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Meteobridge PRO - Datasheet

Meteobridge PRO is the first Meteobridge product that consists of software and specially for the purpose designed hardware, in order to establish a whole new product class, the *Personal Weather Server*. Meteobridge PRO comes in a tiny package (about the size of a cigarette box), a power footprint of 1-2 Watts, internal data storage of 1GB, LAN and WiFi capabilities, a graphical OLED display, 2 external USB ports and integrated RF capability to receive data from Davis Instruments sensors directly. Beside the version with included RF capabilities (red caps) there is also a model with black caps that is missing the RF feature.

Autonomous - Meteobridge PRO is operated by your browser, so you don't have to install anything on your PC and you can use it with any desktop, laptop, tablet. With the browser you configure the Meteobridge PRO initially. Once configured to your needs the Meteobridge PRO works totally independent from your PC, which takes the burden of having a PC up and running all the time to monitor weather data away from you. It is an autonomous, low power solution that takes care of your weather stations data.

Weather Stations - Meteobridge PRO supports these weather stations:
- Davis Instruments® Vantage Pro2™, Vue™ (red capped model can read RF sensor data directly, no console or envoy or data logger needed)
- Davis Instruments® Envoy 8x
- Oregon Scientific® WMR-88, WMR-100, WMRS-200, WMR-300, RMS-200, WMR-928, WMR-968
- Meade/Irox/Mebus/Honeywell/Nexus TE-923, TE-827, TE-821, DV-928
- FineOffset/Ambientweather WH-1080, WH-2080, WH-3080, Observer-IP
- FineOffset WH-2310/2308, WH-4000
- PeetBros Ultimeter 100, 800, 2100
- Rainwise MkIII (MkIIICC and CC-3000 interfaces are supported)
- Lufft WS600/601
- Acurite 1025, 1035, 1525, AcuLink Bridge
- LaCrosse/ELV WS2300, WS550, WS777, WS888, WDC7000

Weather Networks - Being connected to one of the above weather stations Meteobridge PRO can upload your weather station's data to the following Internet weather networks, where you are part of a weather community and get your data visualized in various ways:

- WWeather Underground
- Weather Underground Camera
- AWEKAS
- CWOP / APRS
- WeatherBug Backyard
- WeatherForYou
- UK MetOffice WOW / WOW NL
- Teere-Net
- Open Weather Map
- Weather Cloud
- Windfinder
- Windguru
- Idokep
- Weatherflow
- Wetter.com
- Previmeteo
- Anything Weather
- Meteonews
- Meteoplug Cloud Graphing
- Meteobridge Weather CAM
- Wetterring
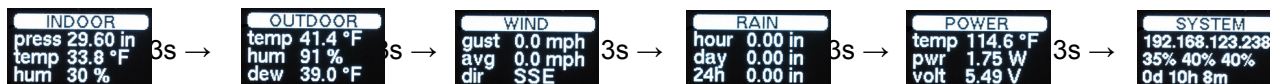- Weathercloud
- Ambientweather Network
- Agroclima

Uploads / Sending - Beside feeding weather networks Meteobridge PRO allows you to pull your weather data in short intervals to your own server in the Internet. This can be done by FTP, SFTP, HTTP, HTTPS or even by mySQL requests. You also can send weather data by email or can twitter your data. Which data to send or upload and at which intervals is completely under your control.

Web-Templates - Meteobridge PRO can feed the most popular webpage templates („Leuven", „Saratoga", „Home Weather Station", „Meteotemplate" and „WD-Live") and makes it easy to set up your individual Internet weather web page easy.
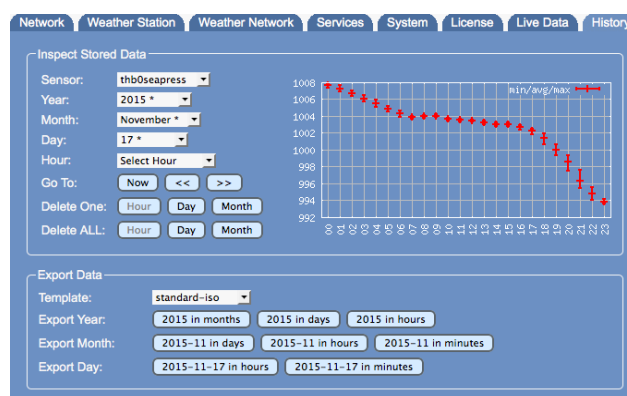
Conditions - Meteobridge PRO can even act on user-defined sensor data conditions and initiate any of the actions mentioned above (like email) when sensor data matches conditions defined by you. Having multiple ways to upload and send data, controlled by user-defined conditions gives you an extremely flexible tool to make things happen based on sensor data.

Remote Access - Meteobridge PRO offers the ability to be reached from the Internet by simply setting a mark on the web interface. Doing so you are provided with an Internet URL where you can reach your Meteobridge PRO. No changes at your firewall and router are needed. It just works, unless you are in a company-grade LAN where packet filtering is applied or other special measures are taken. This feature is extremely helpful when you are on travel or the Meteobridge is located in a remote location and you want to check things or change settings. Your Meteobridge remains protected by the password you gave it.

Display - Meteobridge PRO has a 128x64 pixel black/white display at the front, which is used during boot to show boot progress and the IP address it has been given by the router. This display is user programmable and can also be used to show data of station sensors. You can define distinct pages to show up on the display. These pages can have text in various fonts and sizes and will typically show sensor data. You can arrange these pages into a flow so that information to be displayed will change at a frequency defined by you. Example below shows a typical cascade of pages that comes as predefined.

INDOOR	OUTDOOR	WIND	RAIN	POWER	SYSTEM
press 29.60 in	temp 41.4 °F	gust 0.0 mph	hour 0.00 in	temp 114.6 °F	192.168.123.238
temp 33.8 °F	hum 91 %	avg 0.0 mph	day 0.00 in	pwr 1.75 W	35% 40% 40%
hum 30 %	dew 39.0 °F	dir SSE	24h 0.00 in	volt 5.49 V	0d 10h 8m

3s → 3s → 3s → 3s → 3s →

Storage - Meteobridge PRO comes with an internal database that can store up to 1 GB of weather station data, which allows to hold data of more than a decade. Data can be inspected, edited and deleted via the Meteobridge PRO web interface, which also gives a graphical overview about data of a specified sensor in a year's, month's or day's time range. Meteobridge PRO can directly make use of stored data when uploading information, so this can feed your web server with any kind of sensor data for any period in time. Therefore, you are not stuck to predefined templates but can design your internet weather presence as you like.
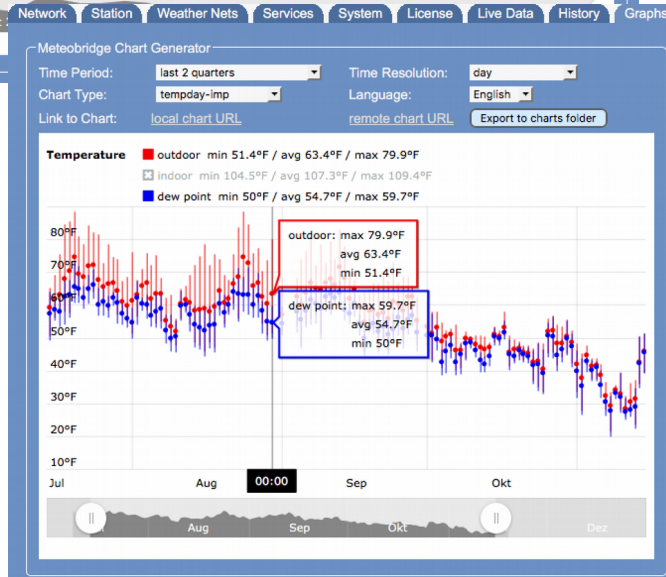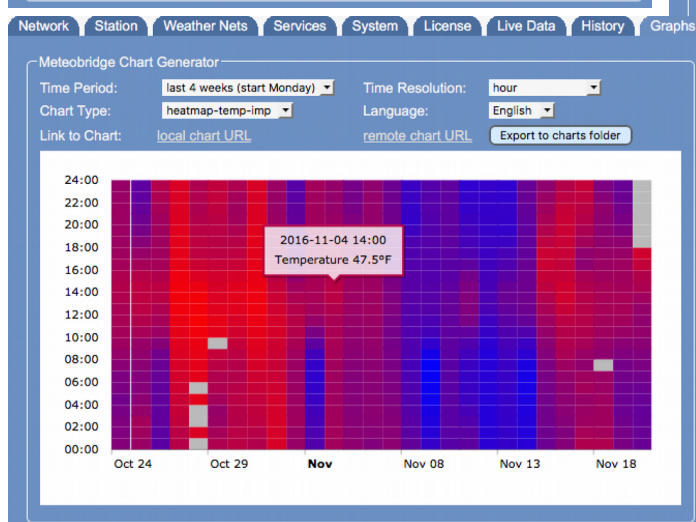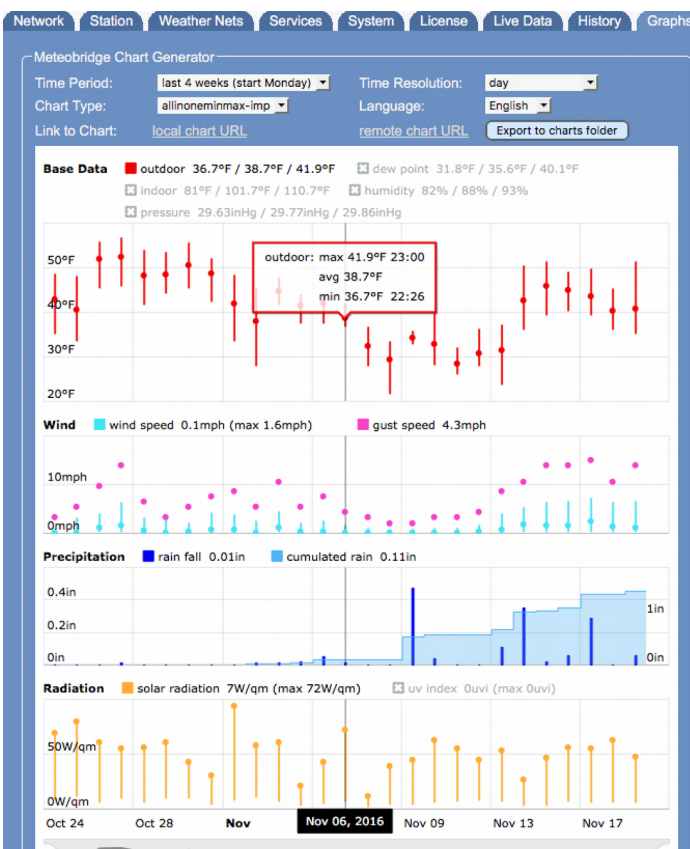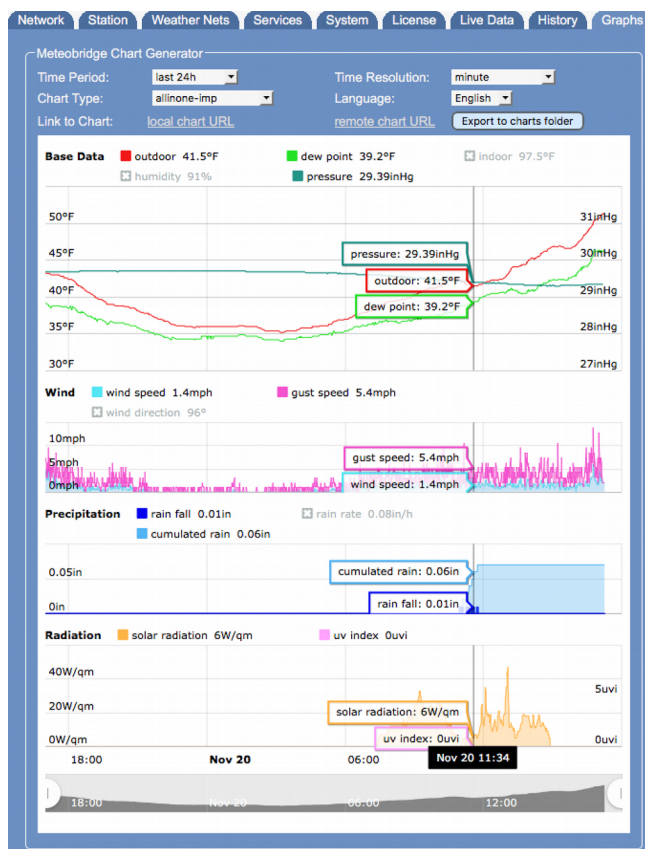
Sharing - Meteobridge PRO allows to export stored weather data in a CSV like notation. Which data to export and for what period in time is user-defined. This allows you to export data for various follow-on processes. Meteobridge PRO makes data exports accessible by providing a samba share (windows network folder) that every PC in your LAN can easily mount as a network folder.

Monitoring - Meteobridge PRO has an internal power monitoring that measures support voltage and power usage of the Meteobridge PRO itself and all connected USB devices. This is extremely handy, when Meteobridge PRO is running in a battery powered environment, as it can monitor and even act on power conditions. It also allows you to check if your setup is doing "as green" as expected.

SMS / Twitter – Meteobridge PRO can send SMS via service provider „messagebird". This can be done in regular intervals or triggered by user-defined events. Content of the SMS can include weather data. Meteobridge PRO is not limited to SMS but can also send weather information via twitter.

Graphs – Meteobridge PRO can show line graphs of the recorded weather data. Engine used for this is the class-leading chart engine from "amcharts". This graphs are fully interactive. You can touch the timeline to expand or shrink the time period to be displayed. When the cursor moves over the graph textual data pops up. Data can be shown or hidden by clicking on the items in the legend. Different kind of information can be shown in vertically stacked panels that share the same time line. You can inspect the graphs from within the Meteobridge PRO web interface or you can upload the graphs via FTP to your web server. Integration into your home page is most easy as the graphs are self-contained, you don't have to install additional libs on your web server. Furthermore you can also reach out to the graphs on your Meteobridge PRO from the internet, when you have remote access enabled on your Meteobridge PRO. Graphs are not password protected, so you don't have to compromise your password for Meteobridge PRO administration for allow access to the graphs. While Meteobridge PRO comes with a set of standard graph definitions (both, with ISO and imperial units) you can also define new graph definitions based on the "amchart" chart engine capabilities. This way Meteobridge PRO gives more options to visualize weather data than most PC programs while having an unmatched small form factor and asking for an extremely small amount of energy.

Hardware Specification

- Size: 57mm x 27mm x 95mm (width x height x depth) without antennas
- weight: 130g (with antennas)
- operating temperatures: 0 - 40°C, non-condensing
- 100/10 Mbit Ethernet port
- WiFi 2.4 GHz, 802.11g/n (right SMA male connector on back panel)
- RF-Sensor reception in 868-915 MHz band (left SMA female connector on back panel)
- external power supply (incl. plugs for US, EU, UK) with micro USB connector
- full size USB female connector on front panel
- micro USB female connector on back panel
- black/white OLED with 128 x 64 pixels to display status information and user defined data
- reset pin hole

- 4 LEDs on front panel, indicating
  - RF sensor reception (red / orange)
  - system operational (red)
  - network traffic (yellow)
  - sensor data stored (green)
- internal components
  - Carambola 2 computing module (AR9331 SoC, 16 MB Flash, 64 MB RAM)
  - 4 port USB hub
  - voltage / power monitoring IC (INA220)
  - barometer IC (BMP180)
  - temperature / humidity IC (SHT21)
  - low volume signaling buzzer
  - 1 GB USB connected permanent storage (industrial grade ATP SLC NANODURA USB stick)

Compliance

Meteobridge PRO

- is CE and is RoHS conform and is FCC compliant (contains FCC ID Z9W-CM2)
- fulfills Open Source obligations of included SW components (www.meteobridge.com gives details)