

Application Note

Using the RANGER Fast Reporting Feature for Report on Exception

Product Family	Hardware Revision	Firmware Revision	Applicable Firmware	Applicable Toolkit Software
RANGER	ALL	ALL	ALL	v1.0.4.01 and up

APPLICATION PURPOSE

The Fast-Reporting feature is a useful tool which can be used in conjunction with the standard reporting time interval as a means of monitoring data points more closely, especially those that are deemed to be more critical than others. The Fast-Reporting feature can sample the sensor input(s) much more frequently than the configured reporting time interval. If a value were to cross the configured threshold setting, a report on exception can be triggered.

There are two settings that drive the frequency of the sensor sampling and reporting. As a default setting, the sample interval and report interval are equal. In other words, with every set of sensor readings, the data is transmitted to the server. However, if the sample interval were to be configured to be less than the report interval, then the RANGER will read the input of the attached sensor(s) at the faster sample interval rate.

For instance, consider a RANGER connected to a Modbus device that is monitoring pressure and level. The RANGER can be configured so that it reports the Modbus registers from the device every 5 minutes, given that everything is within the expected range. The sample interval can be configured to sample the sensors as frequently as every 5 seconds.

This manner of operation allows for the RANGER to catch when a register value reaches a critical threshold and report on exception. In the Modbus example if the Modbus register containing pressure crosses the threshold configured in the fast-reporting table, the RANGER will trigger an immediate report of all sensor data to the server. Additionally, the RANGER can be configured to report more frequently while the sensor reading remains beyond the configured threshold.

ACCESS TO FAST REPORTING

Once logged in to the SignalFire Cloud, click on the desired RANGER on the HOME page. The Fast-Reporting option will be present on the Node Status tile (given that you are given device admin privileges). Clicking on Fast Reporting should bring you to a window shown in the image below:

FAST REPORTING TRIGGERS: RANGER_MODBUS_DEMO
APPLY
EXIT

Current Settings on Node

Metric	Value	Comparison	Threshold
None	0	N/A	0
None	0	N/A	0
None	0	N/A	0
None	0	N/A	0

FAST REPORTING SETTINGS

Fast Reporting is Disabled
Current State: Inactive

Trigger when Any Fast Reporting triggers are TRUE

Remain Fast Reporting while Fast Reporting is Triggered

Fast Reporting Duration (seconds) 3,600

REPORT SETTINGS USED WITH FAST REPORTING

Report Interval (seconds) 300
Sensor On Time (seconds) -1
☒ Always On

CURRENT SETTINGS ON NODE

The Current Settings on Node table allows you to configure which register value it is that you want to monitor, which can be configured under Metric. Any of the sensor inputs can be configured as triggers

Value is the current reading of the selected metric by the RANGER.

Comparison allows you to insert a comparative operand in which you want to your setpoint to be for your threshold. For example, a user may want the RANGER to start fast reporting on a device that is reading 4 to 20mA once it reaches greater than 12mA. In which case, a ">" sign would be needed under Comparison and 12mA under Threshold.

FAST REPORTING SETTINGS

Under Fast Reporting Settings, the option to enable or disable Fast Reporting is available. There is also the option for when the user would want Fast Reporting to occur: whether any of the threshold configured rows of under Current Settings on Node is true or when ONLY ALL are true.

The option in which the user can decide when Fast Reporting should remain gives the choice between remaining Fast Reporting only when the trigger condition is satisfied (in which case, Fast Reporting Duration is unavailable.)

or only during the configured Fast Reporting time duration, (in which case, the Trigger When option becomes unavailable) which is the time interval in which Fast Reporting is configured to perform under.

REPORT SETTINGS USED WITH FAST REPORTING


Under this setting, there are two options: Report Interval and Sensor On Time.

Report Interval is the frequency at which data is obtained and reported under the configured Fast Reporting Duration. For example, if the Fast-Reporting Duration is configured to be 3600 seconds (1 hour) and the Report Interval in 60 seconds (1 minute), then when Fast Reporting occurs, a report is made every minute for 1 hour.

Sensor On Time can be configured to be different while in fast reporting. For example, it may be desired that the fast reporting triggers set the sensor always on for the fast reporting duration (in which the RANGER internally powers the connected sensor).

NOTE: When using Sensor Always On, battery life can be reduced when using this function. Consult with SignalFire regarding this configuration with high current draw instruments, such as radar level gauges.

The Fast Reporting feature can also be accessed from the SignalFire Ranger Toolkit by opening the main page, clicking on “settings” then “Fast Reporting”. The Fast Reporting window will appear with the same configuration options as mentioned previously, shown with the option to enable or disable the feature:


Fast Reporting
✕

Fast Reporting ☐ Enabled ☒ Disabled
Disabled

Fast Reporting Triggers

Source	Value	Comparator	Threshold
None			
None			
None			
None			

Fast Reporting Settings

Trigger Fast Reporting when ANY Fast Reporting Triggers are TRUE.

Remain Fast Reporting while Fast Reporting is triggered.

Fast Reporting Duration (h:mm:ss) 1:00:00

Report Settings used in Fast Reporting

Report Interval (hh:mm:ss) 5:00

Analog Sensor On Time (sec) ☐ Sensor Always On

Set to Defaults
Refresh
Apply

Revision History

Revision	Date	Changes/Updates
1.0	08/17/2022	Initial Release for Using the RANGER Fast Reporting Feature for Report on Exception