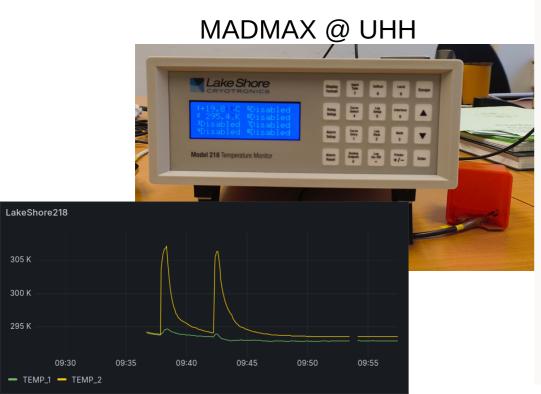
## Constellation

## **Building a Control and DAQ System**

- Control and DAQ System for lab setups, testbeam and small experiments
- Main features mostly implemented, expanding to new users
- Example: temperature monitor for



			Cor	nstellation MissionC	ontrol v0.2 (Equuleus)				_ □
	nstellation	tion Satellites State			Run Identifier			Run Duration	
P e	edda	5	New	run_0 (next)				00:00:00	
onfiguratio	on						C	Control	
Configurat	tion: /home/stepha	n/Projects/cons	tellation/configs/config.tom	ıl		Select	Deduce	Initialize	Shutdown
_og:						INFO -	Log	Launch	Land
Run Identii	ifier: run					Sequence:	0	Start	Stop

Туре	Name	State	Connection	Last response	Last message	Heartbeat	Lives
Sputnik	Two	New	tcp://10.12.22.123:39141	SUCCESS		5000ms	3
Sputnik	Three	New	tcp://10.12.22.123:44227	SUCCESS		5000ms	3
Sputnik	One	New	tcp://10.12.22.123:37211	SUCCESS		5000ms	3
RandomTransmitte	r Sender	New	tcp://10.12.22.123:41139	SUCCESS		5000ms	3
EudaqNativeWriter	Receiver	New	tcp://10.12.22.123:36735	SUCCESS		5000ms	3



# Constellation

## **Documentation Improvements**

- Split between three separate guides for:
  - Operators no code
  - Application Developers few internals
  - Framework Developers reference
- Structure in each guide:
  - Tutorials
  - Concepts / Functionality
  - How-To Guides

Constellation

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Section Navigation

Get started Installing from Source Installing from PyPI

Tutorials

Starting & Controlling a Satellite Controlling with MissionControl

#### Concepts

The Constellation

The Satellite The Controller

Autonomous Operation

Telemetry

Data Processing

How-To Guides Setting up InfluxDB and Grafana

## **Constellation Operator Guide**

#### Edit on GitLab

Welcome to the Constellation Operator Guide. This guide is intended to provide a comprehensive overview of the framework for people who will set up and operate Constellations, control satellites and monitor the performance of the system.

#### 🔿 See also

Separate guides are provided for those who intend to integrate their own hardware or develop new satellites as well as for those who wish to contribute to the <u>development of Constellation</u> and require more in-depth technical information.

This guide is structured in four different parts, each of which serve a different purpose:

- The installation and initial setup of Constellation is described in the **Getting Started** section.
- Tutorials teach how to use Constellation using practical examples, starting from simple situations such as starting and controlling a single satellite, and gradually moving to more complex examples & setups.
- The Concepts section provides detailed explanation of the workings of the framework and the thoughts behind its structure. This is not the technical documentation of the Constellation core components, it describes their functionality and helps in developing an understanding of the system.
- Finally, the **How-To Guides** provide concise answers on how to achieve a specific goal, such as the implementation of a new satellite, or the extension of a satellite with custom commands.

Throughout this guide, buttons of graphical user interfaces will be displayed as Buttons, configuration parameters and commands typeset as inline code such as parameter\_name, and states of satellites or the entire Constellation will be denominated e.g. by ORBIT. Sequences of keystrokes are rendered as individual keys such as [Control]-[c].

# Feel free to give feedback constellation.pages.desy.de

#### DESY. | Constellation DAQ | Stephan Lachnit, 2024-12-17