The EGG

Version 1.2

User - Manual

Table of Contents

1   Introduction

Kronegger GmbH. provides customer support and optional design in services for properly integrating the products. Since we do not have full information on customer's applications or products, it is due to the customer to verify that the integrated products are suitable for the application intended and that no patents or intellectual property rights are infringed. Integrating the products into the customer's application is a development process that requires special experience, professional skills and involves usual technical risks. Kronegger GmbH. assumes no responsibility or liability for customer's applications, their performance, the required development effort, production, installation, operation, their suitability, reliability and safety. The products are not designed for applications where malfunction could cause potential risk of death, personal injury or environmental damage.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

The manual has been written to the best of our knowledge. We do not guarantee the correctness and completeness of the provided information and insist on the good practice of crosschecking during the customer's development process through sufficient testing coverage. Feedback on errors in the manual are highly appreciated.

This document may be used to support the integration of Kronegger products. Any other use, duplication, storage or circulation is not authorized shall be prosecuted as a violation of copyright laws.

FCC § 15.105

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
—Reorient or relocate the receiving antenna.
—Increase the separation between the equipment and receiver.
—Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
—Consult the dealer or an experienced radio/TV technician for help.

ICES-003

This Class B digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

2   Getting Started

As factory default the data are transmitted at 115200, n, 8, 1 and no handshake. Two protocol modes are available. As default the binary protocol is used. To change the protocol type or the baud rate you have to configure the EEPROM (see EEPROM Memory Organization).

For the communication with the reader you need the ReaderTool which is delivered with any Kronegger Reader. The Microsoft .NET Framework 2.0 (or any higher version) needs to be installed first in order to run the ReaderTool:

http://www.microsoft.com/downloads/details.aspx?familyid=0856EACB-4362-4B0D-8EDD-AAB15C5E04F5&displaylang=en

The ReaderTool needs no installation, simply start it and the reader will be selected automatically. Now you can communicate with your Mifare+ reader.
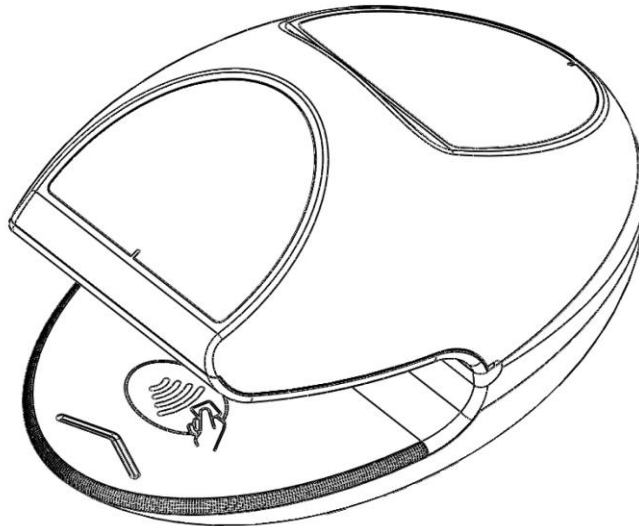
Step by Step:
  Connect the Reader via the RS232 cable to the PC
  Download and install the Microsoft .NET Framework
  Start the ReaderTool
  Now you can communicate with the reader

KRONEGGER
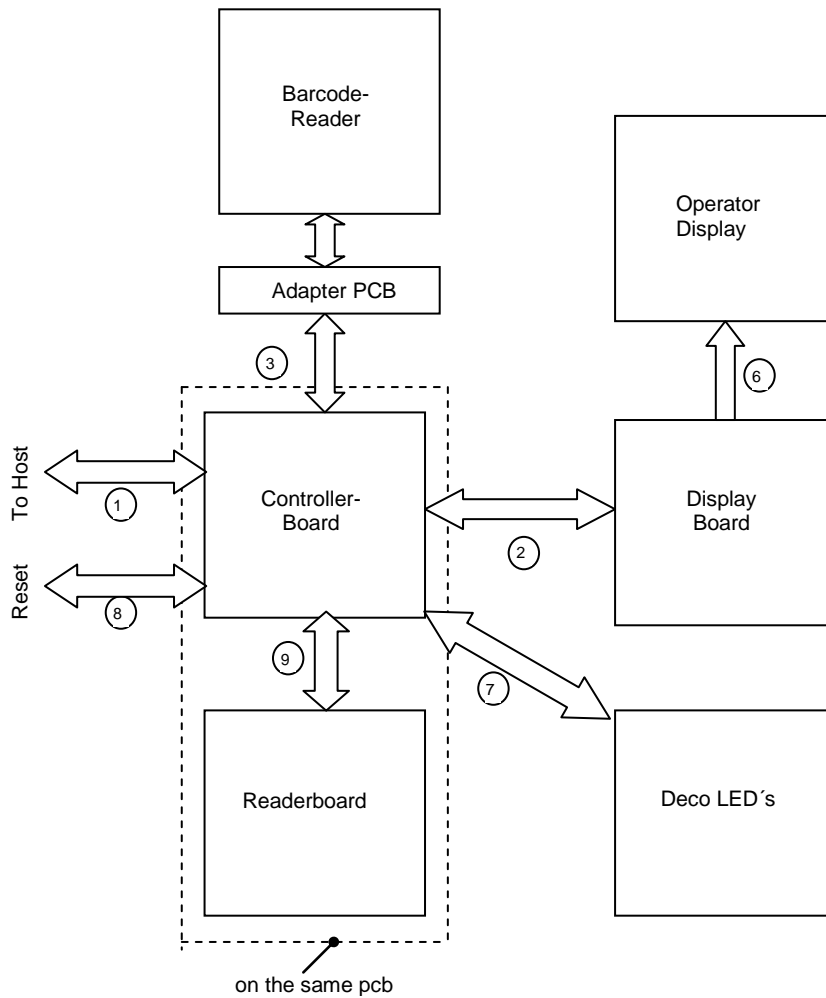
3 Hardware

3.1 Features

Features	Barcode and RFID-Reader
Dimensions	226.3mm (L) x 152.9mm(W) x 124.6mm(H),
Interface type	RS232
Power supply	12 VDC ±10% regulated

# 4   System Overview

4.1 Block diagram

5 Interface Overview

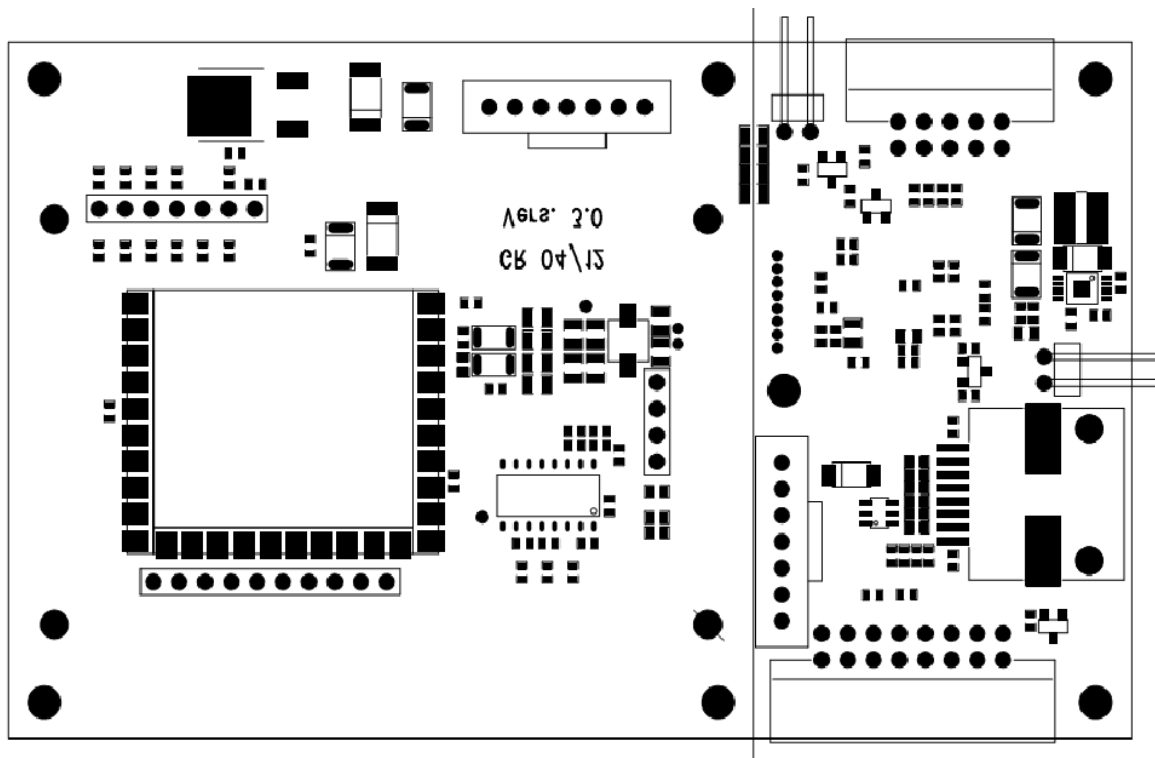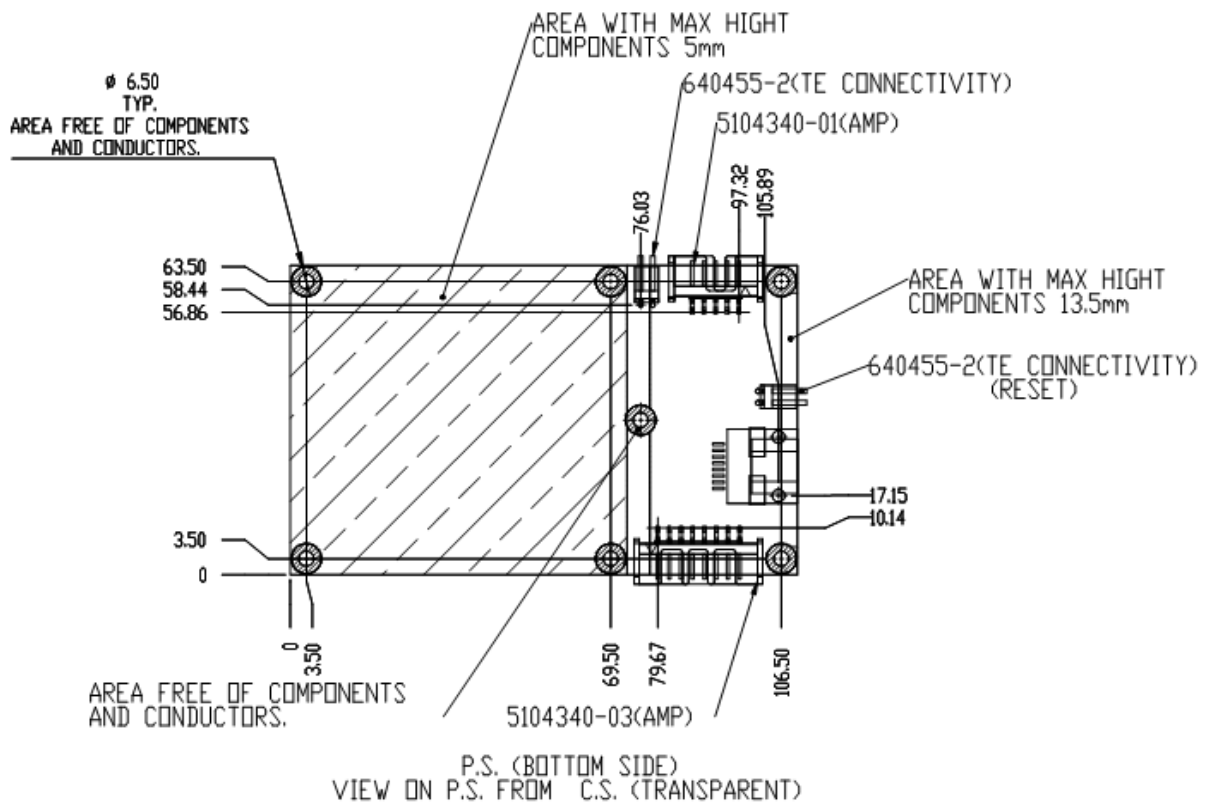| Number	Connection
1	Interface for power-supply, RS232
2	Interface for display´s, optic and acoustic signals
3	Interface for barcode-reader
6	Interface for operator display
7	Interface for deco LEDs
8	Reset button
9	Interface to reader board (Controller Board and Reader Board is one pcb)

KRONEGGER

5.1 Reader board

Top view (Antenna side): EGGR-2012-01(READER PCB ASSY)-REV.C.DXF
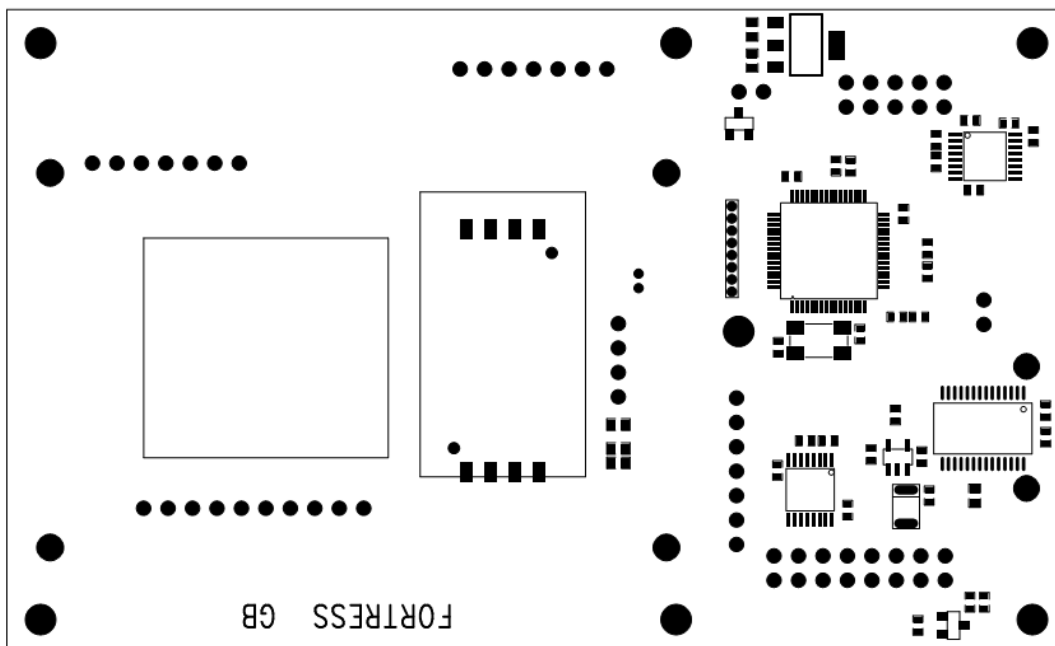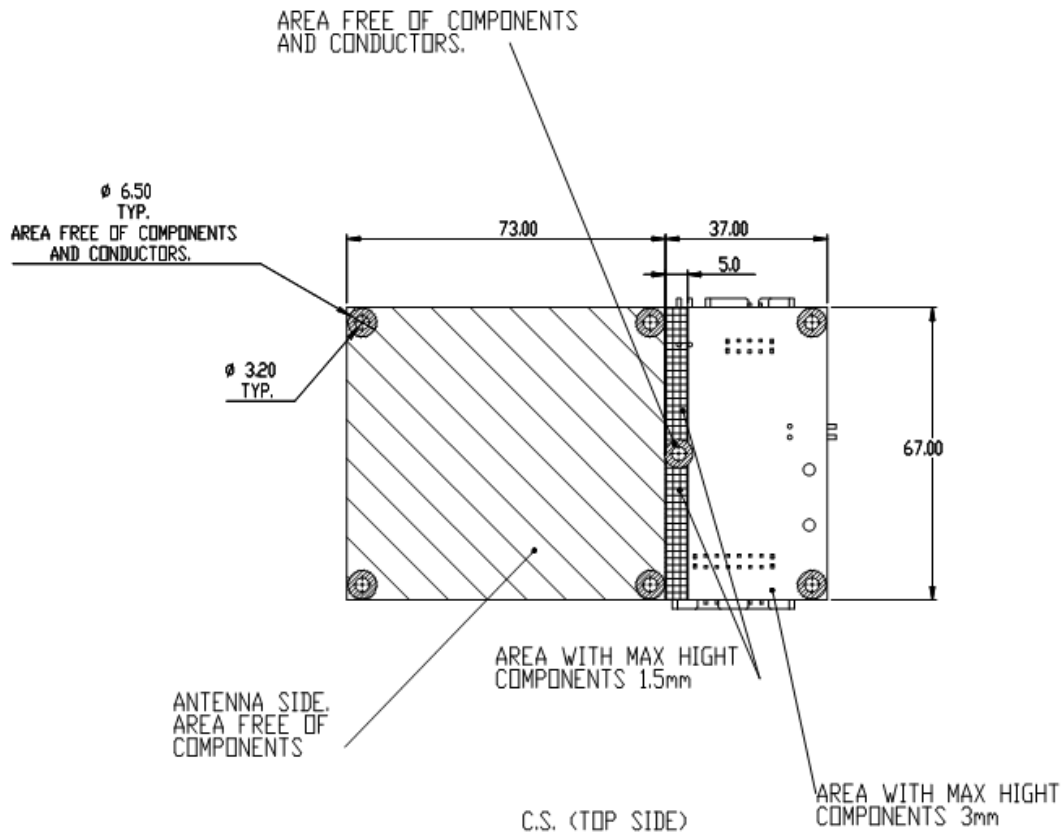
TOP side: SAM holder and LEDs are not populated on Reader board

Bottom view: EGGR-2012-01(READER PCB ASSY)-REV.C.DXF

P.S. (BOTTOM SIDE)
VIEW ON P.S. FROM C.S. (TRANSPARENT)

View on Bottom Side from Top (Transparent)

KRONEGGER

6   Functional Blocks

Module	Description
Barcode Reader	Unit to read barcodes and to transmit the information via serial TTL signals (standard) or RS232 signal (optional) to the main-controller • Barcode-Reader Type Symbol PL3307 or PL4407 via barcode interface • Barcode reader is connected via connectors-converting adapter PCB
Operator Display	Module to visualize information in a 4 lines x 20 characters display • NHD-0420D3Z-NSW-BBW
Controller Board	Controller board who handles the internal signals and the communication with the host • CPU STM32F103 • RS232 Interface • Deco LED driver interface • User display connector with: User display Operator display, 4 LED (à 3V/75 mA), Illumination LED (5V / 150mA), Buzzer (3,3V / 100mA) • 12 V to 5 V Power-supply with switched regulator 1500 mA for own supply: 5V/600mA for display board: 5V/900mA • Reset (power interruption): by Software (standard), Hardware (optional) with pin header via FET
Display Board	Sub-module to the controller board with a user display to show specified user information and handles specific signals • User display NHD-0216K3Z-FL-GGW • LED´s single switched • illumination LED • Buzzer • Connector Operator display
Reader Board (combined with EGG Controller-Board)	13,56 MHz RFID reader with integrated antenna to read most of the usual tags • Modified Module "Fortress GB" version 1.0 (GR12/11) No RS232 Interface instead TTL signals • No Connector (direct connected to EGG controller board via 0R resistors) • RS232 Interface optional
Deco LED	5 Deco-LED´s supplied from 12V; switched

KRONEGGER

7   Instruction Set

Following table describes all commands of the reader device. Each command sends a response to the host. Exceptions are mentioned explicitly. The green LED is acknowledging a successfully executed command. The red LED indicates an error.

Generic Commands – Overview

| Command	Description
'v'	Get Version
'd'	Sleep mode
'x'	Reset
'bg'	Get data from barcode scanner and reader
'bc'	Route command directly from Host to barcode scanner
'bs'	Change the Baudrate of the Barcode Reader connection
'bp'	Set continuous mode of barcode camera
'rc'	Route command directly from Host to reader
'rs'	Define Uart settings of RFID-Reader
'rp'	Start polling mode for RFID-Redaer
'el'	Enable/Disable EMV LED´s individually
'il'	Control illumination LED
'le'	Control deco LED´s
'ud'	Send command to user display
'od'	Send command to operator display
'be'	Enable/Disable buzzer
'bf'	Set buzzer frequency and duty cycle

KRONEGGER

'sn'	**Get Serial number of ARM-Controler**
'gl'	**Get latency Time of the peripherals**
'td'	**Test device peripherals against preset values**
'gt'	**Get Temperature of ARM-Controler**
'gv'	**Get voltages of 3,3V 5V and 12V ADC´s**
'tc'	**Test all IO´s of the peripheral switch board**

8   Interface Details

Controller Board to Host (1): Connector RJ45-8P/8C

Pin Nr	Connection
1	GND
2	Reserved for future use
3	Reserved for future use
4	RS232 Rx
5	GND
6	VCC (+12 V)
7	RS232 Tx
8	Vcc +12 V

Connector RJSS-5080 Amphenol Canada Corp.
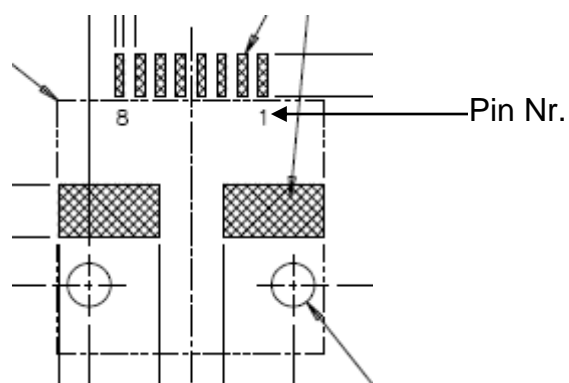
Version History

Date	Revision Number
18.03.2013	Version 1.0
15.04.2013	Version 1.1
18.06.2013	Version 1.2