

# Criteria v10 (With Flowmeter Data).

## Start Time

$$\blacktriangleright (F_{t_{start}+1} - F_{t_{start}} \neq 0) \vee (U_{t_{start}+1} - U_{t_{start}} \neq 0)$$

## End Time

$$\blacktriangleright \forall t \in [t_{end} + 1, t_{end} + 5], \frac{dU}{dt} \leq 0.005 \wedge \frac{dF}{dt} \leq 0.005$$

## Event Filter

$$\blacktriangleright (F_{t_{end}} - F_{t_{start}} > 0.6) \vee (U_{t_{end}} - U_{t_{start}} > 0.05)$$

## Combine Close Events

$$\blacktriangleright \text{condition: } t_{start+1} - t_{end} < 15s \vee (15 \leq t_{start+1} - t_{end} < 60s \wedge \text{number of valid flowmeter in } [(t_{end}, t_{end+1})] < 2)$$

## Adjust Start Time with Flowmeter Data

$$\blacktriangleright \text{Set the index of first valid flowmeter data in } [\max(t_{end}, t_{start} - 300), t_{start}] \text{ as the new } t_{start}.$$

# Criteria v10 (Without Flowmeter Data).

## Start Time

$$\blacktriangleright (F_{t_{start}+1} - F_{t_{start}} \neq 0) \vee (U_{t_{start}+1} - U_{t_{start}} \neq 0)$$

## End Time

$$\blacktriangleright \forall t \in [t_{end} + 1, t_{end} + 5], \frac{dU}{dt} \leq 0.005 \wedge \frac{dF}{dt} \leq 0.005$$

## Event Filter

$$\blacktriangleright (F_{t_{end}} - F_{t_{start}} > 0.6) \vee (U_{t_{end}} - U_{t_{start}} > 0.05)$$

## Combine Close Events

$$\blacktriangleright \text{condition: } t_{start+1} - t_{end} < 30s$$