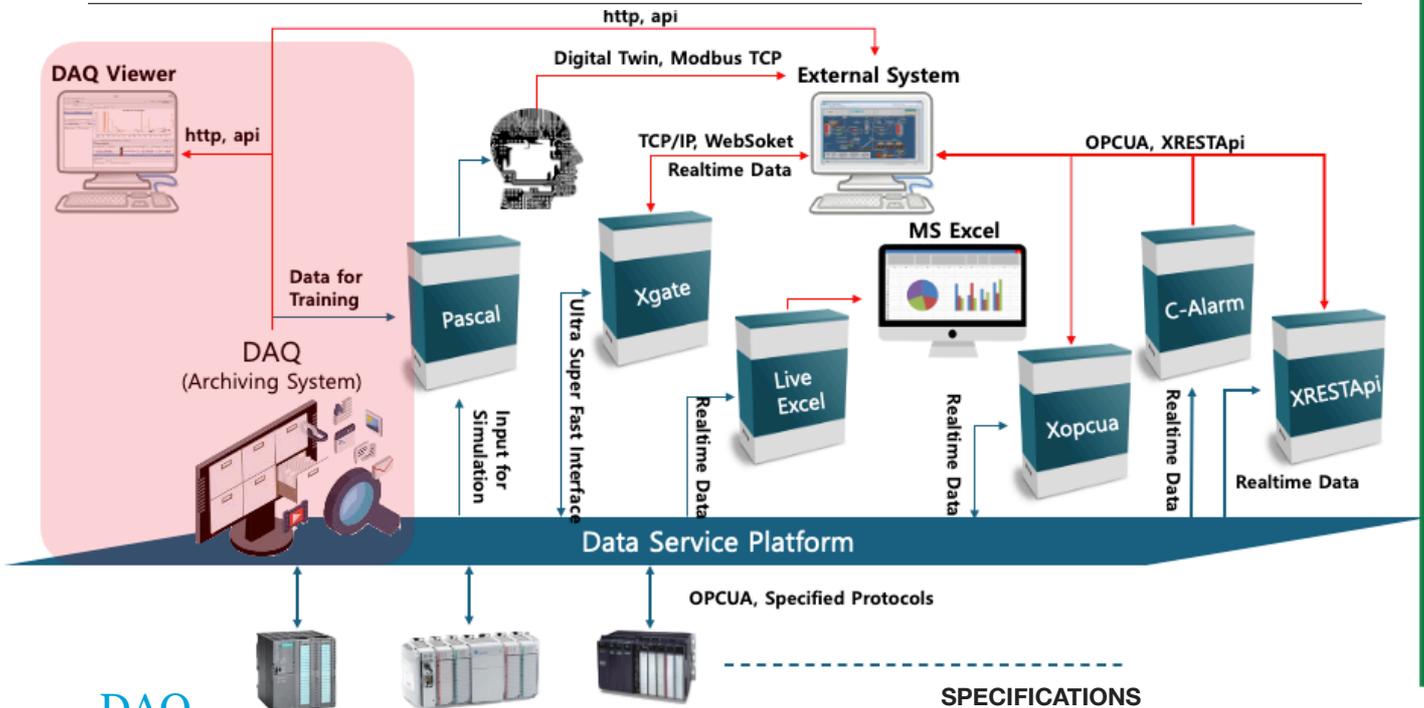


# DAQ



## DAQ

**D**AQ is a high-performance Data Acquisition System that records defined data, including metadata such as timestamps and alarm severity, at ultra-fast speeds in the time domain.

The DAQ system provides an advanced data viewer. It includes a Trend Chart for multi-channel data insights and a Data Browser for detailed analysis. The charts support a variety of mathematical and statistical functions, allowing users to view basic statistical results such as average, minimum, maximum, and standard deviation values.

Additionally, the system supports exporting multiple datasets as CSV files via the data viewer or web interface. This enables users to analyze data on various platforms and easily share archived data with others.

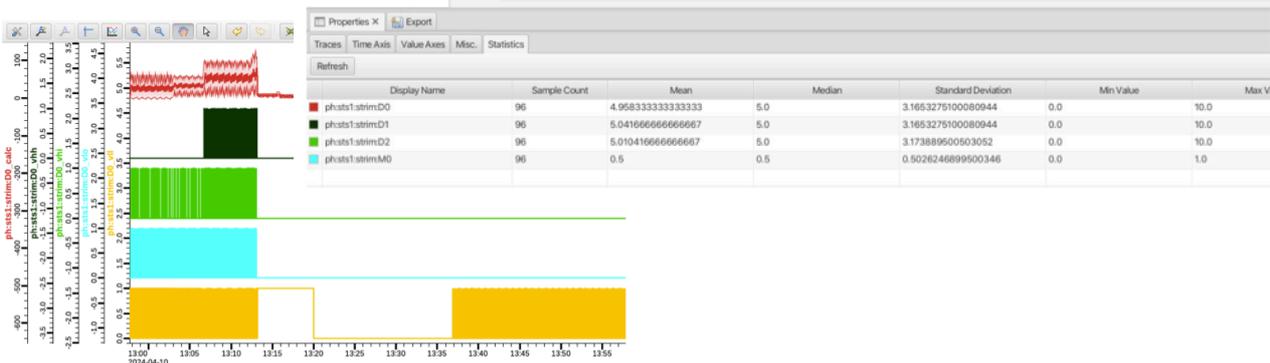
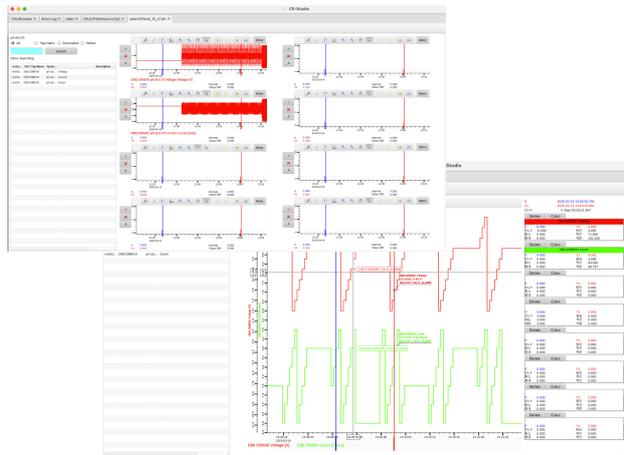
When required, archived data in the DAQ system can be shared online via HTTP protocol in JSON format. This allows external systems, such as artificial intelligence platforms, to access the data for machine learning and other automated processes without interruption.

## SPECIFICATIONS

- Performance: faster than MHz.
- Meta Data: Value, Timestamp, Alarm Severity
- Time Resolution: Nanosecond precision
- Archiving Algorithm: Event-based, Polling, Trigger-based
- Tag Editing:
  - Editable in online mode
  - Manual and Auto editing supported
- Web Interface (Default):
  - Tag adding, editing, deletion
  - Chart View
  - Data download (CSV format)
  - Diagnostic statistics
  - Supports URLs and API for external systems
- Custom HMI (Free):

# DAQ

- Data processing using provided functions
- Chart Zoom In/Out
- Annotation support
- X-Y axis scrolling
- Data export in Microsoft Excel-compatible format (CSV)
- Statistics display
- Tag search by name, description, and all fields
- Time axis ruler for precise data analysis
- Tag Configuration
- Map PLC memory names to signal names
- Comment field for each tag
- Alarm Configuration
  - Supports tag alarms and composite alarms
  - HH, HI, LO,LL alarms for each analog tag
  - Accumulated alarm for each tag
  - Reset timer for tag alarms and composite alarms
- Alarm Scan Algorithm
  - Every Time
  - On Change(default)
  - When Zero
- When Non-zero
- Transition to Zero
- Transition to None-Zero
- Operating Environments:
  - OS: Linux
  - Memory: 128GB (256GB recommended)
  - SSD: 256GB (512GB recommended) for short-term storage
  - HDD: 1TB or more for long-term storage
  - Web and Custom HMI: Cross-Platform, including Microsoft Windows



# SOFTDCS

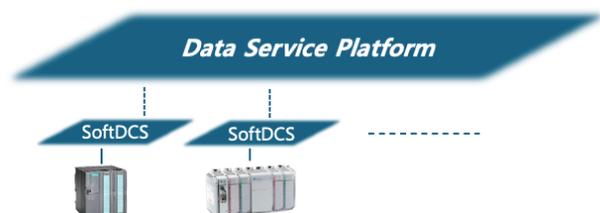
## SoftDCS

**S**oftDCS is the core module for building the Data Service Platform. It operates like a traditional Distributed Control System (DCS), but is entirely software-based. As a result, SoftDCS can be implemented on a wide range of hardware—from embedded devices like Raspberry Pi to enterprise-grade server computers.

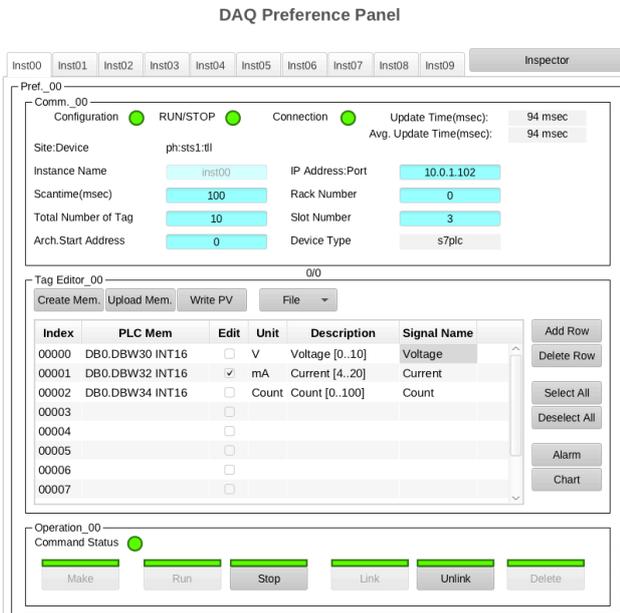
SoftDCS supports a feature called Composite Alarm for each tag. It allows you to create virtual alarms by combining multiple tags and executing user-defined functions. These functions can be configured manually online or through predefined settings.

### SPECIFICATIONS

- Communication with devices.
- Data Reading: Default
- Data Writing: Engineering Option
- Printing time stamp on each data when updated.
- Scan Algorithm: Event-Driven , Polling
  - Polling Interval(msec): 20, 50,100, 500,1000
  - Order based Polling Interval: up to microsecond.
- Tag Capacity:
  - Supported : 500 tags per instance, 10 instances per device
- Data Type:
  - Default: Binary, Analog
  - Additional: String, Array
- Alarm:
  - Binary Data: On/Off
  - Analog Alarm: HH, HI,LO,LL
  - Composite Alarm: supported
- Data Properties:
  - Programmable
  - Alarms
  - Calculation
  - Data Link
  - Timestamp
- Engineering:
  - Language: FBD, Text
  - Via provided commands and HMI online
- Monitoring Tools: Console Commands, HMI
- Supported Well-Known Protocol:
  - S7 Profinet
  - AB Controllogix EtherIP
  - Melsec(A, Q/L, iQ-R Series)
  - MicrexSx Series
  - Modbus TCP
  - OPCUA
  - BACNetIP
  - LS(XGT, GLOFA Series)
  - Omron

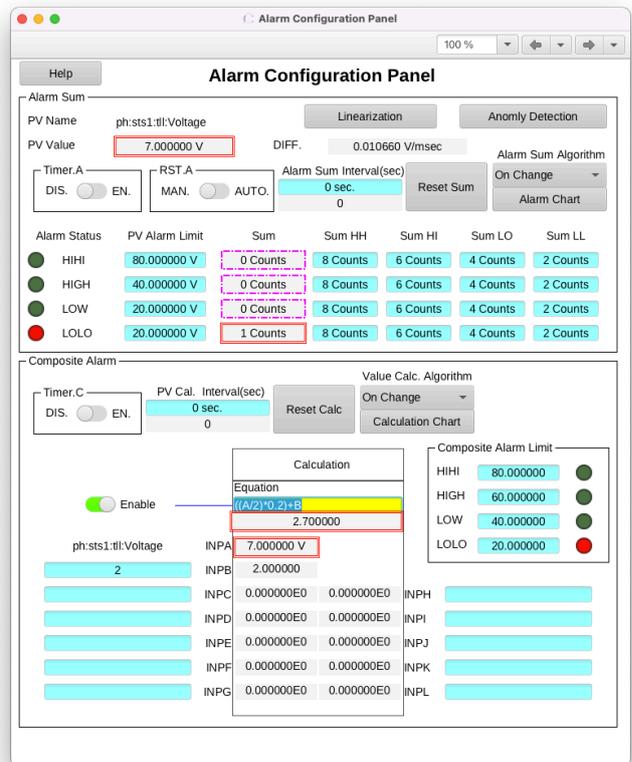


# SOFTDCS



- SoftDCS creation/deletion
- Simple Chart for daily maintenance(DAQ required)
- Analysis Chart(DAQ required)
- Diagnosis information(DAQ required)

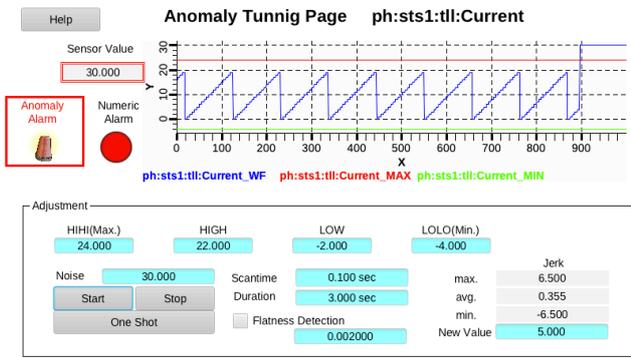
Tag Name	Signal Name	Engineering Unit	Description	Type	Min	Max	HHI	LOLO	LOW	LOLO	alarm	alarm
DB0.DBW30	Voltage	V	Voltage [0..10]	INT16	0.000	10.000	8.000	6.000	4.000	2.000	disabled	manua
DB0.DBW32	Current	mA	Current [4..20]	INT16	4.000	20.000	16.000	13.000	10.000	7.000	disabled	manua
DB0.DBW34	Count	Count	Count [0..100]	INT16	0.000	100.000	80.000	60.000	40.000	20.000	disabled	manua



- Unsupported Protocols:
  - Interface development possible if protocol specification is provided in raw format
- Operating Environments:
  - OS: Linux, Mac OSX
  - HMI & Debugging: Cross-Platform (including Microsoft Windows)
- Preference Panel:
  - Excel Interface support
  - Device connection configuration panel
  - Tag editor support
  - Alarm configuration panel (Tag & Composite Alarm)
  - Upload/download tag and alarm configurations to/from SoftDCS
  - Link/unlink tags to DAQ for data archiving (DAQ required)
  - SoftDCS run/stop control

- Anomaly Detection (DAQ Required)
  - Pattern Detection
  - Flatness Detection
  - Save Anomaly Pattern

# SOFTDCS



### Statistics

PV Name ph:sts1:tll:Voltage

Configurations

Trigger PV Name

Trigger Value for Start Time  2025-07-14 09:15:07.991765

Trigger Value for End Time  2025-07-14 09:15:11.991640

Commands

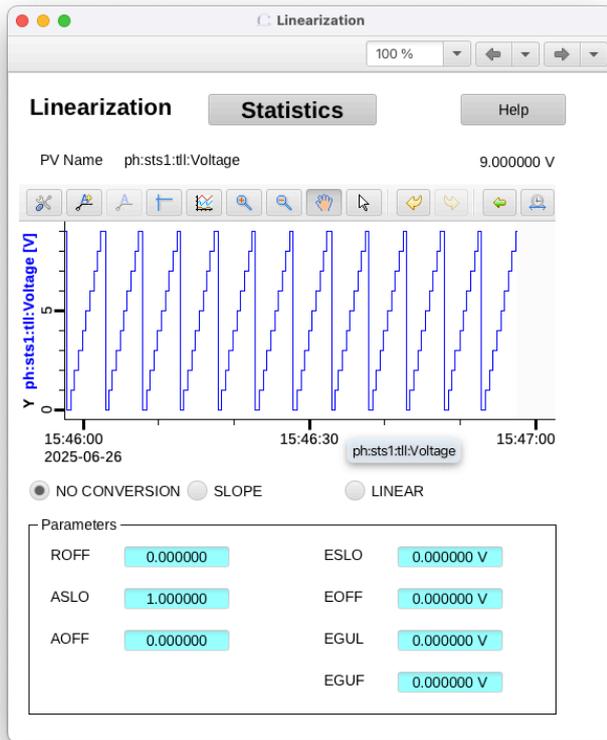
●

Statistics

Min.	1.000000	Mean	5
Max.	9.000000	Std. Deviation	3
Sum	45.000000		
Avg.	5.000000		
Area	20.067787		
Length	9		
Exe.Time(sec)	0.011815		

- Linearization
- Signal Scaling
- Linearization

- Number of Data, Execution Time
- Enable/Disable individual tag.
- Event Forwarding
- Forwarding Tag Event
- Fanout: 8



### Forward Link

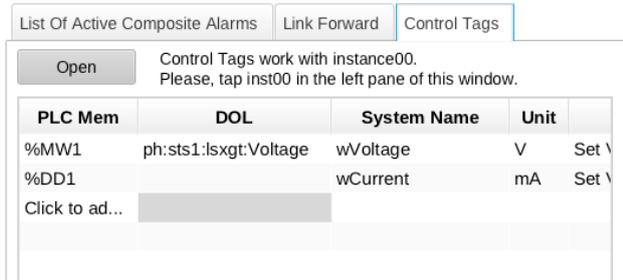
ph:sts1:tll:Voltage

Link 01	<input type="text" value="cnix:get.PROC"/>
Link 02	<input type="text" value="0"/>
Link 03	<input type="text" value="0"/>
Link 04	<input type="text" value="0"/>
Link 05	<input type="text" value="0"/>
Link 06	<input type="text" value="0"/>
Link 07	<input type="text" value="0"/>
Link 08	<input type="text" value="0"/>

- Statistics (DAQ Required)
  - Triggered Statistics
    - Event Trigger
    - Min, Max, Sum, Avg, Area, Mean, Standard Deviation

- Configurable Output Tag
  - User Configurable
    - Manual Setting Output Tag
    - Automatic Output Tag Using Event Forwarding

# SOFTDCS



username, and data values are recorded in the log system.

- Dynamic Alarm Configuration
  - Dynamically set tag alarm values using the event forwarding and output tag configuration functions.
- User Control Logging Function
  - When data is written to a tag by SoftDCS or an external system, information such as the host computer's IP address, hostname,

- OS: Linux required.
- Tag Book Service
  - Retrieve all user-defined tag information in a single view.

