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SENSeOR AMS01 Switchgear Temperature And Partial Discharge Monitoring Solution Instruction Manual

SENSeOR AMS01 Switchgear Temperature And Partial Discharge
Monitoring Solution Instruction Manual

24/7 ASSET MONITORING SOLUTION ENERGY

AMS01 SD CARD FILE MANAGEMENT

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## OVERVIEW

This document provides a description of the SD card files content generated by the AMS01 reader. All historical system events, temperature and partial discharge measurements are stored within these files. Data provide insights into the Behavior and performance of the system. Measurement data stored in the SD card serve as a valuable resource for data analysis. Other files containing the `trace' filename keyword are automatically generated by the system but are exclusively reserved for Sensor use.

SD CARD CONTENT EXAMPLE

Here is an example of content extracted from an SD card of an AMS01 reader:
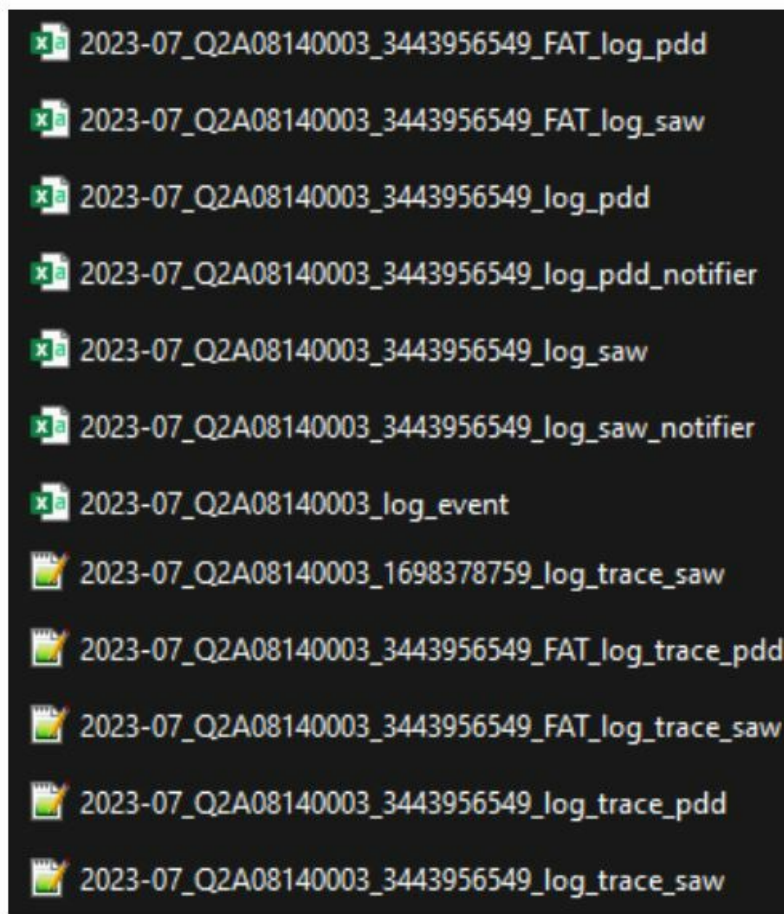
FILE DESCRIPTION

EVENT LOGGING FILE (_LOG_EVENT.CSV)

This file contains all historical system events that have occurred on the AMS01 reader.

Header format: DATE_TIME ; TIMESTAMP ; TYPE ; VALUE

Parameters:
– DATE_TIME: Date time in dd/mm/aaaa hh:mm of the logged event.
– TIMESTAMP: Timestamp value in second of the logged event.
– TYPE: Type of event.
– VALUE: Event type value.

Event type (TYPE)	Description	Possible values (VALUE)
RESET	A reset of the reader occurred.	- POWER - HARDWARE - SOFTWARE - WATCHDOG_CM7 - WATCHDOG_CM4 - OTHER
MEAS_MODE_TRIGGERED	An action of entering or leaving the measurement mode was done.	- **TRUE**: AMS01 reader starting temperature and partial discharge measurement cycles - **FALSE**: AMS01 reader leaving measurement mode for system configuration and installation
MODBUS_MODE_CHANGE	A change of compatibility mode was performed resulting in a change of the Modbus table.	- **AMS01**: Switched to AMS01 compatibility mode - **HTR02**: Switched to HTR02 compatibility mode
FAT_MODE_TRIGGERED	System test measurements were performed.	Always **TRUE**
UPDATE_REQUEST	A firmware update of the AMS01 reader has been requested.	**AMS01 firmware version** used to enter in DFU mode (Device Firmware Update)
UPDATE_DONE	Firmware update of the AMS01 reader has been successfully completed.	**New updated AMS01 firmware version**
FACTORY_RESET	The AMS01 reader has been factory reset. All reader configuration and installation data have been lost.	-

SAW TEMPERATURE MEASUREMENT LOGGING FILE (_LOG_SAW.CSV)

This file contains all past measurement batch from configured and commissioned temperature sensors. Temperature measurements are also recorded on SD card during System tests. In this case, the file name contains the _FAT keyword.

Header format: DATE_TIME ; TIMEPSTAMP ; SAW_DATA_#UNIT_#ANT-ID_#SENSOR-ID_#PROD-REF ; …
_#UNIT depends on reader's temperature unit setting: _C when set to Celsius or _F when set in Fahrenheit.
_#ANT-ID: Targeted antenna pair for the temperature measurement from 1 to 5.
_#SENSOR-ID: Sensor slot assigned to the antenna pair for the temperature measurement from 1 to 9.
_#PROD-REF: Targeted product reference for the temperature measurement, for example `TSAEV1101'.

Example: For a temperature sensor TSAEV1101 configured in °C on the antenna pair 1 position 1, header will be described as below: DATE_TIME ; TIMEPSTAMP ; SAW_DATA_C_1_1_TSAEV1101 ; …

Parameters: –

DATE_TIME: Logging date time in dd/mm/aaaa hh:mm of the measurement batch.
– TIMESTAMP: Timestamp value in second of the measurement batch.
– SAW_DATA_#UNIT_#ANT-ID_#SENSOR-ID_#PROD-REF: Measured temperature value in Celsius or Fahrenheit scale of the SAW sensor {#ANT-ID ; #SENSOR-ID}.

PARTIAL DISCHARGE MEASUREMENTS LOGGING FILE (_LOG_PDD.CSV)

This file contains all historical measurement batch from configured partial discharge probes. Partial discharge measurements are also recorded on SD card during System tests. In this case, the file name contains the _FAT keyword.

Header format:
DATE_TIME ; TIMESTAMP ; PDD_#PROBE-ID_#LEVEL-ID_INDICATOR ; PDD_#PROBE-ID_#LEVELID_RATIO ; PDD_#PROBE-ID_#LEVEL-ID_EPPC ; PDD_#PROBE-ID_#LEVEL-ID_RATIO_X_EPPC ; …

_#PROBE-ID: Targeted PD probe antenna from 1 to 5.
_#LEVEL-ID: Offset level of the partial discharge measurement activity from L1 to L3.

Example:
For offset level 2 data on PD probe 1 configured, header will be described as below:
DATE_TIME ; TIMESTAMP ; … ; PDD_1_L2_INDICATOR ; PDD_1_L2_RATIO ; PDD_1_L2_EPPC ; PDD_1_L2_RATIO_X_EPPC ; …

Parameters:
– DATE_TIME: Logging date time in dd/mm/aaaa hh:mm of the measurement batch.
– TIMESTAMP: Timestamp value in second of the measurement batch.
– PDD_#PROBE-ID_#LEVEL-ID_INDICATOR: Instantaneous partial discharge activity indicator.

PD indicator value Meaning
0 No partial discharge activity detected
1 Low partial discharge activity detected
2 Medium partial discharge activity detected
3 High partial discharge activity detected

PDD_#PROBE-ID_#LEVEL-ID_RATIO: Level of the measured ratio in dB.
PDD_#PROBE-ID_#LEVEL-ID_EPPC: Level of measured peaks estimated per cycle in ppc.
PDD_#PROBE-ID_#LEVEL-ID_RATIO_X_EPPC: Value of the partial discharge level corresponding to the multiplication of Ratio by EPPC.

SAW TEMPERATURE NOTIFIER LOGGING FILE (_LOG_SAW_NOTIFIER.CSV)

This file contains all historical temperature notifier status recorded.

Header format: DATE_TIME ; TIMESTAMP ; SAW_NOT_#NOT-ID_OVH ; SAW_NOT_ #NOT-ID_DEV ; … _#NOT-ID corresponds to the temperature notifier ID from 0 to 9.

Example: For the temperature notifier 1, header will be described as below: DATE_TIME ; TIMESTAMP ; SAW_NOT_1_OVH ; SAW_NOT_1_DEV ; …

Parameters:
– DATE_TIME: Logging date time in dd/mm/aaaa hh:mm of the temperature notifier value batch.
– TIMESTAMP: Timestamp value in second of the temperature notifier value batch.
– SAW_NOT_#NOT-ID_OVH: Overheating status of the temperature notifier.

– SAW_NOT_#NOT-ID_DEV: Deviation status of the temperature notifier.

Temperature notifier value Meaning
0 No concern
1 Warning threshold triggered
2 Alarm threshold triggered

PARTIAL DISCHARGE NOTIFIER LOGGING FILE (_LOG_PDD_NOTIFIER.CSV)

This file contains all historical partial discharge notifier status recorded.

Header format: DATE_TIME ; TIMESTAMP ; PDD_NOT_#NOT-ID_INDICATOR ; … _#NOT-ID corresponds to the partial discharge notifier ID from 0 to 4.

Example: For the partial discharge notifier 1, header will be described as below: DATE_TIME ; TIMESTAMP ; PDD_NOT_1_INDICATOR ; …

Parameters:
– DATE_TIME: Logging date time in dd/mm/aaaa hh:mm of the partial discharge notifier value batch.
– TIMESTAMP: Timestamp value in second of the partial discharge notifier value batch.
– PDD_NOT_#NOT-ID_INDICATOR: Current indicator value of the partial discharge notifier.

PD notifier indicator value Meaning
0 No partial discharge activity detected
1 Low partial discharge activity detected
2 Medium partial discharge activity detected
3 High partial discharge activity detected

ENVIRONMENTAL SENSOR LOGGING FILE (_LOG_ENV.CSV)

This file contains the measurement data performed with the external environmental sensor (reference AMS01-ENV-SENS or EXT-ENV-SENS).

Header format: DATE_TIME ; TIMESTAMP ; TEMPERATURE_#UNIT ; HUMIDITY ; DEW_POINT_#UNIT _#UNIT depends on reader's temperature unit setting: _C when set to Celsius or _F when set in Fahrenheit.

Example: For a temperature unit set to Celsius, header will be described as below: DATE_TIME ; TIMESTAMP ; TEMPERATURE_C ; HUMIDITY ; DEW_POINT_C

Parameters:
– DATE_TIME: Logging date time in dd/mm/aaaa hh:mm of the external environmental sensor measurement.
– TIMESTAMP: Timestamp value in second of the external environmental sensor measurement.
– TEMPERATURE_#UNIT: Measured ambient temperature value in Celsius or Fahrenheit scale.
– HUMIDITY: Measured relative humidity value in %rH.
– DEW_POINT_#UNIT: Measured dew point in Celsius or Fahrenheit.

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Documents / Resources

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AMS01 Switchgear Temperature And Partial Discharge Monitoring Solution, AMS01, Switchgear Temperature And Partial Discharge Monitoring Solution, Temperature And Partial Discharge Monitoring Solution, Partial Discharge Monitoring Solution, Discharge Monitoring Solution, Monitoring Solution, Solution

References

- **Switchgear temperature and partial discharge monitoring solution – SENSeOR**
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