



# BestValueSelector

GSF Time-Series Library Adapter

Data Quality Monitoring for openPDC, openHistorian, and SIEGate

# Adapter Overview

## Purpose

Produces a new signal by selecting the best values from multiple input signals, ensuring data quality in real-time monitoring systems.

## Input

Multiple concentrated time-series measurements



## Output

Single optimized measurement with quality indicators

# How It Works

1

## Receive Time-Aligned Frame

Measurements arrive within concentrator's lag time

2

## Evaluate Each Measurement

Check NaN values, zero values, and state flags against configured rules

3

## Select Best Measurement

Choose measurement with fewest bad flags or best quality indicators

4

## Publish Output

Output measurement value and optionally the source index

# Configuration Properties

Property	Type	Default	Description
<b>PublishBadValues</b>	Boolean	false	Publish measurement even if all inputs are bad
<b>BadFlags</b>	Flags	Multiple	Flags considered bad (AlarmHigh, BadData, etc.)
<b>HandleZeroAsBad</b>	Boolean	false	Treat zero values as bad measurements
<b>HandleNaNAsBad</b>	Boolean	true	Treat NaN values as bad measurements
<b>SupportsTemporalProcessing</b>	Boolean	false	Enable temporal processing support

# Selection Algorithm

## **PublishBadValues = FALSE (Default)**

- ✓ Filter out NaN values (if HandleNaNAsBad = true)
- ✓ Filter out zero values (if HandleZeroAsBad = true)
- ✓ Filter measurements with any configured bad flags

→ **Return first valid measurement or null**

## **PublishBadValues = TRUE**

- ① Sort by NaN status (non-NaN first)
- ② Then by zero status (non-zero first)
- ③ Then by flag count (fewest bad flags first)

→ **Return least-bad measurement**

# Output Measurements

**REQUIRED**

## Output Measurement #1

**TIMESTAMP**

Frame timestamp

**VALUE**

Selected measurement value

**STATE FLAGS**

Quality indicators from source

**OPTIONAL**

## Output Measurement #2

**TIMESTAMP**

Frame timestamp

**VALUE**

Source index (1-based)

**STATE FLAGS**

Quality indicators from source

# Real-World Use Cases

## POWER SYSTEMS

### Redundant PMU Sensors

Select best phasor measurement from multiple PMUs monitoring the same electrical point

## SCADA SYSTEMS

### Multi-Source Data Fusion

Combine data from multiple telemetry sources to create single reliable signal

## QUALITY MONITORING

### Sensor Failover

Automatic failover to backup sensors when primary sensors report bad data

## HISTORIAN SYSTEMS

### Data Archival

Store only highest-quality measurements for long-term trending and analysis