

Revision: 1.01

<https://iot-portal.com> Yes

<https://iot-portal.com/app> Yes

Mobile: Yes

Desktop: Yes

Event Logic: Adding Conditions to Event Triggering

Typically, messages sent by alarm diallers are very important and can cause significant actions to be taken by those who receive them. False triggers not only waste credit but can also cause considerable stress to the recipients.

IoT Portal diallers have multiple safeguards against false triggers such as on-board signal processing and input hold timers. Some applications can also benefit from additional logic to rule out message sending unless certain conditions exist. This can be certain events happening together and/or particular events happening in a specific order.

This guide should help administrators set up basic conditional triggering but it is advisable to consult with an engineer from the portal for assistance.

The logic controls on the Live Screen are quite limited and there are more controls available to portal engineers. If you find the option you require is not available then please contact support:

support@iot-portal.com

Events

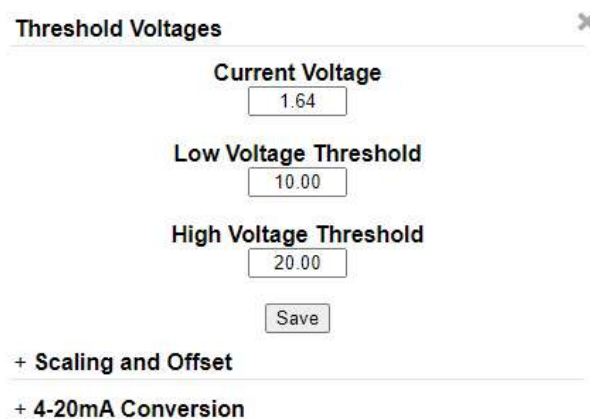
Events are typically generated by switches, sensors or voltage sources connected to the input terminals. They can also be generated by keypads, tag readers and certain internal processes such as a device reset.

There are 3 states an input can be in: LOW, NEUTRAL and HIGH.

When the terminal voltage is less than the threshold voltage it is in the LOW state and an **input LOW event is generated**.

If the terminal voltage rises above the low voltage threshold but below the high voltage threshold, it is in the neutral state. **No event is generated in the neutral state!**

If the voltage rises above the high voltage threshold it is in the HIGH state and an **input HIGH event is generated**.



Threshold Voltages

Current Voltage
1.64

Low Voltage Threshold
10.00

High Voltage Threshold
20.00

Save

+ Scaling and Offset

+ 4-20mA Conversion

The above doesn't take into account input hysteresis used to avoid repeated event generation when the terminal voltage is around the threshold.

The above applies equally to 1-wire sensors.

THEN Logic

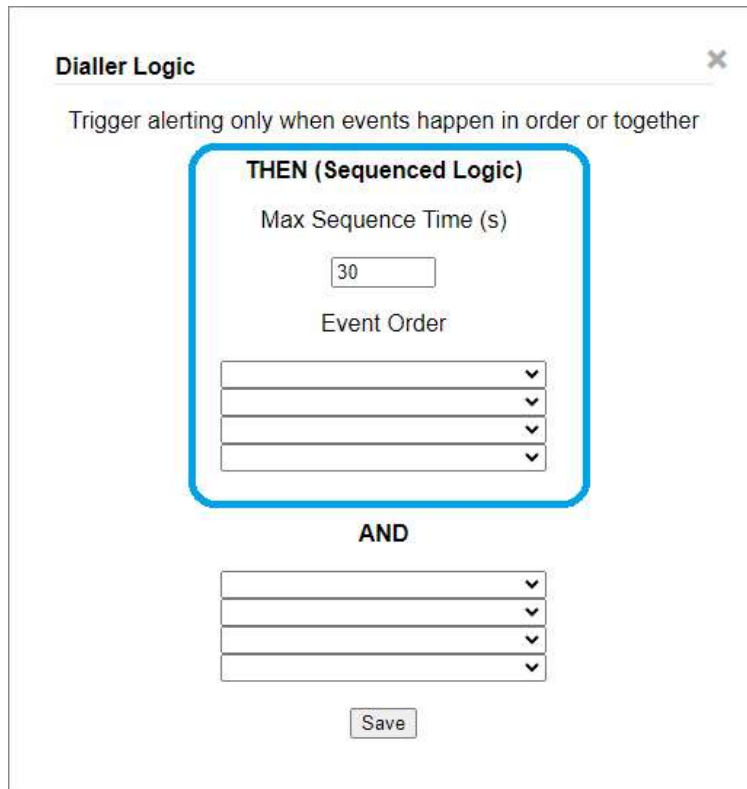
THEN logic necessitates events happening in a specific order before message sending/dialling will commence. The final event in the sequence is the event sent and the messaging follows rules for this input.

THEN Example: Messaging should start only when input 1 goes low, followed by input 2 going low and finally input 3 going low.

Firstly input 3 should be set up with the desired message and settings by clicking the options on the Input 3 Card on the Live Screen



Setting Up the Logic



A configuration window titled "Dialler Logic" with a close button (X) in the top right corner. Below the title, it says "Trigger alerting only when events happen in order or together". The main content is a blue-bordered box containing "THEN (Sequenced Logic)" settings. Inside this box, there is a "Max Sequence Time (s)" field with the value "30" and an "Event Order" section with four empty drop-down menus. Below the blue box, the word "AND" is centered, followed by another set of four empty drop-down menus. At the bottom of the window is a "Save" button.

The controls in the blue box affect the THEN logic settings

A maximum time limit for the sequenced events is required and should be specified. The order of events should be selected using the drop-down menus.

The Hidden Trap!

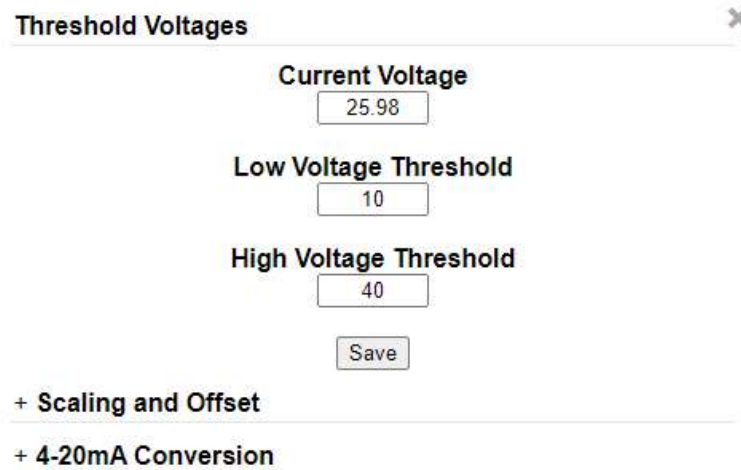
Consider a switch connected to input 1. Closing the switch will trigger input 1 low. This may be the first event in the sequence. Suppose the next event in the sequence is input 2 low, however, the switch on input 1 has been released generating an input 1 high event prior to the input 2 low. This would not be a valid sequence and will not result in the messages being sent.

There are two ways around this issue. Firstly, if the user is confident input 1 will go low and then high (keeping in mind the hold time which is typically 2s in each direction) before input 2 is pulled low, then it is appropriate to specify the events as follows:

IP1 Low, IP1 High, IP2 Low, IP2 High, IP3 Low etc...

However, a more suitable option is usually to adjust the voltage thresholds to keep the input in either the Low or Neutral states (as neutral states do not generate events).

Where a switch is used (i.e. in digital mode), the upper voltage should be set to a value that will never be exceeded. Typically, this is 40V*.



Threshold Voltages ✕

Current Voltage
25.98

Low Voltage Threshold
10

High Voltage Threshold
40

Save

+ **Scaling and Offset**

+ **4-20mA Conversion**

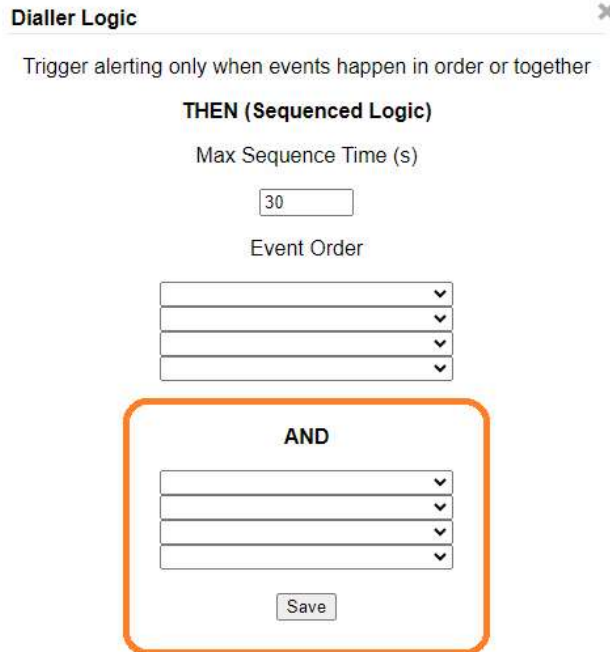
Above shows a 'High' voltage reading but the threshold has been adjusted higher than this making the 'High' state impossible to achieve. Thus, this input can only be Low or Neutral.

There can be multiple sequences for each device and sequences can be up to 8 events. The Live Screen implementation does not allow for this. Please contact support for more complex THEN Logic.

* **in digital mode** the voltage measured at the chip is not directly related to the actual terminal voltage. It is the equivalent voltage at the chip if that voltage was fed into the terminals. The voltage at the terminals goes through a voltage divider before being fed into the chip.

AND Logic

AND Logic requires that every state specified must be present on the inputs before a message will be sent. It is the message and settings from the last event to happen that completes the AND condition, that will be used as the basis for sending the message; if input 1, 2 and 3 must all be low to trigger message sending, the last one to go low will be the one which sends the message.



Dialler Logic ✕

Trigger alerting only when events happen in order or together

THEN (Sequenced Logic)

Max Sequence Time (s)

30

Event Order

AND

Save

Events in the orange box must all occur together to trigger message sending

Any event not specified can still send messages, therefore, as with the THEN logic, it might be appropriate to ensure the input can only be one state and neutral (e.g. low and neutral). If input 1 low is a requirement, input 1 going low will not be able to send messages unless the AND condition is met. However, input 1 going high will still be able to send a message, therefore, it may be appropriate to ensure input 1 can only return to neutral by adjusting the high threshold value.

Multiple AND conditions of up to 8 events can be handled by the portal. Please contact support for assistance if more than 1 AND condition is required.

The portal will contact the remote device to check the state of the physical inputs/sensors when an AND event is received. Should the portal fail to be able to read the input states, the message will be sent anyway rather than the system being prone to fail to send messages. Therefore, AND logic messages are not guaranteed to occur only when AND conditions are met.

Limitations

The Live Screen has restricted access to the full array of Logic Controls. Please contact the portal if this is too restrictive.

AND logic requires Live communication with the remote device. Should this fail, after an appropriate AND event is received, the message will be sent anyway regardless of the AND condition.

Inputs that might experience Low, Neutral and High states may require an adjustment to threshold values to ensure the logic behaves as expected.

Remote Monitoring Systems

Security

Not Applicable

Threats to Existing Installations and Recommended Testing

Setting up logic will inhibit normal message sending on any input affected.