

Topic: Handle power failure
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Date: 2024.04.24
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Purpose: Demonstrate how to use the logic engine to pause the controller on a power failure.

Preface:

The setup described in this document is based on the controller having a UPS backup of the power to continue the run of the controller, but not power to run the pump. On power failure the controller shall enter paused mode and revert to the original state (auto or manual) when the power comes back.

UPS state input:

The sensor decoder is used to read the signal from the UPS system as ON when there is power from the grid and OFF when power goes off the grid.

Control of Irrigation Engine State:

It is assumed the controller is either in manual or auto state. Other states are rare and the operator will be present.

Variables:

ID	Description	State	Type	Source ID	Source sub ID	Value
 1	State of irrigation	Unknown	We engine state	0	0	0
 2	State of UPS	Ok	IO value	679088867	1	1
 3	Old state of irrigation engine	Unknown	Local	0	0	0
 4	In power failure	Ok	Local	0	0	0

Variable #1 is the state of the irrigation engine.

Variable #2 is the input from a sensor decoder. It is assumed to be 1 when there is normal power, 0 when no power from the grid.

Variable #3 is the old state of the irrigation engine.

Variable #4 is a flag for being in power off.

Block:

```
▼ if: !$2 && !$4 # UPS state = power failure

    log info: Power failure. Engine state: $1

▼ if: ($1 == 1) || ($1 == 2) # Pause if in auto/manu

    set: $3 = $1 # Save state

    set: $4 = 1

    log info: Set irrigation on pause

    action: PATCH /we/engine/targetState=3

▼ while: !$2 #Wait until power comes back

    sleep: 10

    log info: Power is back. Resume to state: $3

    action: PATCH /we/engine/targetState=$3

    set: $4 = 0
```

The first “if” statement checks if the signal from the UPS has been set to NO power.

The second “if” check the state is either auto or manual. If so, it will pause the irrigation engine.

The while loop just awaits the power to come back. When that happens, it will resume the irrigation engine to the previous state.

Sensor decoder setup:**IO configuration:**

Protocol	mk3		
Type	input		
Description	UPS state signal		
Expression to modify interrupt value stored in object	x gets replaced by value		
Secondary expression, usage depends on context	x gets replaced by value		
Reset io value to 0 after X seconds without interrupt, 0 = indefinitely	0		

GENERAL	INTERRUPTS	TIMINGS
Input power source		
12V		
Input type		
Switch		
Sensor operation mode		
Continuous mode, constant on		
Current control	1.15	mA
23		
Digital trigger level		
1/4		
Digital debounce time	488	us
2		

GENERAL	INTERRUPTS	TIMINGS
Interrupt rate limit (min. time between interrupts)		s
1		
Minimum value change (since last interrupt) for interrupt to be sent		
0		

The setting above will update the value every 1 seconds if it has changed.

Send interrupt for selected values

- ☒ Measurement Value
- ☐ Measurement Minimum Value
- ☐ Measurement Maximum Value
- ☐ Digital count
- ☐ Milliseconds since last digital input
- ☐ Attention

This setup ensures the sensor decoder sends interrupt when the reading changes.