TECHNICAL MANUAL

Anura Base Hub

10070

INTRODUCTION

The Anura Base Hub enables long-term monitoring of industrial equipment using Anura VS1 sensors.

The Base Hub collects, buffers and transfers data captured by the VS1 sensors. It is capable of uploading to remote or local servers.

DATA DESTINATIONS

The gateway can forward the sensor data it receives from sensors to local or internet-accessible destinations. There are three types of configurable data destinations; **secured MQTT with certificate-based authentication**, **unsecured MQTT** and **local disk**. The available data formats are **Protobuf** (see detailed docs here https://github.com/ReVibe-Energy/anura-data-model) and **CSV**.

BUFFERING

If a data destination is not reachable from the gateway, the gateway buffers sensor data on disk for that data destination.

It is possible to change config for a data destination without losing the buffered data, as long as the `destination_name` is unchanged. This is useful if e.g. the MQTT broker is assigned a new hostname/IP in operation.

The buffered data is stored on disk until it has been successfully sent, even if the gateway is powered off. This means that it is possible to perform and store measurements without access to the internet. The gateway will upload this data the next time it is connected to the internet.

CONFIGURATION

The Base Hub enables remote configuration of sensors, making it possible to adjust measurement-related parameters in the sensors via an internet-accessible API.

DATA DESTINATIONS

Data destinations are configured using the API endpoint `/gateways/{gateway_id}/data_destinations`. Multiple data destinations can be active simultaneously. A data destination is configured with the following structure:

```
{
      "destination_name": "your-destination-name",
      "destination_type": "destination-type",
      "config": {
            "data_formats": [
                  …
            ],
            ...
      }
}
```

`destination_name` is a user-chosen identifier for the data destination in question.

Destination types

Secured (TLS) MQTT

This is the recommended option for systems that communicate over the internet

`destination_type == mqtt-ca`

To set up the system for authenticated and encrypted communication, the MQTT broker must be configured to trust certificates from a certificate authority (CA) that you control. The first time the gateway starts, it generates a certificate signing request (CSR) that it exposes over the API in the endpoint `/gateways/{gateway_id}`. The receiving system must download this CSR, sign it using the CA, and then send the resulting certificate back to the gateway over the API in the data destinations configuration. Additionally, the broker's hostname and the port at which it is accessible must also be set.

The broker's certificate must be signed with a public root CA so that gateway can verify the identity of the broker. This can be done using, for example, Let's Encrypt.

Unsecured MQTT

This is not recommended for use outside a well-secured and delimited local network

`destination_type == mqtt`

To configure an unsecured MQTT data destination, you will need the broker's hostname and the port at which it is accessible.

Local disk

```
destination_type == disk
```

To be documented

Data formats

All data destination types require the `data_formats` config attribute to be set. This is used to activate transmission of different types of data. The available data formats are:
* `aggregated_protobuf`
* `aggregated_json`
* `scheduled_protobuf`
* `scheduled_csv`
* `node_health_protobuf`

The `aggregated` data are frequently-transmitted, low-data values that are derived from the raw acceleration data e.g. RMS, max acceleration and dominating frequency. Please see the user manual for more details about the values themselves.

`scheduled` data is raw time-domain acceleration data, regularly recorded according to the schedule specified in the node settings.

`node_health` contains meta-information about the nodes - e.g. battery level, signal strength and time sync statistics.

`protobuf` formats are described in the anura-data-model repository:
https://github.com/ReVibe-Energy/anura-data-model.

VS1 SETTINGS

* To be documented *

TR1 ASSIGNMENTS

* To be documented *

VS1 ASSIGNMENTS

* To be documented *

FIRMWARE UPDATES

The Basehub supports system upgrades and patches managed by ReVibe Energy

PRODUCT CARE

To ensure the longevity and optimal performance of Basehub, please follow these care instructions:

General use:

Do not drop, throw, or subject the product to excessive force, as this could damage
the plastic casing, aluminum plate, or internal components.

Cleaning:

Use a soft, damp cloth to gently clean the plastic casing and aluminum bottom plate.
Avoid abrasive materials or harsh cleaning agents, as they may scratch the surfaces
or damage the finish.

SUPPORT, WARRANTY & RMA ASSISTANCE

For help with product support, warranty claims, or initiating an RMA (Return Merchandise
Authorization), our website provides all the resources needed.

https://revibeenergy.com/

RECYCLING

Disposal of Electrical and Electronic Equipment
This product is marked with the crossed-out wheelie bin symbol to indicate that it must not be
disposed of as general household waste. Instead, it should be taken to an appropriate collection
point for recycling electrical and electronic equipment. Proper disposal helps prevent potential
harm to the environment and human health and promotes the sustainable reuse of materials.
For more detailed information on disposal and recycling, please contact your local authorities or
the retailer where the product was purchased.

BASE HUB TECHNICAL SPECIFICATIONS

Cabinet material:

Powder coated steel sheet.

Ingress protection:

IP65

Typical weight:

7.5kg

Dimensions: (excluding cables and mounting accessories.)

300x300x210 (height x width x depth)

Mounting interface:

Sold with Wall mount (AX 2508.020) as default.
Optional: Pole clamp (AX 2584.100)

Incoming connections:

External LAN Connections 10/100/1000BASE-T Ethernet on CAT6

Outgoing connections:

4x cable grommets for ethernet connection to ReVibe^(tm) Anura Transceivers or ReVibe^(tm) Anura Extension hub.

EQUIPMENT

DIN-Rail mounted Industrial PC (FitPC Fitlet3), part nr 40003
DIN-Rail mounted PoE network switch (Teltonika TSW101), part nr 40004
DIN-Rail mounted Power supply:
    12VDC, 2.1x5.5x9.5mm DC Barrel Socket
    Sold with MeanWell OWA-60E-12 *(12VDC, 5A).*

Typical Power consumption:

w.o. Transceivers connected.
7 W
with 4 transceivers connected
12W

OPERATING TEMPERATURE

Storage Temperature:

-40°C to +80°C (-40°F to +140°F)

Relative humidity:

5% – 95% non-condensing

ACCESSORIES

Mounts:

Wall mount, (AX 2508.020)
Pole clamp (AX 2584.100)

Cables:

Ethernet RJ45-NEUTRIK EtherCON CAT6a 10m
Ethernet RJ45-NEUTRIK EtherCON CAT6a 30m

Expected product lifetime:

>5 years

CONTACT

Manufacturer:

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