Diameter

Height

34.2 cm (13.5 in.)

Weight

3.3kg (7.4 lb) with 7.623m (25ft) cable

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