

Product:	ETK-22.0	Rev :	12	Page 1 of 10
Title :	Release-Notes			

DRIVING EMBEDDED EXCELLENCE



Product :	ETK-S22.0A			
Title :	Release Notes			
File :	ETK-22.0_Release-Notes_V12.docx			
TTNR :	F-00K-109-126			
Comments :	<p>Currently shipped: <b>11405742B012/01</b></p> <p>EPLD version: V11  FPGA-Boot version: V40  FPGA-A version: V59  FPGA-B version: V42  Hardware-state: B012/01</p>			
Created:	Name R. Mai	Department PGA/PRM-H	Signature R. Mai	Date 2016-05-11
Released:	Name M. Higgins	Department EHE3	Signature M. Higgins	Date 2019-03-26

## C h a n g e s

Revision	Description	Date	Name	Signature
01	114043B012/01 for ETK-S22.0A - Initial version	2013-09-16	Mai	Mai
02	114045B012/01 new microcontroller added	2014-03-13	Mai	Mai
03	11404641B012/01 new microcontroller added	2014-09-23	Mai	Mai
04	11404841B012/01 new FPGA Update	2014-12-08	Mai	Mai
05	11405042B012/01 new FPGA Update	2015-03-23	Mai	Mai
06	11405042B012/01 additional feature support	2015-06-24	Mai	Mai
07	11405042B012/01 additional feature support	2015-11-05	Mai	Mai
08	11405042B012/01 new microcontroller added	2016-05-11	Mai	Mai
09	11405242B012/01 updated HDC	2016-12-20	Oexner	Oexner
10	11405342B012/01 updated HDC; new microcontroller added	2017-05-18	Oexner	Oexner
11	11405442B012/01 updated HDC	2018-06-26	Higgins	Higgins
12	11405942B012/01 updated HDC	2019-03-26	Higgins	Higgins

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# 1 General Information

## 1.1 Safety Notice

Calibration activities influence the behavior of the ECU and the systems controlled by the ECU. This may result in unexpected behavior of the vehicle and thus can lead to safety critical situations. Only well trained personnel should be allowed to perform calibration activities.

## 1.2 System Requirements

Recommended system requirements on a PC running ETK Drivers And Tools, HSP or Inca:

- 2 GHz Pentium-PC or equivalent, equipped with
  - 1 GB RAM (basic hardware), depending on the use cases 2GB RAM are advantageous
  - Hard disk with minimum 10 GB free disk space
  - DVD-ROM for installation
  - XGA-Graphic card with XGA-screen and resolution of at least 1024 x 768 with 16 bit colors, DirectX 7
  - Fast Ethernet adapter 100BaseT
    - with full duplex capability
    - configured as component TCP/IP only
    - separate to e.g. company network
  - WINDOWS® XP (SP3 or higher), WINDOWS® VISTA (SP1 or higher) or WINDOWS® 7

## 1.3 Restrictions

WINDOWS® 95b, WINDOWS® NT, WINDOWS® 2000 and WINDOWS® 98SE are not supported

## 1.4 Miscellaneous

To ensure the highest data throughput from the ETK device up to the PC system no other PC software should be run via this Ethernet adapter.

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## 2 Version Syntax and Tool-Chain Information

### 2.1 Version-Syntax of the ETK-S22.0A

The **ETK-S22.0A hardware version** information is located on the product sticker and can be read out of the ETK using the firmware update tool HSP or XETK Configuration Tool.

Overall Hardware Version of old Syntax: **aabbcc<sub>1</sub>deee/ff**

Overall Hardware Version of new Syntax: **aabbcc<sub>1</sub>cc<sub>2</sub>deee/ff**

Description of PLD-Code Information (modification details refer chapter 3)

- aa** EPLD-Code version (11, 12, 13, ...)
- bb** FPGA-Boot-Code version (11, 12, 13, ...)
- cc<sub>1</sub>** FPGA-A-Code version (11, 12, 13, ...)
- cc<sub>2</sub>** FPGA-B-Code version (11, 12, 13, ...)

The hardware version of the PCB is also located on the label attached to the PCBs. These version is subordinate to the Overall hardware state cannot be read out by software.

PCB Hardware State Syntax: **deee/ff**

Description of Hardware-Information (modification details refer chapter 4)

- d** PCB Version (A=V1.0, B=V1.1, C=V1.2, ...)
- eee** PCB Hardware State (010, 011, 012, ...)
- ff** PCB Population Variant (00, 01, 02, ...)

The first delivered hardware state of the ETK-S22.0A is the following:

ETK-S22.0A: **114043B012/01**

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## 2.2 Version information of the tool-chain components

To get this ETK running with the other components of the tool-chain please make sure that the version mentioned below or a newer one is used. If your software, firmware or hardware version is older, please update it.

If you have any problems to get this ETK running please contact our local customer support or sales representative.

Updates or refreshes can be downloaded from the ETAS homepage:

<http://de.etasgroup.com>

<http://en.etasgroup.com>

## 2.3 Hardware support

The ETK-S22.0A is supported by ES59x, ES910 and ES1000.2/3 System with ES1232.

## 2.4 Software and microcontroller support

Microcontroller	HSP	INCA	ETK Tools	ASCET-RP	INTECRIO
RH850/E1x-FCC1-1 <sup>st</sup> cut (R7F701Z07)	V10.2.0	V7.1.0	V3.11.0	V6.1.3	V4.3.0
RH850/E1x-FCC1-2 <sup>nd</sup> cut (R7F701Z05EDBG)	V10.4.0	V7.1.4	V4.0.0	V6.1.3	V4.3.0
RH850/E1M-S (configuration of RH850/E1x-FCC1-2 <sup>nd</sup> cut; See Note 1)					
V850/FX4 (uPD704012)	V10.4.0	V7.1.4	V4.0.0	V6.1.3	V4.3.0
RH850/C1H (Dual Core)	V10.6.0	V7.1.6	V4.0.0	V6.1.3	V4.3.0
RH850/E1x-FCC2 (R7F701Z011EDBG)	V10.8.0	V7.1.8	V4.0.4	V6.1.3	V4.3.0
RH850/E1L (configuration of RH850/E1x-FCC1-2 <sup>nd</sup> cut, See Note 2)	V11.4.0	V7.2.4	V4.1.5	V6.4	V4.6

- 1) Restricted Support: RH850/E1M-S has no ERAM for calibration, therefore only Measurement functions and flashing are supported. Features related to calibration (Page switching, Write parameter, Download, Upload, ...) and Advanced Code Check are not available with RH850/E1M-S. The A2L for RH850/E1M-S should be based on the A2L for RH850/E1x-FCC1 2nd cut (R7F701Z05AEDBG). Please contact ETAS for further details.
- 2) Restricted Support: See RH850/E1M-S support. In addition reduced size of Flash ROM, Local RAM and Global RAM compared to RH850/E1M-S. Please contact ETAS for further details.

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### 3 What's New - Release Notes

This chapter lists the main improvements compared to a previous shipped ETK product. Additionally a detailed list of already known issues can be found here.

#### 3.1 New or Enhanced Functions

##### 3.1.1 In HSP V11.12.0

Issue Identifier	Description
594719	ETK-S22 : ECC error when performing checksum on complete flash range

##### 3.1.2 In HSP V11.9.0

Issue Identifier	Description
512158	ETK-S22 : BDF does not work in specific conditions

##### 3.1.3 In HSP V11.5.0

Issue Identifier	Description
561019	ETK-S22 : WP checksum value is not stable after BDF Flashing

##### 3.1.4 In HSP V11.3.0

Issue Identifier	Description
547045	Sneak current goes from ETK to VCC of RH850 during IGN off

##### 3.1.5 In INCA 7.2.1 & HSP V11.1.0

Issue Identifier	Description
n/a	Support for RH850-E1MS (with configuration of RH850-E1x FCC1 cut2)

##### 3.1.6 In INCA 7.1.10 & HSP V10.10.0

Issue Identifier	Description
483549	WDT disable handling for BDF added
425812	Measurement doesn't start after Measurement interruption for RH850 C1H Controller
443881	ETK-S22.0_TX: Measurement interruption test cases fails for ETK-S22.0

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### 3.1.7 In INCA 7.1.9 & HSP V10.9.0

Issue Identifier	Description
n/a	Support for RH850 E1x FCC2 JTAG EBF Support for RH850 E1x FCC2 AUDR EBF

### 3.1.8 In INCA 7.1.8 & HSP V10.8.0

Issue Identifier	Description
n/a	Support for RH850 E1x FCC2 JTAG BDF support

### 3.1.9 In INCA 7.1.7 & HSP V10.7.0

Issue Identifier	Description
425984	Experiment in INCA can do measurement, while the Performance calculation sheet show is it not possible (Raster are marked in RED)
425106	XCT: Correct calibration handles details are not displayed in XCT for mix sized EMU RAM
392055	Missing ETK configuration item in A2I file leads to measurement error
n/a	Support for RH850 E1x JTAG EBF

### 3.1.10 In INCA 7.1.6 & HSP V10.6.0

Issue Identifier	Description
n/a	Support of Full EMU RAM range for RH850/E1x-FCC1-2 <sup>nd</sup> cut
	Support for RH850 E1x FCC2 JTAG BDF support

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## 3.2 Known issues

### 3.2.1 In INCA 7.1.10 & HSP V10.10.0

Issue Identifier	Description
472470	ETK-S22.0_TF: Timestamp variance check fails with a deviation of 30%.

### 3.2.2 In INCA 7.1.9 & HSP V10.9.0

Issue Identifier	Description
425812	Measurement doesn't start after Measurement interruption for RH850 C1H Controller
443881	ETK-S22.0_TX: Measurement interruption test cases fails for ETK-S22.0
472470	ETK-S22.0_TF: Timestamp variance check fails with a deviation of 30%.

### 3.2.3 In INCA 7.1.7 & HSP V10.7.0

Issue Identifier	Description
425812	Measurement doesn't start after Measurement interruption for RH850 C1H Controller
427941	Firmware downgrade to older version is not available

### 3.2.4 In INCA 7.1.6 & HSP V10.6.0

Issue Identifier	Description
425812	Measurement doesn't start after Measurement interruption for RH850 C1H Controller
425984	Experiment in INCA can do measurement, while the Performance calculation sheet show is it not possible (Raster are marked in RED)
425106	XCT: Correct calibration handles details are not displayed in XCT for mix sized EMU RAM
427941	Firmware downgrade to older version is not available

### 3.2.5 In INCA 7.1.4 & HSP V10.4.0

Issue Identifier	Description
392055	Missing ETK configuration item in A2I file leads to measurement error

### 3.2.6 In ETK Drivers & Tools V3.11.0 & HSP V10.2.0

Issue Identifier	Description
372622	Standard flashing need second attempt



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## 4 Product Variants

In general the ETK-S22.0A can be purchased in one variant.

### 4.1 ETK-S22.0A

Item number	F-00K-107-678																											
Description	ETK-S22.0A Emulator Probe for the Renesas RH850 microprocessor family, ECU adaption via 10 SAMTEC 5 pin JST plug, with further adapter.																											
For details refer the datasheet	<table border="1"> <thead> <tr> <th>DIM</th> <th>MILLIMETERS</th> <th>INCHES</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>60.00<sup>+0.2</sup><sub>-0.2</sub></td> <td>2.362<sup>+0.008</sup><sub>-0.008</sub></td> </tr> <tr> <td>B</td> <td>56.50<sup>+0.1</sup><sub>-0.1</sub></td> <td>2.224<sup>+0.004</sup><sub>-0.004</sub></td> </tr> <tr> <td>C</td> <td>35.00<sup>+0.2</sup><sub>-0.2</sub></td> <td>1.380<sup>+0.008</sup><sub>-0.008</sub></td> </tr> <tr> <td>D</td> <td>3.50<sup>+0.1</sup><sub>-0.1</sub></td> <td>0.138<sup>+0.004</sup><sub>-0.004</sub></td> </tr> <tr> <td>E</td> <td>3.00<sup>+0.1</sup><sub>-0.1</sub></td> <td>0.118<sup>+0.004</sup><sub>-0.004</sub></td> </tr> <tr> <td>F</td> <td>37.00<sup>+0.1</sup><sub>-0.1</sub></td> <td>1.457<sup>+0.004</sup><sub>-0.004</sub></td> </tr> <tr> <td>G</td> <td>40.00<sup>+0.2</sup><sub>-0.2</sub></td> <td>1.575<sup>+0.008</sup><sub>-0.008</sub></td> </tr> <tr> <td>H</td> <td>2.60<sup>+0.1</sup><sub>-0.0</sub></td> <td>0.102<sup>+0.004</sup><sub>-0.000</sub></td> </tr> </tbody> </table>	DIM	MILLIMETERS	INCHES	A	60.00 <sup>+0.2</sup> <sub>-0.2</sub>	2.362 <sup>+0.008</sup> <sub>-0.008</sub>	B	56.50 <sup>+0.1</sup> <sub>-0.1</sub>	2.224 <sup>+0.004</sup> <sub>-0.004</sub>	C	35.00 <sup>+0.2</sup> <sub>-0.2</sub>	1.380 <sup>+0.008</sup> <sub>-0.008</sub>	D	3.50 <sup>+0.1</sup> <sub>-0.1</sub>	0.138 <sup>+0.004</sup> <sub>-0.004</sub>	E	3.00 <sup>+0.1</sup> <sub>-0.1</sub>	0.118 <sup>+0.004</sup> <sub>-0.004</sub>	F	37.00 <sup>+0.1</sup> <sub>-0.1</sub>	1.457 <sup>+0.004</sup> <sub>-0.004</sub>	G	40.00 <sup>+0.2</sup> <sub>-0.2</sub>	1.575 <sup>+0.008</sup> <sub>-0.008</sub>	H	2.60 <sup>+0.1</sup> <sub>-0.0</sub>	0.102 <sup>+0.004</sup> <sub>-0.000</sub>
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## 5 Firmware Modifications

### 5.1 General remarks to this chapter

The programmable logic code within the ETK-S22.0A is stored onto programmable logic devices (FPGA, CPLD). For the version syntax please refer to chapter 2.1.

#### Attention:

For updating the ETK - firmware with a later version by using HSP, all ETK firmware packages will be updated one after another. This will last a few minutes and must not be cancelled by the user. In case the firmware update had been finished unsuccessfully due to some reason, the update will have to be repeated. HSP will program the rescue packages onto the ETK. This procedure makes the firmware update fail-safe.

### 5.2 EPLD-Code

Revision	Description
Version 1.1	Initial Version

Delivery condition:

The EPLD version 1.1 will be programmed into all shipments

### 5.3 FPGA-Boot-Code

Revision	Description
Version 4.0	Initial Version

Delivery condition:

The FPGA-Boot version 4.0 will be programmed into all shipments

### 5.4 FPGA-A-Code

Revision	Description
Version 4.3	Initial Version (JTAG Version)
Version 4.5	Support for RH850-BGA2nd cut and V850-Fx4 $\mu$ Cs
Version 4.6	Support for RH850 QFP
Version 4.8	Support for RH850 E1x JTAG EBF support
Version 5.0	Support for RH850 E1x FCC2 JTAG BDF support New PLL configuration and Updated WrapperXETK modules are added
Version 5.2	Fix for Call#547045 (Sneak current goes from ETK to VCC of RH850 during IGN off)
Version 5.3	Fix for Call#561019 (ETK-S22 : WP checksum value is not stable after BDF Flashing)
Version 5.4	Fix for Call#512158 (ETK-S22 : BDF does not work in specific conditions)
Version 5.9	Fix for Call#594719 (ETK-S22 : ECC error when performing checksum on complete flash range)

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Delivery condition:

The FPGA version 5.9 will be programmed into all shipments

### 5.5 FPGA-B-Code

Revision	Description
Version 4.1	Initial Version (AURD Version) - Support for RH850-BGA2nd cut and RH850-C1H $\mu$ Cs
Version 4.2	New PLL configuration and Updated WrapperXETK modules are added

Delivery condition:

The FPGA version 4.2 will be programmed into all shipments

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## 6 Hardware Modifications

### 6.1 General remarks to this chapter

Hardware issues or obsolete parts can make it necessary to modify the population of the ETK. Information about the modifications is listed underneath. The hardware state starts with version **B012/01**. For the version syntax please refer to chapter 2.1.

### 6.2 No modification at hardware state B012/01

### 6.3 Hardware delivery condition

The hardware state **B012/01** will be delivered with all new shipments.

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## 7 Abbreviations

ETK	Product (emulator test probe)
ES1000	VME - system, successor of INCA-VME
INCA-VME	Old VME - system for MC and RP
ES690	MC hardware, successor of MAC2
ES59x	MC hardware, successor of ES690
MAC2	Old MC hardware
INCA	Measurement and Calibration Software of ETAS
ASCET-RP	Rapid Prototyping Software of ETAS
INTECRIO	Rapid Prototyping Software of ETAS
XETK Configuration Tool	Configuration Software, in order to configure a (X)ETK
HSP	<b>H</b> ardware <b>S</b> ervice <b>P</b> ack; ETAS product which includes the firmware for the complete ETAS hardware, shipped together with INCA but also available as standalone product, download at ETAS homepage possible
firmware	Software for MC hardware; necessary for implementation of new features or bug fixes
Hot-fix	Software bug-fix for a refresh version
tool-chain	MC hardware (e.g. ES690) and software (e.g. INCA)
MC	<b>M</b> easurement & <b>C</b> alibration
RP	<b>R</b> apid <b>P</b> rototyping
CPLD	<b>C</b> omplex <b>P</b> rogrammable <b>L</b> ogic <b>D</b> evice
FPGA	<b>F</b> ield <b>P</b> rogrammable <b>G</b> ate <b>A</b> rray; interface component to the application hardware
PCB	<b>P</b> rinted <b>C</b> ircuit <b>B</b> oard
DPR	Dual Ported RAM; special RAM onto the ETK which allows an access from ECU and application hardware at the same time
/CS	Chip select