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Teseo III and Teseo modules data logging

Quick Training Guide

Version. 1.0 - Nov. 2021



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- Teseo III – Binary Image and Teseo Modules embed also the Data-Logging sub system
- Data-Logging can be used to track/record a path
- Data-Logging subsystem has a set of specific NMEA commands and messages to operate



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Create a log

A log is created to specify:

- Configuration
- Log type
- Lowest speed, lowest rate and lowest distance to record a new sample in the log

```
$PSTMLOGCREATE,<cfg>,<min-rate>,<min-speed>,<min-position>,<logmask>*<checksum><cr><lf>
```

Configuration:

- Enable Circular-buffer
- Alarm buffer-full

Lowest rate, lowest speed and lowest distance to record a new sample in the log

Log-type



Start, stop and delete a log

- A log can be started, stopped and deleted by the host with the following commands:

```
$PSTMLOGSTART*<checksum><cr><lf>
```

```
$PSTMLOGSTOP*<checksum><cr><lf>
```

```
$PSTMLOGERASE*<checksum><cr><lf>
```



Query the data-logging state

- Host can query the datalogging subsystem state with the command:

```
$PSTMLOGREQSTATUS*<checksum><cr><lf>
```

- Teseo III replies with the message:

```
$PSTMLOGSTATUS,<time-first-entry>,<data-first-entry>,<time-last-entry>,<data-last-entry>,<nr-used-entries>,<buffer-status>,<free-entries>*<checksum><cr><lf>
```

- Where it reports:

- Time and date of the first and last sample*
- Number of used and free entries
- Buffer status

* The first entry is marked internally and it has to be skipped



Query the log data

Host can query the log with the command:

```
$PSTMLOGREQQUERY,<start-timestamp>,<start-datestamp>,<numentry>*<checksum><cr><lf>
```

Teseo III replies with one message per sample:

```
$PSTMLOGQUERY,<status-bitmap>,<logask>,<timestamp>,<datestamp>,<altitude>,<odometer>,<geo>,<quality>,<qualidx>,<fix>,<speed>*<checksum><cr><lf>
```



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Putting all together...

Using the [Teseo-Suite](#), the Host can send the commands and check the Teseo III message responses.

```
HOST > $PSTMLOGCREATE,1,1,0,0,1
T3 < $PSTMLOGCREATEOK*5E
HOST > $PSTMLOGSTART
T3 < $PSTMLOGSTARTOK*1A
HOST > $PSTMLOGSTOP
T3 < $PSTMLOGSTOPOK*42
HOST > $PSTMLOGREQSTATUS
T3 < $PSTMLOGSTATUS,084126,20181128,084146,20181128,21,0,43627*67
HOST > $PSTMLOGREQQUERY,084127,20181128,20
T3 < $PSTMLOGQUERY,1,1,084126,20181128,3,2,1,37.441792,15.060400,0.0,0.0,0.0*0c
T3 < $PSTMLOGQUERY,3,1,084146,20181128,3,2,1,37.441792,15.060400,0.0,0.0,0.0*09
HOST > $PSTMLOGERASE
T3 < $PSTMLOGERASEOK*1A
```



Take care of...

The first field in the \$PSTMLOGQUERY is a bitmap which specifies:

- 2b00: No more data, and the data in the message is invalid
- 2b01: more data available, and the data in the message is valid
- 2b11: No more data available, and the data in the message is valid

```
T3 < $PSTMLOGQUERY, 3, 1, 084127, 20181128, 3, 2, 1, 37.441792, 15.060400, 0.0, 0.0, 0.0*0c
```



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Documents & related resources

All documents are available on: www.st.com

Teseo III: Webpage

- Datasheet of all PNs;

Teseo Modules: Webpage

- Datasheet
- User Manuals

Teseo-Suite: Webpage

- Datasheet
- Training materials
- Install program

GNSS ICs

ST's Teseo family of Global Navigation Satellite System ICs combines high positioning accuracy and indoor sensitivity with powerful processing capabilities, to simultaneously support multiple global navigation systems (BeiDou, Galileo, GLONASS, GPS, and QZSS).

Teseo III is the latest generation of GNSS ICs, and compared to Teseo II offers reduced power consumption, carrier-phase tracking for higher accuracy, and support for Ready-only Memory (ROM).

Our product offering includes standalone positioning chips (SAL) and configurable system-on-chips (SoCs). The standalone devices are offered with GNSS firmware embedded, to perform all positioning operations including tracking, acquisition, navigation and data output. The SoCs offer power processing and spare memory to enable customers and partners to easily and efficiently merge their code or specific IPs with ST's GNSS library to create a highly optimized platform.

Both solutions come with different package options and memory size, and are compatible with the TESEO-DRAW sensor fusion firmware for dead-reckoning and assisted navigation.

Teseo devices address e-call and telematics systems, personal navigation in PNDs and handheld devices, as well as marine and in-car navigation systems.

Package	GNSS library solutions (SoC)
WLDP77 4x4 mm	STAN000000 - Smallest footprint and lowest cost
	STAN000001 - Stacked Flash, Automotive grade option available
GN06 7x7 mm	STAN000002 - Low cost PCB design
GN06 9x9 mm	STAN000003 - Automotive grade
	STAN000004 - Wearable Form Factor (Spitch, Automotive grade)
BGA109 8x5 mm	STAN000005 - SoC with GNSS capability (SoC)
BGA109 9x9 mm	STAN000006 - SoC with GNSS capability (SoC)

TESEO-SUITE (ACTIVE)

PC software tool to manage, configure and evaluate the performance of ST Teseo GNSS solution. It is able to manage GNSS solutions in parallel.

On each ST TESEO GNSS solution the Teseo Suite is able to read, modify and save the configuration.

NMEA sentences logging and analysis supported. NMEA message-list configurable per port.

Key Features

- Multiple GNSS tracer
- Multiple protocol support
- GNSS firmware configuration tool
- GNSS flashing tool
- Dead reckoning panel
- NMEA diagnostic tool
- Satellites signal monitoring viewer
- Map viewer
- Log viewer

RESOURCES

Quick Links

Technical Documentation

Product Specifications		
Description	Version	
DB3224 PC GUI software to control, configure and performance analyze of Teseo GNSS family	1.0	

Legal

License Agreement		
Description	Version	Size
SLA0056 Software license agreement	1.0	59 KB

EVB-T3 (ACTIVE)

TESEO III evaluation board

Teseo EVB board is a complete standalone evaluation platform for Teseo III GNSS ST solution.

Teseo III embeds the high performance ARM946 microprocessor with dedicated SRAM and several serial communication interfaces, including USB, SPI, PC, UART and CAN.

Performance and configuration can be analyzed using the ST TESEO-SUITE PC Tool.

Key Features

- ST Teseo III GNSS platform
- Multiconstellation GNSS: GPS, Galileo, Glonass, BeiDou, QZSS are supported
- USB Power Supply and battery charge
- Internal battery for standalone usage
- ON/OFF and Reset buttons available
- NMEA over

RESOURCES

Technical Documentation

Product Specifications		
Description	Version	Size
DB3223 Teseo III GNSS evaluation board	1.0	137 KB

