Intelligent System for Microclimate Control and Monitoring in the LIVE-LABs

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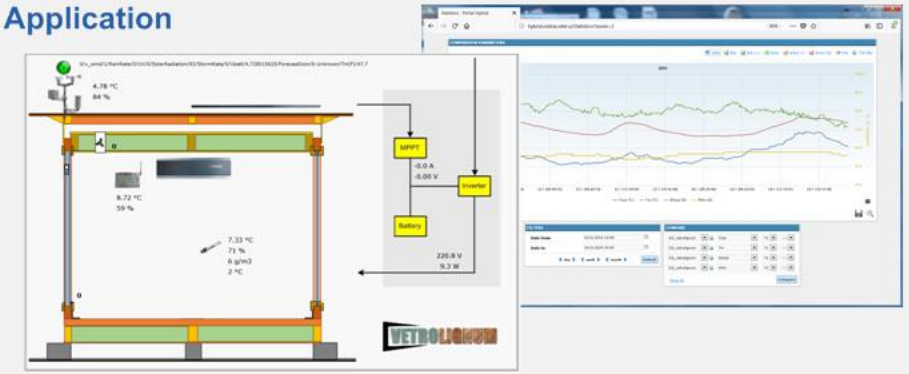
CLOUD

WEB Application



Mobile or Wired/Ethernet Network

LABs

Communication Interface

(SIM Card)

Devices & Sensors

Weather Station - Parameters

Barometer	7	2	Current Barometer. Units are (in Hg / 1000). The barometric value should be between 20 inches and 32.5 inches in Vantage Pro and between 20 inches and 32.5 inches in both Vantatge Pro Vantage Pro2. Values outside these ranges will not be logged.
Inside Temperature	9	2	The value is sent as 10^{th} of a degree in F. For example, 795 is returned for 79.5°F.
Inside Humidity	11	1	This is the relative humidity in %, such as 50 is returned for 50%.
Outside Temperature	12	2	The value is sent as 10^{th} of a degree in F. For example, 795 is returned for 79.5°F.
Wind Speed	14	1	It is a byte unsigned value in mph. If the wind speed is dashed because it lost synchronization with the radio or due to some other reason, the wind speed is forced to be 0.
10 Min Avg Wind Speed	15	1	It is a byte unsigned value in mph.
Wind Direction	16	2	It is a two byte unsigned value from 1 to 360 degrees. (0° is no wind data, 90° is East, 180° is South, 270° is West and 360° is north)
Extra Temperatures	18	7	This field supports seven extra temperature stations. Each byte is one extra temperature value in whole degrees F with an offset of 90 degrees. For example, a value of 0 = -90°F ; a value of 100 = 10°F ; and a value of 169 = 79°F.
Soil Temperatures	25	4	This field supports four soil temperature sensors, in the same format as the Extra Temperature field above
Leaf Temperatures	29	4	This field supports four leaf temperature sensors, in the same format as the Extra Temperature field above
Outside Humidity	33	1	This is the relative humitiy in %.
Extra Humidties	34	7	Relative humidity in % for extra seven humidity stations.
Rain Rate	41	2	This value is sent as number of rain clicks (0.2mm or 0.01in). For example, 256 can represent 2.56 inches/hour.
UV	43	1	The unit is in UV index.
Solar Radiation	44	2	The unit is in watt/meter^2.
Storm Rain	46	2	The storm is stored as 100^{th} of an inch.

Weather Station – Measurement Accuracy

Temperature

Inside Temperature (sensor located in console)

Resolution and Units	Current Data: 0.1°F or 1°F or 0.1°C or 1°C (user-selectable) °C is converted from °F rounded to the nearest 1°C Historical Data and Alarms: 1°F or 1°C (user-selectable)
Range	+32° to +140°F (0° to +60°C)
Sensor Accuracy	±0.5°F (±0.3°C)
Update Interval	1 minute

Humidity

Inside Relative Humidity (sensor located in console)

Resolution and Units	1%
Range	1 to 100% RH
Accuracy	±2%
Update Interval	1 minute

Temperature & Humidity - Parameters

32Bit FLOAT (read register):

Coil / Register Numbers	*Data-Addresses*	*Parameter name*	
30026	0x19	Temperature	[°C]
30028	0x1B	Temperature	[°F]
30030	0x1D	Rel Humidity	[%]
30032	0x1F	Abs Humidity	[g/m³]
30034	0x21	Dew Point	[°C]
30036	0x23	Dew Point	[°F]
30038	0x25	Mixing ratio	[g/kg]

16Bit INTEGER (read register):*

Coil / Register Numbers	*Data-Addresses*	*Parameter name*	
30040	0x27	Temperature	[°C]
30041	0x28	Temperature	[°F]
30042	0x29	Rel Humidity	[%]
30043	0x2A	Abs Humidity	[g/m³]
30044	0x2B	Dew Point	[°C]
30045	0x2C	Dew Point	[°F]
30046	0x2D	Mixing ratio	[g/kg]

Temperature & Humidity - Accuracy

Relative Humidity

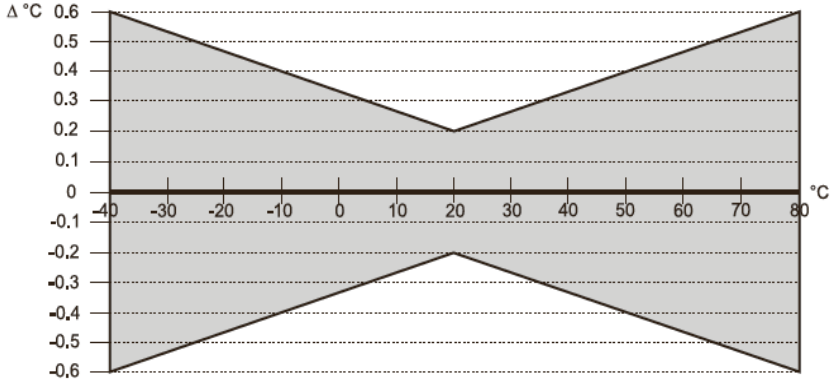
Sensor element	HCT01-00D
Modbus output range	0.00...100.00% RH
Accuracy incl. hysteresis and nonlinearity	±2% RH (0...90% RH) ±3% RH (90...100% RH)
Temperature dependence	< (0.025 + 0.0003 x RH) [% rH/°C]

Temperature

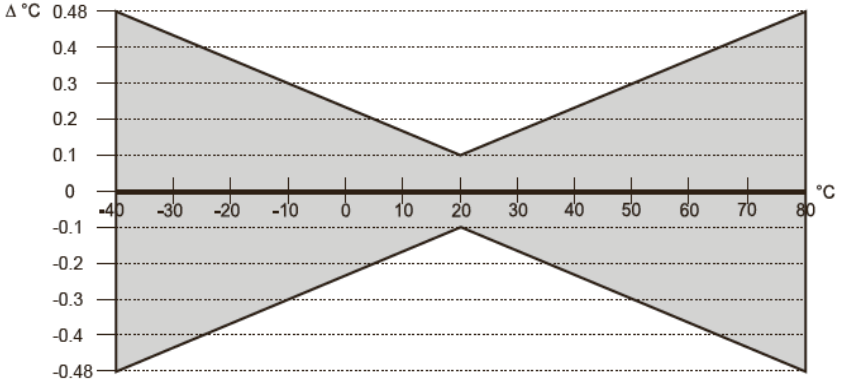
Sensor	Pt1000
Modbus output range	-40.00...+80.00°C (-40...176°F)

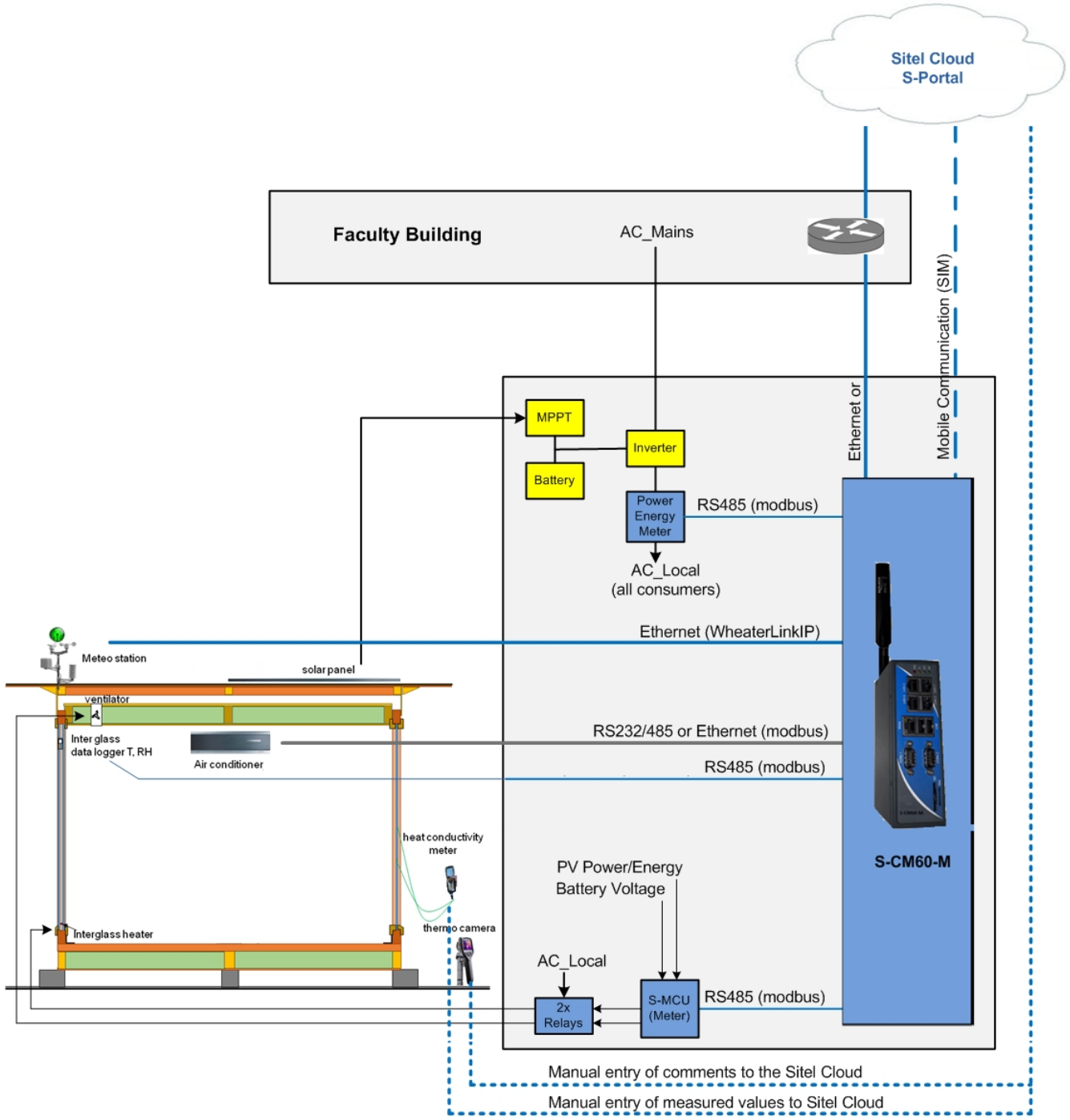
Accuracy:

Standard

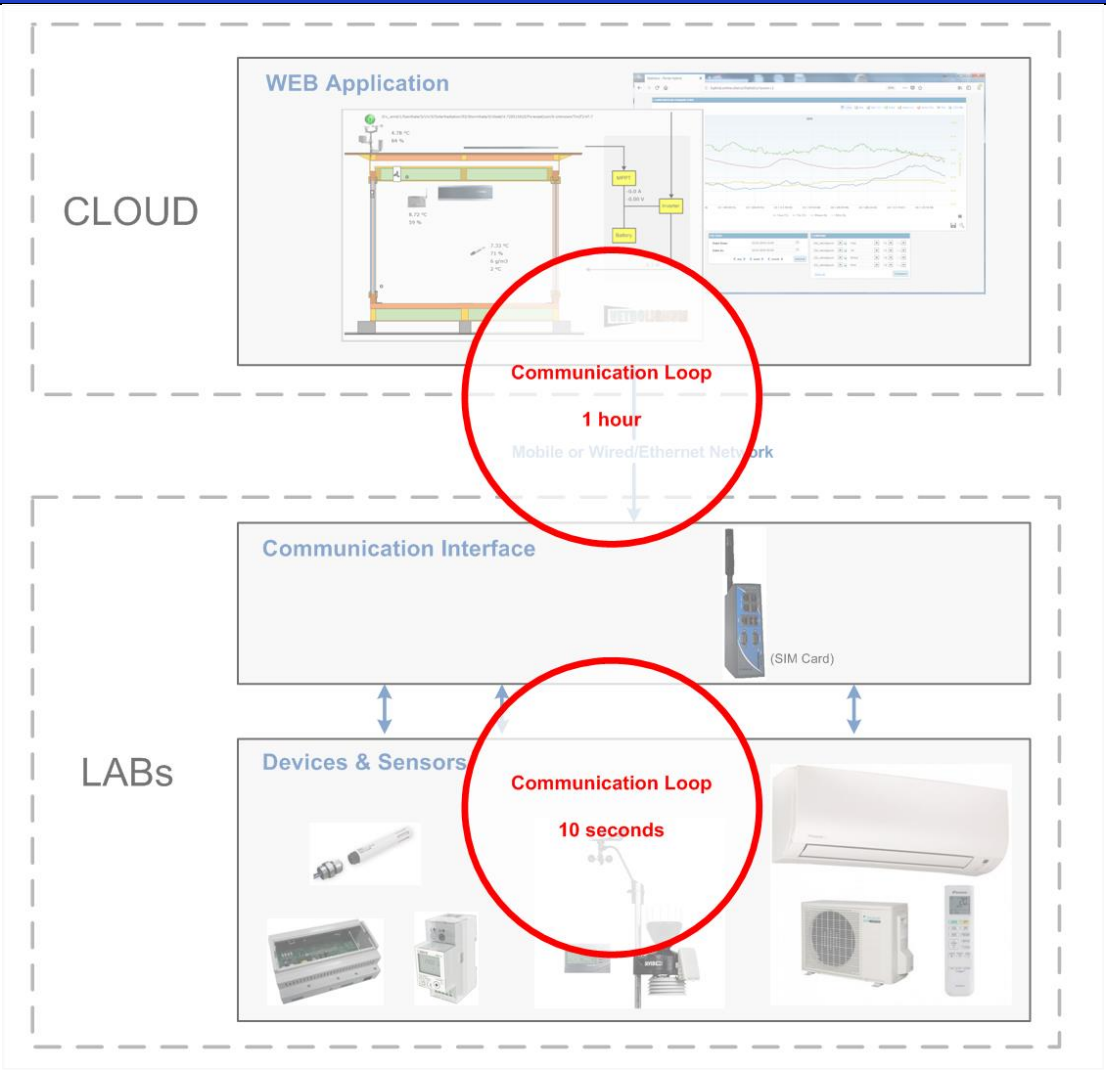


High




Sitel Cloud
S-Portal
Faculty Building
AC_Mains
Mobile Communication (SIM)
Ethernet or
MPPT
Inverter
Battery
Power
Energy
Meter
RS485 (modbus)
AC_Local
(all consumers)
Ethernet (WheaterLinkIP)
Meteo station
solar panel
ventilator
Inter glass
data logger T, RH
Air conditioner
RS232/485 or Ethernet (modbus)
RS485 (modbus)
heat conductivity
meter
thermo camera
Interglass heater
PV Power/Energy
Battery Voltage
AC_Local
2x
Relays
S-MCU
(Meter)
RS485 (modbus)
S-CM60-M
Manual entry of comments to the Sitel Cloud
Manual entry of measured values to Sitel Cloud

Communication Loops



Portal - Fixed Period

Portal – Risk


COMPARISON PARAMETERS
Line
Bar
Bar (+)
Area
Area (+)
Area (%)
Pie
CSV file
2019
25.0
24.0
23.0
22.0
21.0
20.0
19.0
ZG_vetrolignum
?
10.2 (09:00:00)
10.2 (10:00:11)
10.2 (11:00:22)
10.2 (12:00:32)
10.2 (13:00:43)
10.2 (14:00:54)
10.2 (15:01:05)
10.2 (16:01:16)
10.2 (17:01:26)
10.2 (18:01:37)
T3 (°C)
T3 (°C)
Show 0:
AVG:

Portal - Flexible Period

Thank you for your time

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