SLATE[™] INTEGRATED COMBUSTION MANAGEMENT

Digital I/O Module Monitored Relays



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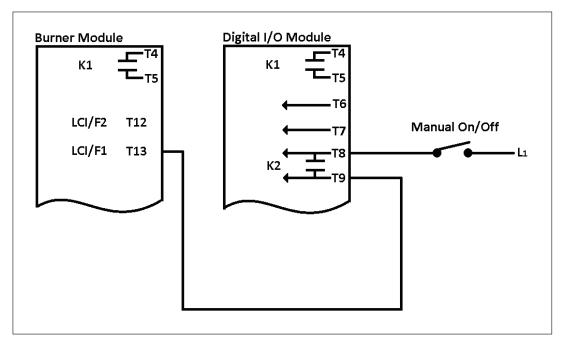
So what is the difference between monitored and unmonitored relay outputs? The unmonitored relay output (K1) is a simple dry contact. It is commanded to open or close by the wire sheet as needed, but that is about its limit. The application for such a relay is usually relatively straight forward and is generally not part of a critical function in the sequence.

But what if the function is more "critical" in nature and the designer would like to program some auxiliary conditions (besides its sequential order in the wire sheet) such as the presence/absence of voltage on one of the relay terminals? It may be required to alert the operator that a particular relay and therefore a particular function has failed. Relays K2-K6 on the Digital I/O Module are opto-isolated and each of their terminals are monitored. This means the designer can choose to use the existence or non-existence of voltage on relay terminals as a condition for opening or closing that relay.

In this example, the application requires that a manual switch controls the demand for the burner to fire,



but not before 10 seconds has elapsed after closing the Manual On/Off switch. This scenario uses a monitored relay on a Digital I/O Module to create the timer function.



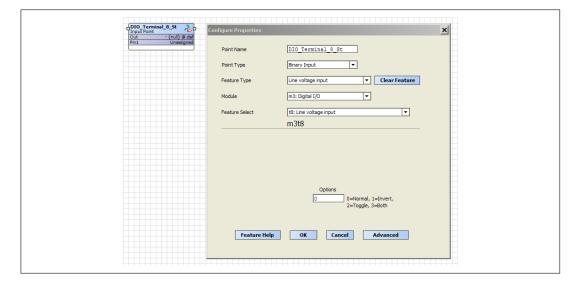
Wiring:

IN THIS INSTANCE THE DEMAND ON THE BURNER MODULE WILL COME VIA T13 (LCI/F1). VOLTAGE IS ROUTED THROUGH K2 OF THE DIGITAL I/O MODULE WHICH IS A MONITORED RELAY.

Wire Sheet:

Here the T8 terminal state register is used for indication of voltage on the terminal. The register will have a value of 1 if there is voltage on the terminal or 0 if there is no voltage on the terminal. The voltage on the T8 terminal must equal Vref on the Digital I/O module (and in this example the Burner Module as well) in order for the register to have a value of 1.

- Drag and drop a Binary Input block from the Physical Points category in the Niagara AX palette. An input block is used because the state of the terminal is entering the wire sheet.
- Name the block (This example uses DIO_Terminal_8_St).
- Configure the block. Remember, we are interested in knowing the state of the terminal (either powered or unpowered).
 - Feature: Line Voltage input. Line Voltage=Vref.
 - Module: Select Digital I/O module since we are interested in its T8 state.
 - Feature: t8:Line voltage input



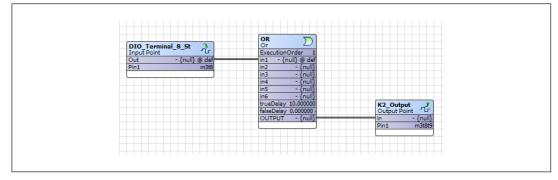
• Link the output of the "DIO_Terminal8_St" block to an OR block (used the OR block for its simple timer function, but could use a "RunTimeAccumulate" block as well) and configure its "true delay" to 10 seconds.

DIO_Termin Input Point	al_8_St	OR D Or ExecutionOrder 1	OR						×
Out Pin1	- {null} @ def m3t8	in1 - {null} @ def in2 - {null}	Block Descr	iption					
PIN1	mate	in3 - {null}	Block Name:	OR		Block	Type: Or		
		in4 - {null} in5 - {null}					r		
		in6 - {null}	Description:	6 Input OR or	NOR o	peratio	n.		
		trueDelay 10.000000							_ [
		falseDelay 0.000000 - OUTPUT - {null}	Block Config	juration					- 1
			Name	Туре	Value	Negate	Show Property	Description 😝	
			in6	CONNECTOR_ONLY		false	YES	Input_6 for OR/N	
			trueDelay	CONSTANT	10.0		YES	Time for which the	
			falseDelay	CONSTANT	0.0		YES	Time for which the	
			OUTPUT	OUT		false		Output for OR/NO	
			•	[[]				•	
			Configuratio	on Editor					
			Property Na	me: trueDelay		Pro	operty Type: 0	ONSTANT -	
			Property Val			_	· · · · <u>·</u>		
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			Help				ок	Apply Cancel	

- Next, drag and drop a Binary Output block from the Physical Points category in the palette.
- Name it (This example uses K2_Output).
- Configure the block.
 - Feature: Relay output.
 - Module: Digital I/O.
 - Feature: k2: Relay output t8,t9.

Order of south Configure Properties X Point Name K2_Output Point Name K2_Output Point Type Binary Output Y Clear Feature Point Name K2_Output Y Clear Feature Point Name K2_Output Y Clear Feature Point Name K2_Output Y Clear Feature Point Type Relay output Y Clear Feature Module m3: Digital I/O Y Peature Select k2: Relay output t8,19 Y M3t8t9 Mathematical Select K2: Relay output t8,19 Y Mathematical Select Mathemati	K2 Output 2			
Point Name <u>K2_Output</u> Point Type <u>Binary Output</u> Feature Type <u>Relay output</u> Module <u>m3: Digital 1/0</u> Feature Select <u>k2: Relay output 18,19</u> <u>m318819</u>	in - {null}	Configure Properties		×
Feature Type Relay output Clear Feature Module m3: Digital 1/0 Feature Select Relay output 18,19 m3t8t9 m3t8t89 m3t8t89 <lim3t8t8< li=""></lim3t8t8<>	Pin1 Unassigned	Point Name	K2_Output	
Module m3: Digital I/O • Feature Select k2: Relay output t8,19 • m3t8t9		Point Type	Binary Output	
Feature Select k2: Relay output 18,19 T M31819		Feature Type	Relay output	
m3t8t9		Module	m3: Digital I/O	
		Feature Select	hannandiananiinaniinaniinaniinaniinaniin	
Feature Help OK Cancel Advanced			m3t8t9	
Feature Help OK Cancel Advanced				
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Feature Help OK Cancel Advanced				
		Feature Help	OK Cancel Advanced	

• Link the output of the "OR" block to the "K2_Output". The "OR" block will send a value of 0/1 (open/close) to the Digital I/O module K2 relay 10 seconds after the Manual On/Off switch is closed and voltage is present on T8 of the Digital I/O module.



For More Information

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Honeywell Process Solutions

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