APPLICATION GUIDE

AG011126

EnviroRanger ERS 500 Control Strategy Implementation

Variable Rate Data Logging

Objective: To configure the EnviroRanger ERS 500 to vary the rate of data logging based upon a triggered event.

Equipment:
- EnviroRanger ERS 500 Level Controller (software revision 5.01 or greater)
- EnviroRanger ERS 500 Memory Expansion Card
- EnviroRanger ERS 500 Data Logging functions enabled
- EnviroRanger ERS 500 Infra-red hand programmer (or other instrument configuration method)

Overview:

The EnviroRanger ERS 500 is capable of logging data based upon a fixed time interval and/or triggered event. Fixed time interval (periodic) logging is ideal for continuous trending purposes. For example, the pumped volume total for a lift station may be logged hourly to trend flow in that node of a wastewater collection system. Alternatively, triggered event logging is ideal for recording data during unusual events to avoid using up data log memory during normal conditions.

However, the ERS 500 can also log data at one rate during normal conditions and at a different rate during unusual conditions. This guide details how to implement variable rate data logging to meet these requirements.

Variable Rate Trigger Parameters:

The following application example requires EnviroRanger ERS 500 parameters 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.

P425 Variable Rate Switch
Enables an event-based trigger to switch between two different logging rates (P426 and P427).
Enter the trigger index number to activate, factory setting = 0, disabled

P426 Variable Rate – Low
Interval between data logs during low rate logging.
Enter value, factory setting = 00:00:00 (hh:mm:ss)

P427 Variable Rate – High
Interval between data logs during high rate logging.
Enter value, factory setting = 00:00:00 (hh:mm:ss)

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Siemens Milltronics Process Instruments Inc.
1954 Technology Drive, P.O. Box 4225, Peterborough, ON. Canada K9J 7B1
Tel: (705) 745-2431 Fax: (705) 741-0466 www.milltronics.com
E-mail: techpubs@milltronics.com

Application Example:

Variable Rate Data Logging For Normal versus Storm Flow Rates

For this example, an EnviroRanger ERS 500 monitors open channel flow entering a wastewater treatment plant that also treats stormwater within the same facility. During normal flow conditions the monitored head in the channel is well under 18 cm; however, during storm conditions it rises well above 20 cm.

The plant manager wants to log the flowrate into the plant every 15 minutes during normal conditions and every 30 seconds during storm conditions.

To configure the variable rate logging functions to meet these requirements:

- Set up an Alarm and Event Trigger based on head
- Set up a Variable Rate Trigger to switch between the normal and storm condition data logging rates
- Set up a Data Log to record the flowrate at the current logging rate

Alarm / Event Trigger Based on Head

Parameter	Index	Value	Description
P420	1	926	Trigger 1 = Reading parameter “Head” (P926)
P421	1	1	Identifies that the Head source is from Transducer 1
P422	1	20	Sets the On Setpoint for the trigger to 20 cm (units per P005)
P423	1	18	Sets the Off Setpoint for the trigger to 18 cm (units per P005)

Variable Rate Trigger

Parameter	Index	Value	Description
P420	2	425	Trigger 2 = Variable Rate Switch parameter (P425)
P421	2	1	Not used (Primary index not required)
P422	2	00:00:00	Activate trigger immediately when asserted (no delay)
P423	2	(read only)	Special function when P420 = 425; reports logging rate in use
P425	2	1	Variable Rate Switch; switch logging rates on Trigger 1 (Head)
P426	2	00:15:00	Variable Rate – Low; log every 15 minutes when Head trigger is off
P427	2	00:00:30	Variable Rate – High; log ever 30 seconds when Head trigger is on

Data Log

Parameter	Index	Value	Description
P440	1	1	Enable a data log
P441	1	925	Log the value of Reading parameter “Flow” (P925)
P442	1	1	Identifies that the Flow source is from Transducer 1
P443	1	1	Log the instantaneous value (do not average)
P444	1	1	If log is full, overwrite oldest log with new log
P445	1	2	Log data based on Trigger 2 (at the rate held in P423)
P446	1	1	Log data when the P445 Trigger is initiated (interval starts)