
EnviroRanger ERS 500 Control Strategy Implementation

Trigger Based Relays

Objective: To configure the EnviroRanger ERS 500 to operate on-board relays based on alarm/event triggers.

Equipment:

- EnviroRanger ERS 500 Level Controller (software revision 5.01 or greater)
- EnviroRanger ERS 500 Infra-red hand programmer (or other instrument configuration method)
- Device input on which the trigger is to be based (if applicable)

While every effort was made to verify the following information, no warranty of accuracy or usability is expressed or implied.

Overview:

The EnviroRanger ERS 500 is capable of initiating an action based on a selected parameter value reaching a specified setpoint via the alarm and event trigger subsystem. This trigger may be based on any internally generated value such as volume or time, or based on the state or value of an input to the ERS 500 from a connected device.

A trigger may be used to:

- Record the occurrence of an event.
- Initiate data communications to indicate the occurrence of an event.
- Log monitored data when an event occurs (expansion memory and data logging feature required).

However, the ERS 500 can also operate an on-board relay based on a triggered event to activate additional alarm or control equipment. This guide details how to implement trigger based relay operation.

Trigger Based Relay Parameters:

The following application examples require EnviroRanger ERS 500 parameter functions that are only available in software revision 5.01 and greater. Consult your Siemens Milltronics equipment supplier if you have a previous software revision installed.

P110 Level Source
When a Relay Function is set for "Triggered" operation (P111 = 66), this parameter identifies the "Trigger Number" that the relay operation is to be based on. Values: 1 to 32.

P111 Relay Control Function
Sets the operation for the relay specified. "Triggered" operation has been added (P111 = 66) to existing functions. This value must be entered before the "Level Source" parameter (P110) switches to the "Trigger Number" function.

When this function is set, the relay state corresponds to the "Trigger State" (P424) for the "Trigger Number" (P110) specified. If P424 = 0, the relay is negated. If P424 = 1, the relay is asserted.

Note: For a trigger to be set, a "Transducer Type" must be specified. (P004 ≠ 0).

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APPLICATION GUIDE

Application Examples:

ERS-500 Relay Operation Based On A Discrete Input Status

For this example, an EnviroRanger ERS 500 is required to operate a solenoid valve to divert treatment plant influent if the upstream headworks reaches a critical high level. A Pointek CLS 200 level switch is used to provide the high level input.

To configure the ERS 500 on-board relay to operate the solenoid valve control relay based on the CSL 200 status, set up an Alarm and Event Trigger based on the discrete input status, and then set up a relay to operate based on the Alarm and Event Trigger.

Trigger # 1 Based on Discrete Input #5 Status

Parameter	Index	Value	Description
P420	1	275	Defines Trigger 1 to be based on a Scaled Discrete Input (P275)
P421	1	5	Identifies that the trigger is based on discrete input # 5
P422	1	1	Sets the trigger to be asserted when the discrete input status = 1
P423	1	0	Sets the trigger to be negated when the discrete input status = 0

Relay # 3 Based On Trigger # 1 Status

Parameter	Index	Value	Description
P111	3	66	Sets Relay 3 operation to be based on an Alarm/Event trigger
P110	3	1	Relay 3 alarm event Trigger Number = 1

ERS-500 Relay Operation Based On A Discrete Input Pulse Count

For this example, an EnviroRanger ERS 500 is required to trigger an alarm indicator when a bar screen rake has operated 5,000 cycles, to indicate a system overhaul is due.

To configure the ERS 500 on-board relay to operate the overhaul indicator, set up an Alarm and Event Trigger based on the discrete input pulse count, and then set up a relay to operate based on the Alarm and Event Trigger.

Trigger # 2 Based on Discrete Input # 7 Pulses

Parameter	Index	Value	Description
P420	2	275	Defines Trigger 2 to be based on a Scaled Discrete Input (P275)
P421	2	7	Identifies that the trigger is based on discrete input # 7
P422	2	5000	Sets the trigger to be asserted when the P275 count = 5000
P423	2	0	Not used – To reset the pulse trigger, set P275 = 0

Relay # 5 Based On Trigger # 2 Pulse Total

Parameter	Index	Value	Description
P111	5	66	Sets Relay 5 operation to be based on an Alarm/Event trigger
P110	5	2	Relay 5 alarm event Trigger Number = 2