

# 4 Counter / Trigger Engine

## User manual

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# 4 Counter / Trigger Engine

The Pinebox provides **8 counters** (indices 0..7) and **8 triggers** (indices 0..7). Triggers monitor IO-Link process data values and increment or decrement a target counter when a configured condition is met.

The counter/trigger engine must be explicitly started and stopped.

## Counter Values and Labels

### Counter Values

GET /counter/values

Returns the current value of all 8 counters.

#### Response

```
{
  "counter0": 42,
  "counter1": 0,
  "counter2": 0,
  "counter3": 0,
  "counter4": 0,
  "counter5": 0,
  "counter6": 0,
  "counter7": 17
}
```

### Counter Config

GET /counter/config

Returns the label configured for each counter.

#### Response

```
{
  "counter0": { "label": "Part count" },
  "counter1": { "label": "Reject count" },
  "..."
}
```

### Set Counter Label

POST /<num>/counter/config/set

Sets the label for counter <num>.

#### Request body

```
{ "label": "Reject count" }
```

#### Response

```
{
  "error": 0,
}
```

```
"error_string": "no_error",
"label": "Reject count"
}
```

## Counter Reset

### Reset Counter

POST /<num>/counter/reset

Resets counter <num> to 0.

**Response:** [Error envelope](#)

### Reset All Counters

POST /counter/reset

Resets all 8 counters to 0 in a single call.

**Response:** [Error envelope](#)

## Trigger Configuration

### Get Trigger Config

GET /<num>/trigger/config/get

Returns the full configuration of trigger <num>.

### Response

```
{
  "enabled": true,
  "port": 0,
  "pd_index": 2,
  "mode": "rising_edge",
  "threshold": 100,
  "filter_ms": 10,
  "target_counter": 0,
  "operation": "increment"
}
```

Field	Type	Description
enabled	bool	Whether this trigger is active
port	int (0-3)	IO-Link port to monitor
pd_index	int	Index of the PD-in variable to monitor
mode	string	Trigger condition (see table below)
threshold	number	Threshold value for threshold_above / threshold_below modes
filter_ms	uint32	Debounce time in milliseconds
target_counter	int (0-7)	Counter to affect when the trigger fires
operation	string	increment or decrement

## Trigger modes

Mode	Description
rising_edge	Fires on low→high transition
falling_edge	Fires on high→low transition
both_edges	Fires on any transition
threshold_above	Fires when value rises above threshold
threshold_below	Fires when value falls below threshold

## Set Trigger Config

POST /<num>/trigger/config/set

Sets the configuration of trigger <num>. The request body uses the same fields as the GET response above.

**Response:** [Error envelope](#)

## Engine Control

### Start

POST /counter/start

Starts the counter/trigger engine. Triggers begin evaluating IO-Link process data.

**Response:** [Error envelope](#)

### Stop

POST /counter/stop

Stops the counter/trigger engine. Counter values are retained.

**Response:** [Error envelope](#)

### Status

GET /counter/status

Returns the current run state of the counter/trigger engine.

### Response

```
{ "running": true, "error": "none" }
```