



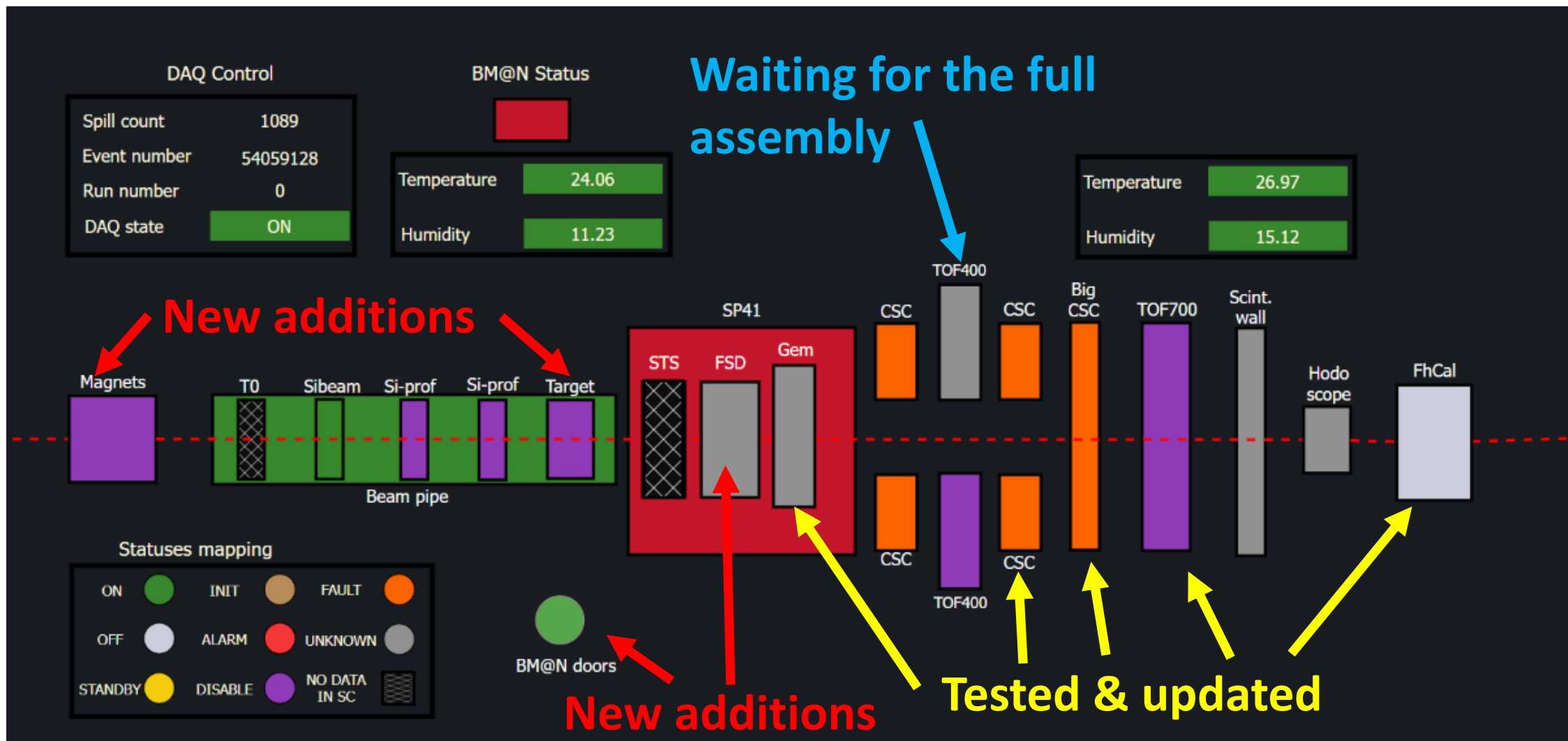
Status of the BM@N Slow Control System

**14th Collaboration Meeting of the BM@N
Experiment at NICA**

I. Osokin, V. Dronik, V. Shutov, R. Nagdasev, D. Egorov

14.05.2025

Preparation for the BM@N beam run



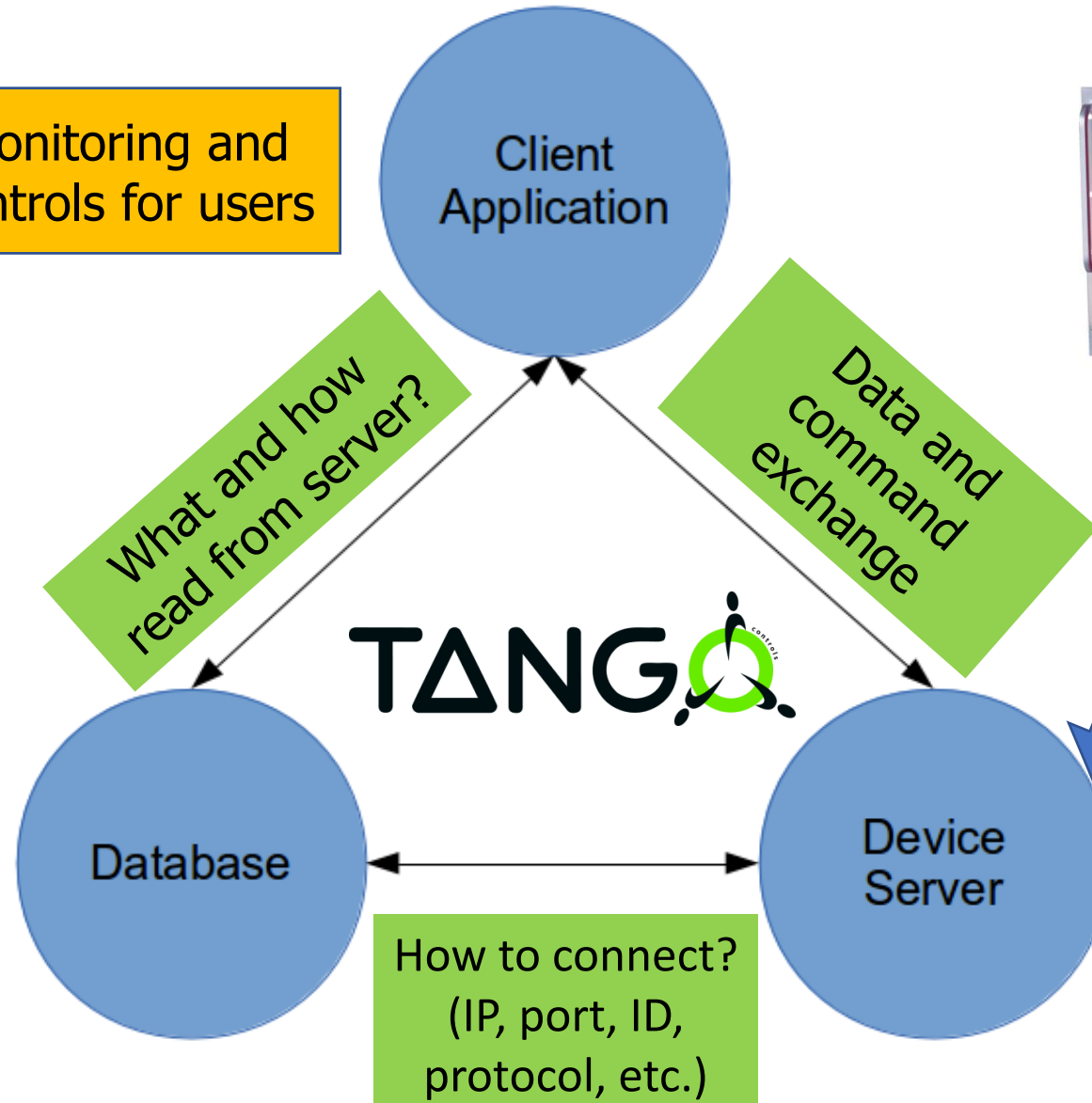
BM@N detectors dashboard

Slow control system



Monitoring and
controls for users

Tango-based Slow Control
System has performed well
in previous runs and will be
used in the forthcoming run



Forward Si detectors

FSD subsystems were tested and added to the dashboard with mappings



FSD monitoring dashboard in Grafana

FSD LV autoswitch system



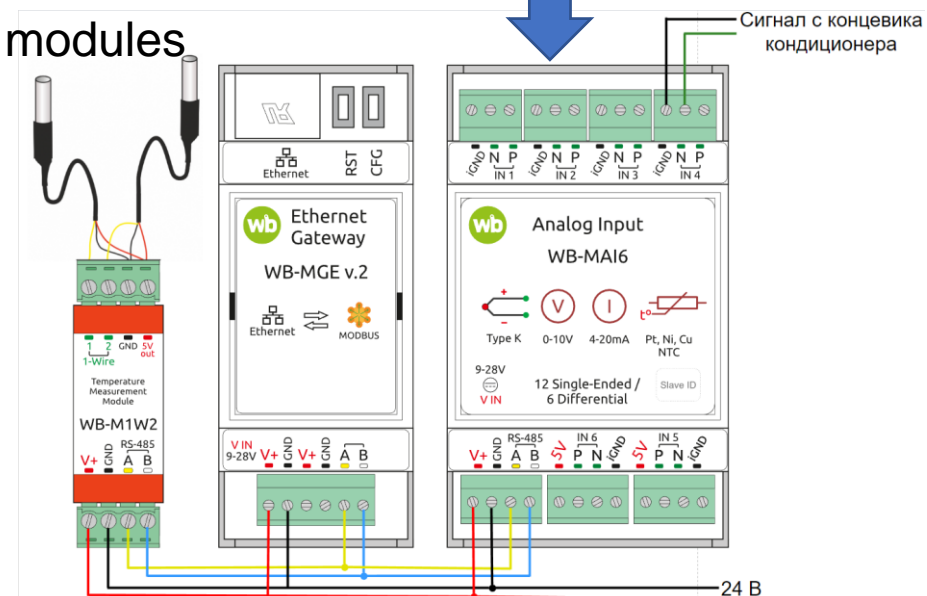
Temperature
threshold

Delayed
automatic
LV shutdown

FSD conditioner monitoring

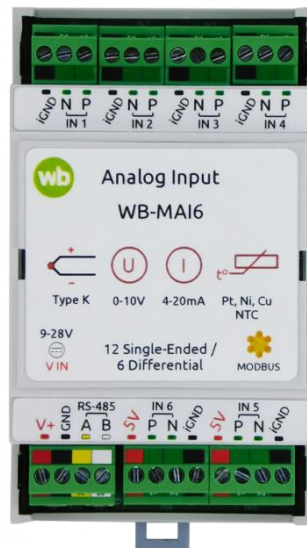


MAI6 & WB M1W2
Measurement
modules



Radiation protection doors monitoring

Electrical relay



MAI6 Measurement modules

Modbus RTU



WB-MGE Modbus – ethernet converter

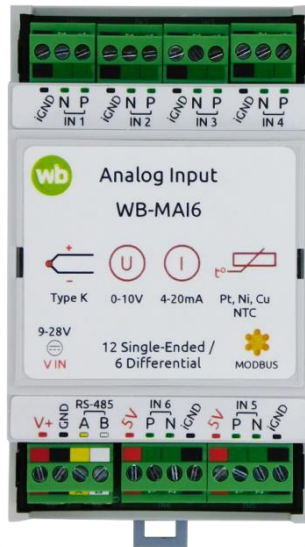
TCP/IP

TANGO
TANGO device server



Doors states monitoring in Grafana dashboard

Electrical relay



MAI6 ADC

Modbus
RTU



WB-MGE
Modbus –
ethernet converter

TCP/IP



TANGO device
server



Beam gate

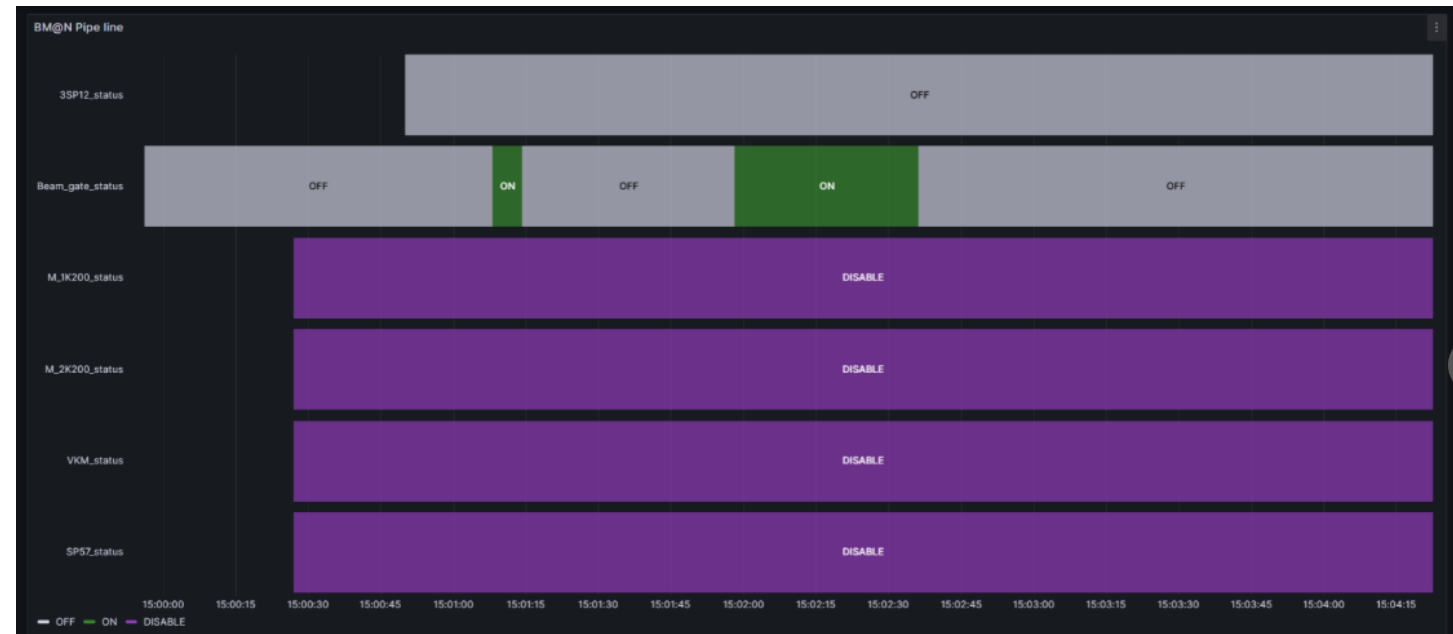




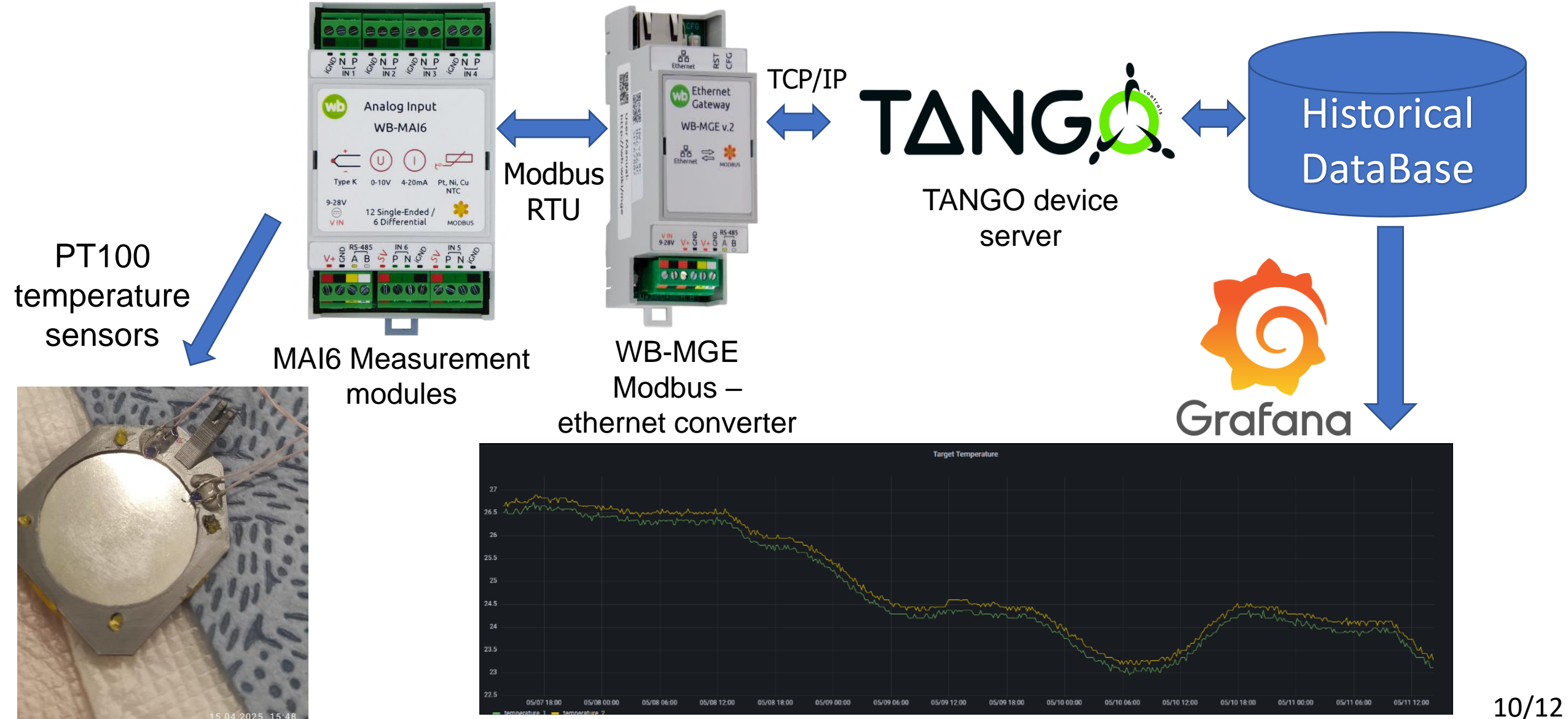
NLcon-CED16
Operator's
panel



Data is obtained indirectly through the beam pipe line operator's control panel.



Target monitoring expend



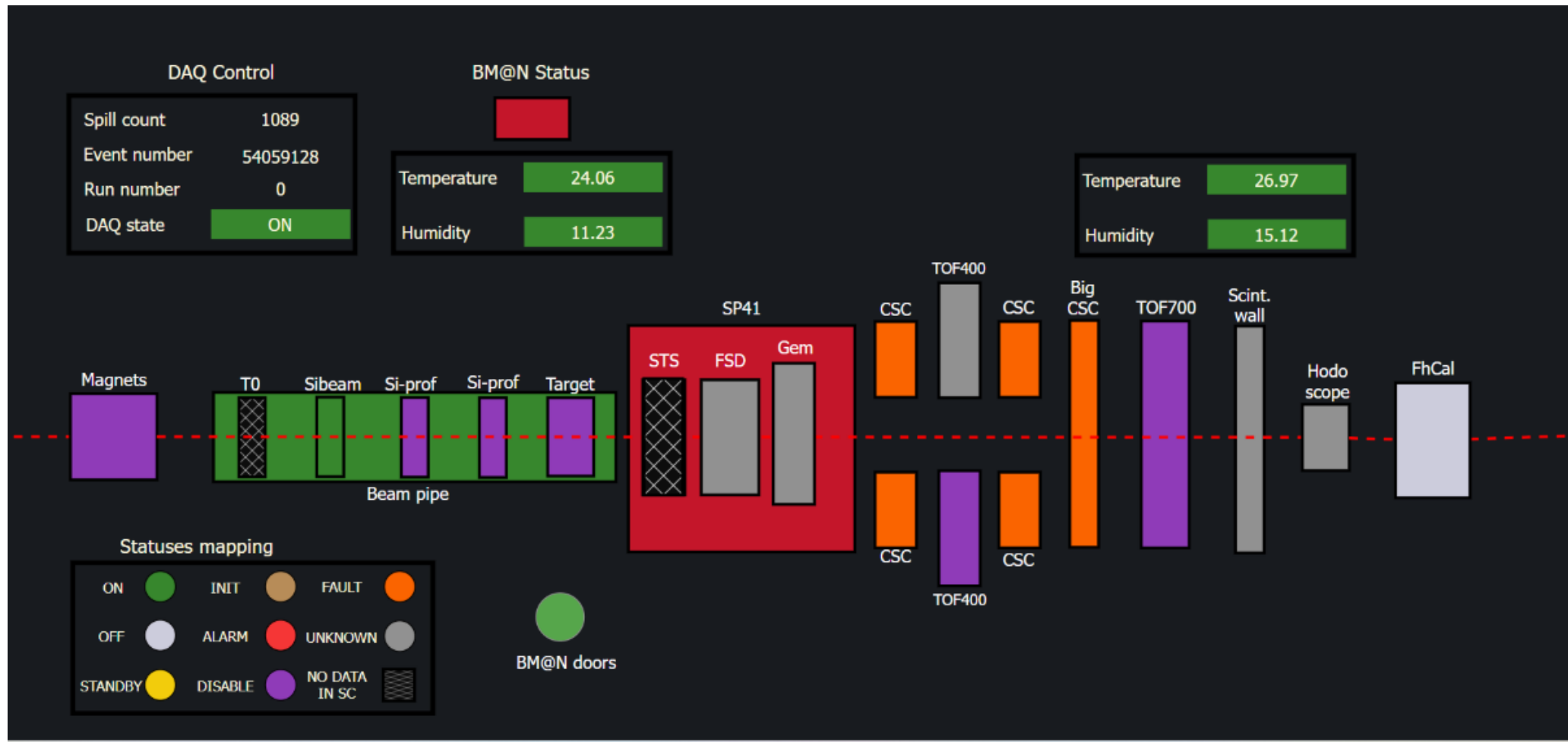
TOF400 upgrade

TOF400 HV Box #2						TOF400 HV Box #3					
-HV		LV		+HV		-HV		LV		+HV	
-4998 V		4.50 V		4991 V		-4999 V		4.50 V		5005 V	
-12 nA		1.76 A		9 nA		-29 nA		1.75 A		29 nA	
-HV		LV		+HV		-HV		LV		+HV	
-5016 V		4.50 V		4998 V		-5028 V		4.50 V		5019 V	
-4 nA		1.74 A		12 nA		-12 nA		1.75 A		10 nA	
-HV		LV		+HV		-HV		LV		+HV	
-5027 V		4.50 V		5011 V		-4015 V		4.50 V		4007 V	
-4 nA		1.74 A		14 nA		-21 nA		1.75 A		17 nA	
-HV		LV		+HV		-HV		LV		+HV	
-5016 V		4.50 V		5019 V		-5002 V		4.71 V		5019 V	
-21 nA				5 nA		-25 nA				14 nA	
-HV		3.48 A		+HV		-HV		3.50 A		+HV	
-5004 V		4.50 V		5016 V		-5029 V		4.71 V		5006 V	
-6 nA				12 nA		-10 nA				5 nA	

Currently awaiting the completion of the detector's assembly and configuration processes, as well as the finalization of the mappings.

HV, LV, FEE and Gas systems are tested and integrated in the Slow Control System

TOF 400 Detectors Right											
-HV		LV		+HV		-HV		LV		+HV	
.3s`B		.3s`B		.3s`B		.3s`B		.3s`B		.3s`B	
.3s`A		.3s`A		.3s`A		.3s`A		.3s`A		.3s`A	
-HV		LV		+HV		-HV		LV		+HV	
.3s`B		.3s`B		.3s`B		.3s`B		.3s`B		.3s`B	
.3s`A		.3s`A		.3s`A		.3s`A		.3s`A		.3s`A	
-HV		LV		+HV		-HV		LV		+HV	
.3s`B		.3s`B		.3s`B		.3s`B		.3s`B		.3s`B	
.3s`A		.3s`A		.3s`A		.3s`A		.3s`A		.3s`A	
-HV		LV		+HV		-HV		LV		+HV	
.3s`B		.3s`B		.3s`B		.3s`B		.3s`B		.3s`B	
.3s`A		.3s`A		.3s`A		.3s`A		.3s`A		.3s`A	
-HV		LV		+HV		-HV		LV		+HV	
.3s`B		.3s`B		.3s`B		.3s`B		.3s`B		.3s`B	
.3s`A		.3s`A		.3s`A		.3s`A		.3s`A		.3s`A	



Thank You for attention