

Marine Gravity Meter KSS 32- M

Instruction Manual

Part V

Advanced Users

Version 10. 06. 2012

Part V of the Manual is for advanced users only

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Software Marine Gravimeter System KSS 32M

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Rotation

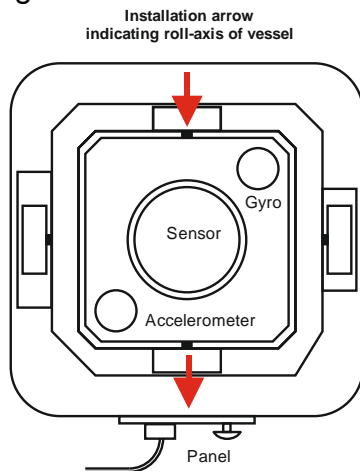
Normal angle is 0. If the gravity meter is not in the standard position, measure the actual angle and insert. For instance 180° if KSS32M is turned for 180°



Rotation of any angle 0 – 360° is possible.

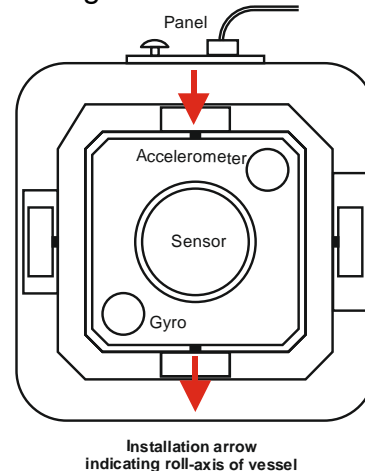
If this orientation is NOT possible for some reason, for example in the opposite direction insert 180° in “ROTATION” field.

Fig. 1



Bow of vessel

Fig. 2



Bow of vessel

Two different directions of installation on board a vessel.

Fig. 1 Panel pointing to bow of ship

Fig. 2 Panel pointing to stern

Torquer Current

Read value in HEALTH, KE32BITE

KE_ITRQX must not exceed 0,5 A

KE_ITRQY must not exceed 0,5 A

If in a static mode (ship is not moving) the current must not exceed 0,2A. If it is higher the static balancing of the system should be checked.
refer to chapter STATIC BALANCING in this manual.

Heating Current

The heating current is not directly available. Read the sum of all currents going into sensor via +/- 18V

In Menu HEALTH (Passwort HEALTH), ZE32.BITE

ZE_IP18V xxx mA

ZE_IN18V yyy mA

Average current is 200 - 400 mA. This current does not change much if the instrument is warm. Current will reach up to 0,5 A during the period of re-heating the sensor after a long rest. After some hours the reading will return to normal.

Gyro

If replacing a gyro by a spare pay attention to replace the gyro together with the specific electronic board. Serial number of gyro and electronic board must match.

Gyro Drift Test

Read the free drift of the gyro directly on the table. Turn OFF the accelerometers. With both acc OFF the position of the table will be under the influence of the gyro only.

Turn OFF acc:

Set the amplif. of acc to Zero: >> go to HEALTH und into „Magic Editor“ >> select KE_OUTPUT
and

KE_AX.GAIN
KE_AY.GAIN

Attention: write down the present values of KE_AX.GAIN und KE_AY.GAIN
After this :

KE_AX.GAIN to 0,00
KE_AY.GAIN to 0,00

After this you can move the table manually into any given position. The gyro will keep the new position. The free drift will slowly move the axis. The free drift is angle per minute.

After testing you must insert the previous values again.

How to Move Frames

It is possible to intentionally move the frames of the platform for a certain angle. You have to add an “artificial Offset”.

Go to menu SERVICE and write into either field an appropriate value of acceleration. Start with values of about plus/minus 0,1 ms².

KE_AXOFFSET (ms²)
KE_AYOFFSET (ms²)

The angle may be calculated by the equation:

$$\arctan(\text{ACC}_{\text{OFFSET}} / g_0)$$

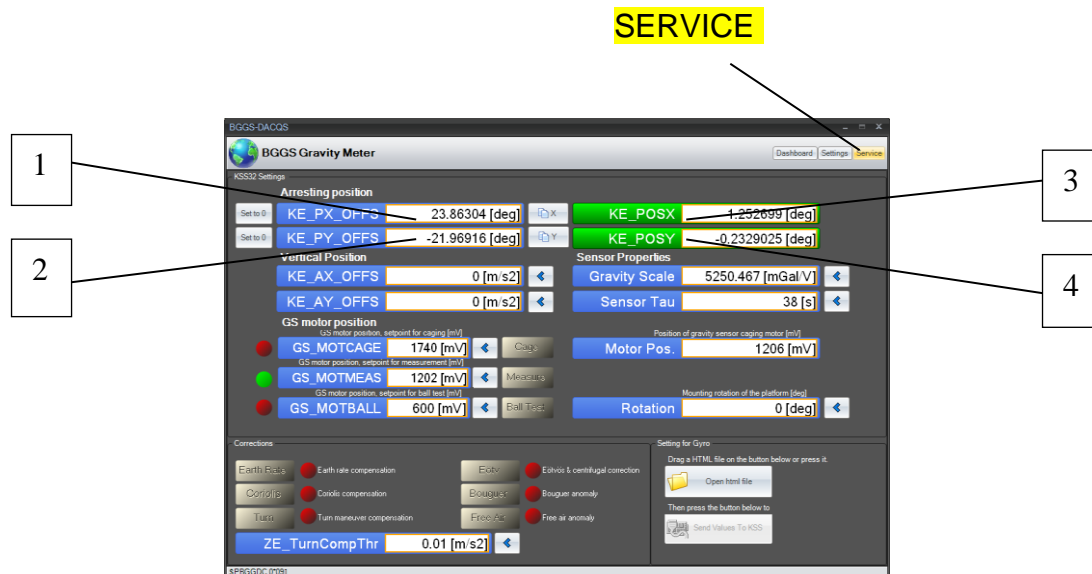
ACC_{OFFSET-X} = OFFSET (ms²) of the X axis
ACC_{OFFSET-Y} = OFFSET (ms²) of the Y axis
g₀ = acceleration of earth (9,81 ms²)

Don't forget ENTER on the notebook to terminate operation.

Adjustment of Position for Arresting Bolt (Rahmenfest)


The system must „know“ how to move the two frames of the platform into the correct position. The arresting lock is a hole beneath the sensor and a bolt. This position is called „rahmenfest“.

The menu „SERVICE“ provides a way of measuring the correct angles and adjust them. (ref. to manual „SOFTWARE“)



- 1 Arresting position for gimbal frames. Indicates actual offset-angle for X-axis.
- 2 Arresting position for gimbal frames. Indicates actual offset-angle for Y-axis.
- 3 Measurement of arresting position for gimbal frames.
- 4 Measurement of arresting position for gimbal frames.

Go to Stand-by first.

Enable modification by pressing on  for X or Y

Software-Key „Set to 0“

After this press blue field KE_PX_OFFS and KE_PY_OFFS to transfer the value from 3 or 4 into 1 or 2

Don't forget ENTER on your notebook to finish operation.

It is advisable to repeat the same procedure two times for better results.

Cage-Motor Adjustment

The motor electronic is provided with internal filters. They have a certain time-constant. As a consequence the motor will not move very fast.

>>> Don't think the mechanics is out of order.

It is the filter only!!

Stop the system (RUN DOWN) and wait for arresting of the table.

After opening the cap of the sensor, you'll find a small electric motor and a printed scale showing the following text:

- CAGE MEASURE BALL CAL.

The motor is intended to switch between the sensor functions: CAGE, MEASURE and BALL CALIBRATION.

The entire motor will slowly rotate itself into one of the positions. There is a black line on the housing of the motor. It has to point directly on one of the above mentioned words.

Please perform the following test:

Start the system on menu DASHBOARD. Wait for Run Up and System Ready.

Go to menu SERVICE. Observe the 3 fields named:

GS_MOTCAGE
GS_MOTMEASURE
GS BALL

WARNING
**Special attention to the last
page of this chapter**

Each field contains a value for an internal voltage (for example GS_MOTBALL 600mV). This voltage will control the position of the motor.

For example, by clicking with the computer-mouse on the field "Step5" (GS_MOTBALL) the motor must rotate to the position BALL. The corresponding green light will be ON.

Try all three different fields and observe the black line, if it is pointing to the correct word.

If the black line does not point to the correct word (difference of 1-2mm is allowed), you may change the corresponding voltage. Use small steps of about 50mV to see the effect.

Prior to making any change, write down the three values of voltage.

Select GS_MOTBALL by clicking on gray field "Step 1". Red light is ON.

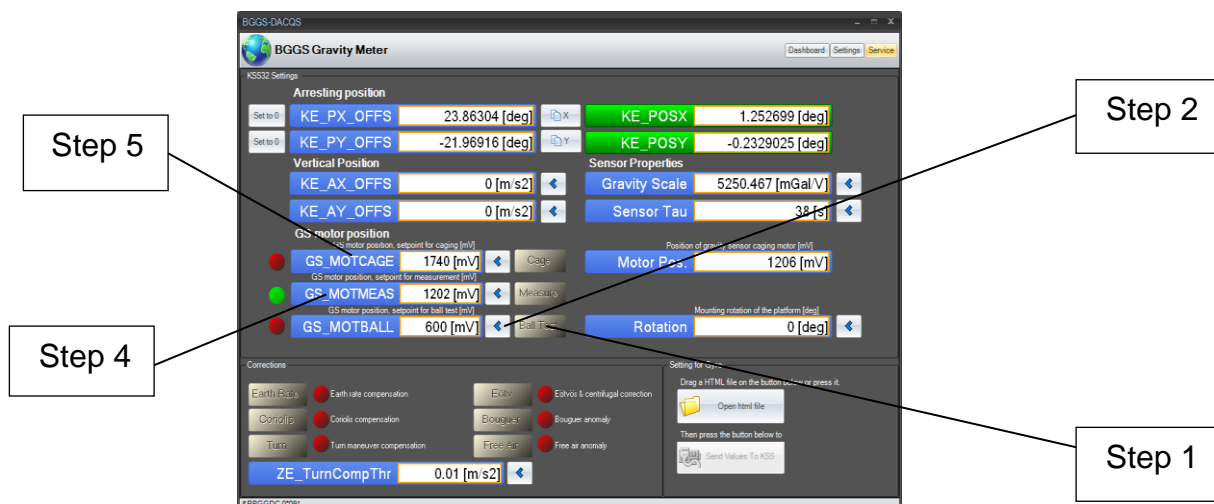
Click on the little field with blue triangle "STEP 2". This enables to insert a new voltage.

Type the new voltage, (600mV to 650mV) and finish by typing ENTER on the notebook.

Observe the effect on the motor.

Change voltage until black line points to desired position.

Continue the same procedure with GS_MOTMEAS (Step4) and GS_MOTCAGE (step5).



Write your protocol of any new settings made and keep it with your files.

Example:

Time	Function	Old value	New value
06.06.2011 13:30	Cage	1740 mV	1800 mV
06.06.2011 13:40	Measure	1202 mV	1250 mV
06.06.2011 13:50	Ball Calibration	600 mV	650 mV

Open the cap of the sensor and find the little motor and a scale. The scale reads:

CALIB — MEAS — CAGE

The motor will turn itself into position. Find a small black line on the housing of the motor. The line has to point to CALIB/MEAS/CAGE.

The voltage (mV) which is controlling the position of the motor can be read in the display MOTOR POS.

The correct voltages will be written into the protocol.

The screenshot shows the 'BGGG Gravity Meter' software interface. Callout boxes provide the following instructions:

- Insert voltage for CAGE:** Points to the 'GS_MOTOR_CAGE' field, which currently shows 1740 [mV].
- Insert voltage for MEAS:** Points to the 'GS_MOTOR_MEAS' field, which currently shows 1202 [mV].
- Insert voltage for BALL CAL:** Points to the 'GS_MOTOR_BALL' field, which currently shows 600 [mV].
- Press to start Edit function. Terminate by ENTER on Notebook:** Points to the blue arrow button next to the motor voltage fields.
- Actual voltage of motor electronics:** Points to the 'Motor Pos.' field, which shows 1206 [mV].
- Press here to go from CAGE to MEAS and BALL CALIB:** Points to the 'Ball' button in the 'GS Motor position' section.

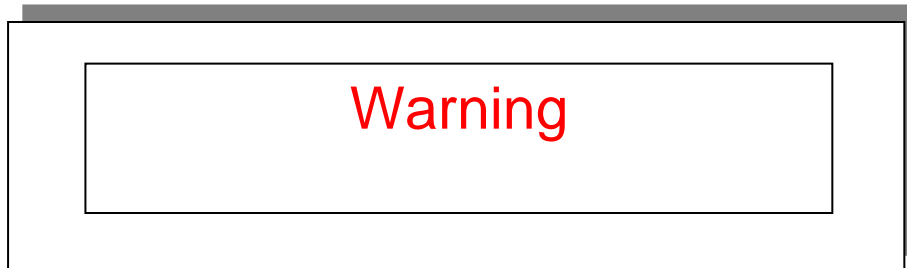
Start with CAGE

Change either voltage until black line on motor stops over desired position. Click on blue > then insert new voltage (mV). Terminate the procedure by the RETURN key of the notebook. Modify voltage in small steps (100mV). If the value is correct, the dimension (mV) will appear behind voltage. Repeat this procedure until black line of motor stop over correct position.

Test all three functions.

Write a protocol and keep it with the files for the gravity meter.

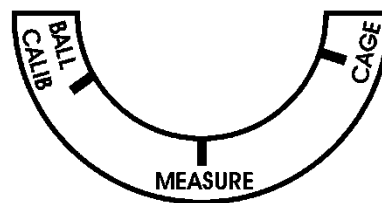
Special Attention Motor Settings



The adjustment of the MOT-CAGE position has been found critical in some cases.

The internal mechanism which moves the ball into the BALL CALIB – position can be the source of very heavy misreadings. If in “BALL CALIB” the ball is not exactly where it should be, one tiny arm inside the sensor can be touching the spring-mass-system. It applies a rather high force on the spring thus resulting in exceptionally high misreadings (>20.000 mGal).

It is highly recommended to test this problem by setting different adjustment points to the MOT CAL function. Use the GS MOT CAL functions in SERVICE of DACQ to turn the small motor into a position where the system can swing freely. Step by step you can set appropriate voltages into GS_MOTBALL (interval 50mV) to find out where the blocking occurs.



Label inside sensor

The new position can be different from the line which has been marked on the label.

Keep the voltages in you file!

Determination of Scale factor

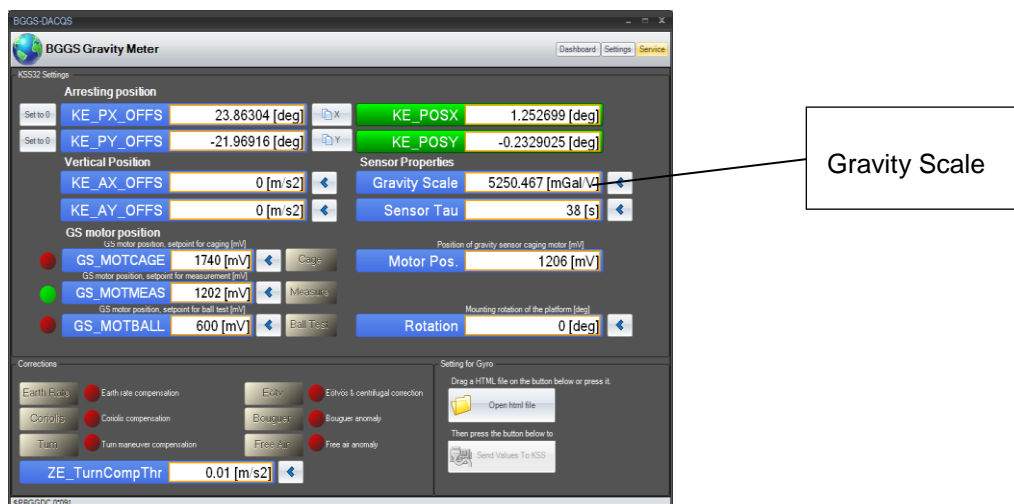
Scale factor by tilting (Offset)

One way to calculate the scale factor is tilting the sensor for a small angle. This can be done by adding an OFFSET to one of the frames.

Go to menu SERVICE and change KE_AX_OFFSET or KE_AY_OFFSET. The angle must not exceed 3°.

Insert plus/minus 0,5141 m/s². Proceed like in previous settings.

Press ENTER on Notebook to terminate operation.



Formula for tilting angle: $\alpha = \arctan(\text{accX} / g_0)$

accX = acceleration X-axis

accY = acceleration Y-axis

g_0 = earth acceleration (9,81 m/s²).

if $\text{accX} = 0,5151$ then $\arctan(0,514 \text{ m/s}^2 / 9,81 \text{ m/s}^2) = 3^\circ 00' 00''$

The factory setting (default value) is 5000mGal/Volt

Purpose of Switch Banks and Connectors

The different electronic boards of the gravity meter KSS32M contain a few switches and switch banks. All switches are for maintenance only.

Switchbank on ZE32

SW PE (one key)

The switch is intended for external programming modus only. In case a new version of the firmware has to be loaded into the electronic board ZE32, a special cable must to be connected. SW PE has to be moved into ON position.

The normal position of the key is OFF.

SW1 (four keys)

SW1 is designed to simulate other electronic boards in case of maintenance.

Key 0 = LED on front panel, new meaning of LEDs

Key 1 = simulating PS32 activity

Key 2 = simulating KE32 activity

Key 3 = Datastring \$PBGGGD will be transmitted on Serial Line cable for GPS

The normal position of all 4 keys is OFF

Special meaning of keys:

Key0 = ON

Set of 3 LED (red, yellow, green) on front panel are beeing used for additional information of the system's activities.

- Red blinking indicates processor cycles are working.
- Yellow blinking indicates data acticity of DVF-Converter is OK.
- Green blinking GPS Date are received and OK.

Key1 = ON

If PS32 is not available and any other 28VDC - power source is used, the system keeps waiting for information, normally provided by PS32. Key1 = On is made to simulate this kind of information. After this the KSS32 will run up as usual.

Key2 = ON

In case the KE32 (Gyro electronics) is not working, Key2 = ON will simulate all signals coming from KE32. The sensor and ZE32 will keep on working.

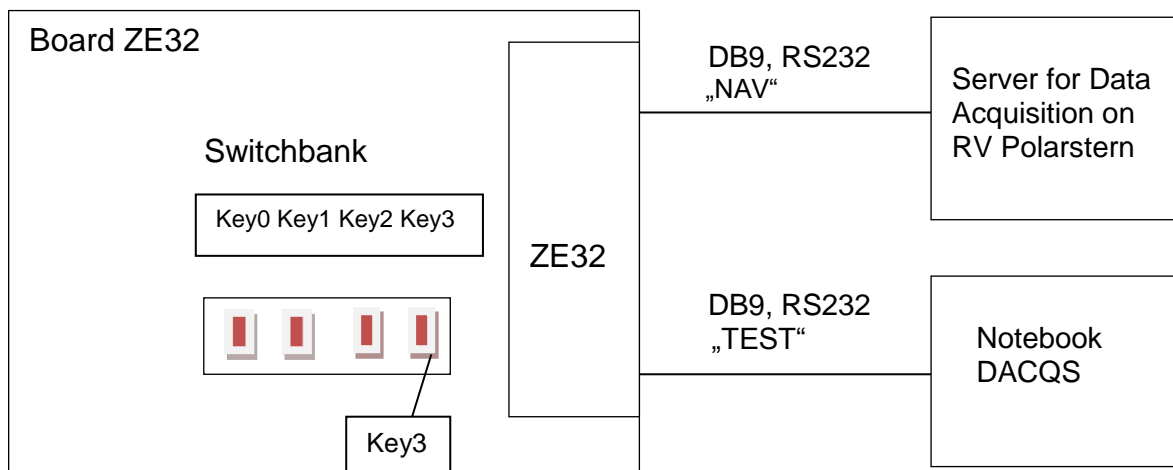
Key3 = ON

Manipulates the data string \$PBGGGD

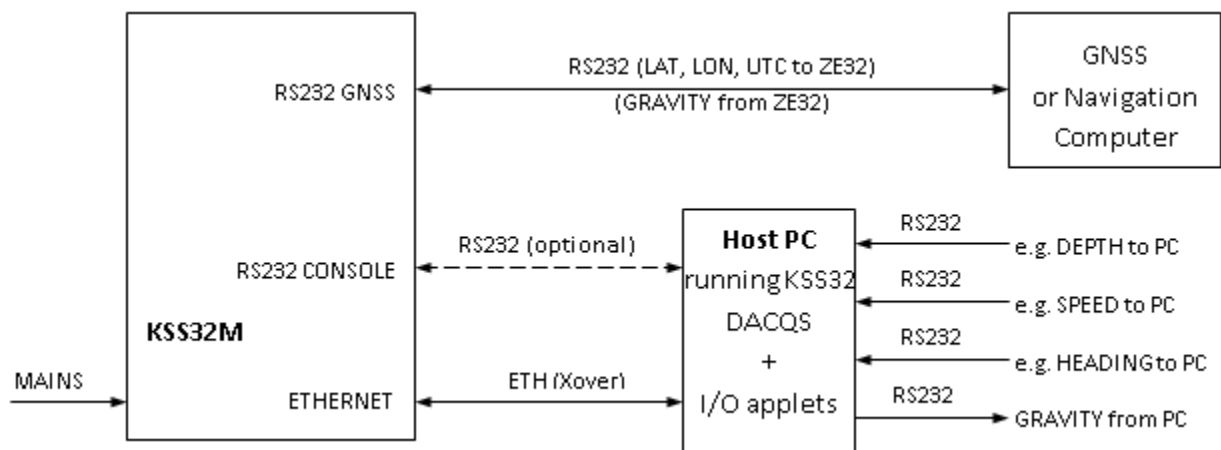
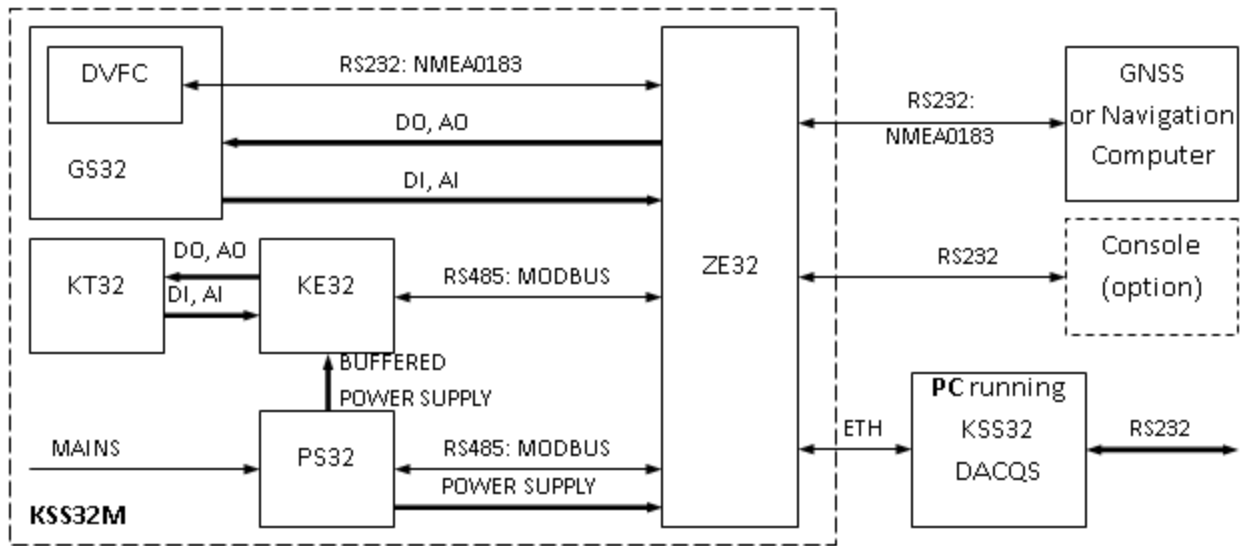
With Key3 in the ON- position the Output Data String coming from the Serial Line Output on the black front-plate will provide Gravity data from the PC.

Board ZE32 has a switchbank with four switches

KSS32M



The meaning of the switches is: Switch OFF = Function not active
Switch ON = Function is active



Continued Electronic board ZE32

Jumper JP3

Jumper JP5

Jumper JP4

Jumper JP6

Termination of MODBUS (TERM). Co-operation with JP4 on KE32 and connection of PS32. If PS32 is connected to X9 of ZE32, it is necessary to, put terminator JP6 on xxx and terminator JP4 (KE32) on yyyy.

If PS32 is connected on board KE32, JP6 has to be on xxxx and JP4 (KE32) on yyyy.

The standard connection is PS32 on ZE32

Connector X1

Board LP2.80 Connector X1to ZE32, X1

Connector X2

Board LP3.80 - NAV IN.

Connector X3

Power IN (24V) from PS32

Previous version with one extra screw terminal

Connector X4

LP3.80 – TEST RS232

Connector X5

JTAG Debugging, internal use only

Connector X6

LP3.80 LAN Network

Connector X7

Flash disc 2GB

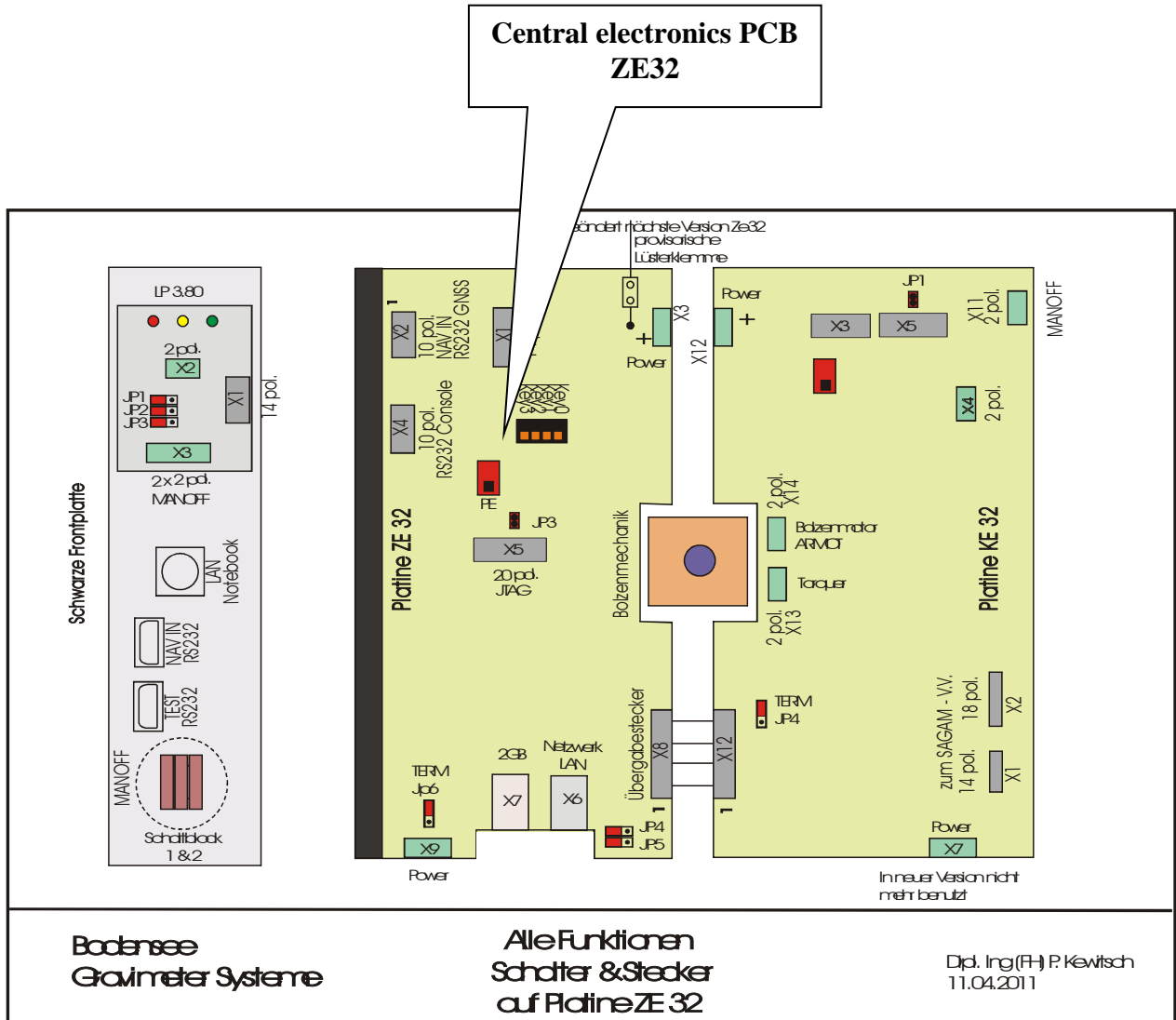
Connector X8

Connection for KE32

Connector X9

PS32 (Normalfall)

Switches and Connectors on ZE32



Front PCB LP 3.80

Jumper JP1 future use

Jumper JP2 future use

Jumper JP3 future use

Connector 1

An X1 auf ZE32 (Treiber LED)

Connector 2

An MANOFF X11 auf KE32

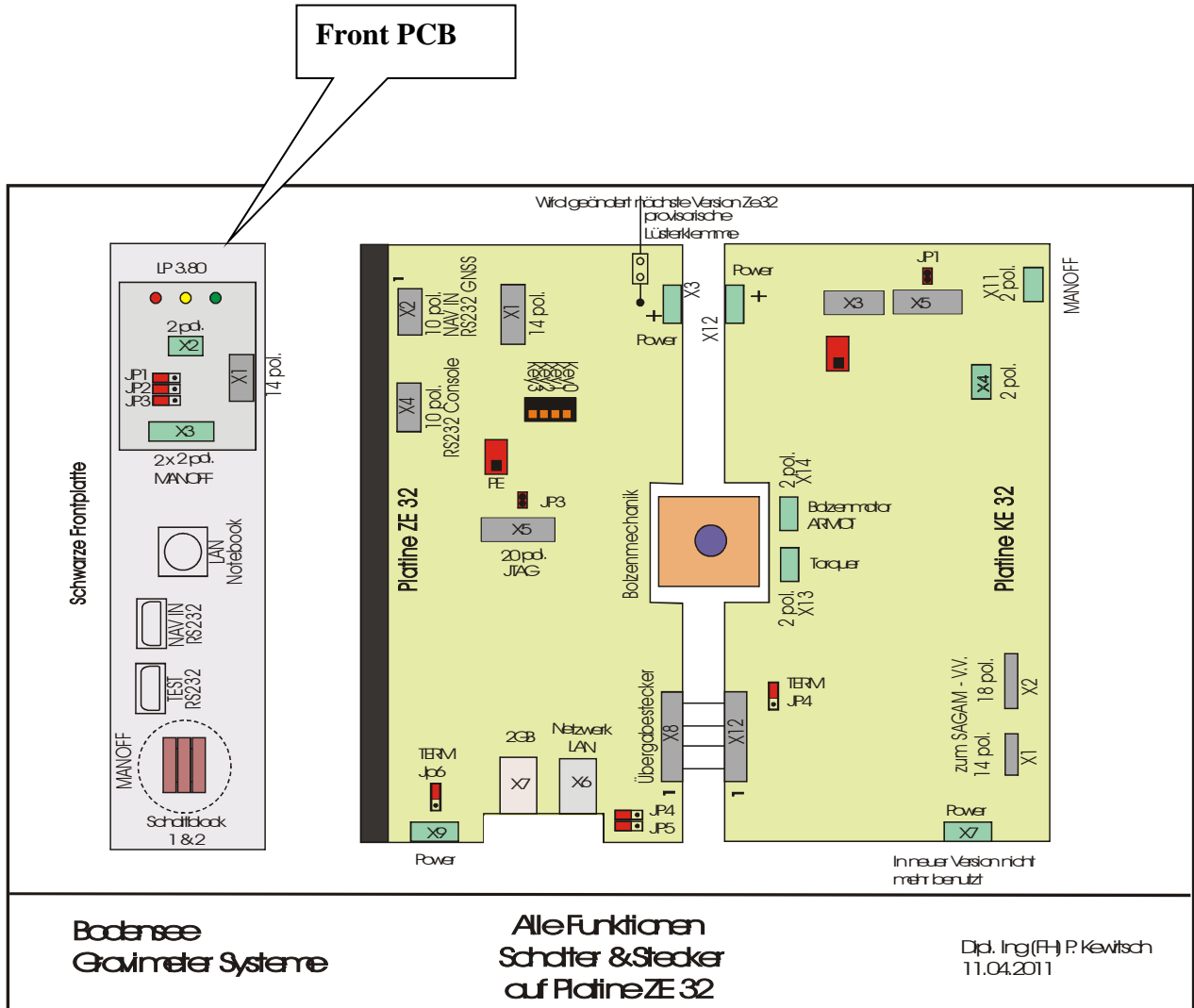
Connector 3

Big red switch MANOFF, terminal 1

Connector 4

Big red switch MANOFF, terminal 2

Switches and Connectors on Front PCB

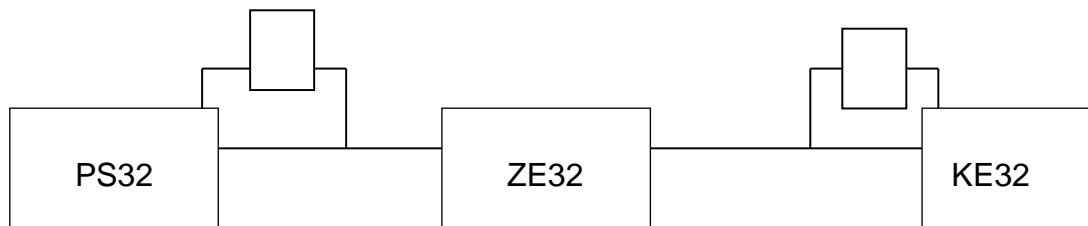


Electronic board KE32

Jumper JP1

Jumper JP4

Terminierung siehe unter ZE32



Jumper JP2 (PE) are part of one sliding switch (PE)

Jumper JP3 (PE) are part of one sliding switch (PE)

Connector X1

14 pol. Special cable (BGGS-design) to SAGEM board)

Connector X2

18 pol. Special cable (BGGS-design) to SAGEM board)

Connector X3 serial to KE32 Konsole

Connector X4 Torq. Roll für Test

Connector X5 JTAG, internal use, for debug

Connector X7

Previous connection

Connector X8

24 V from PS32

Connector X11

MANOFF from LP 3.80

Connector X12

Connector from ZE32 —

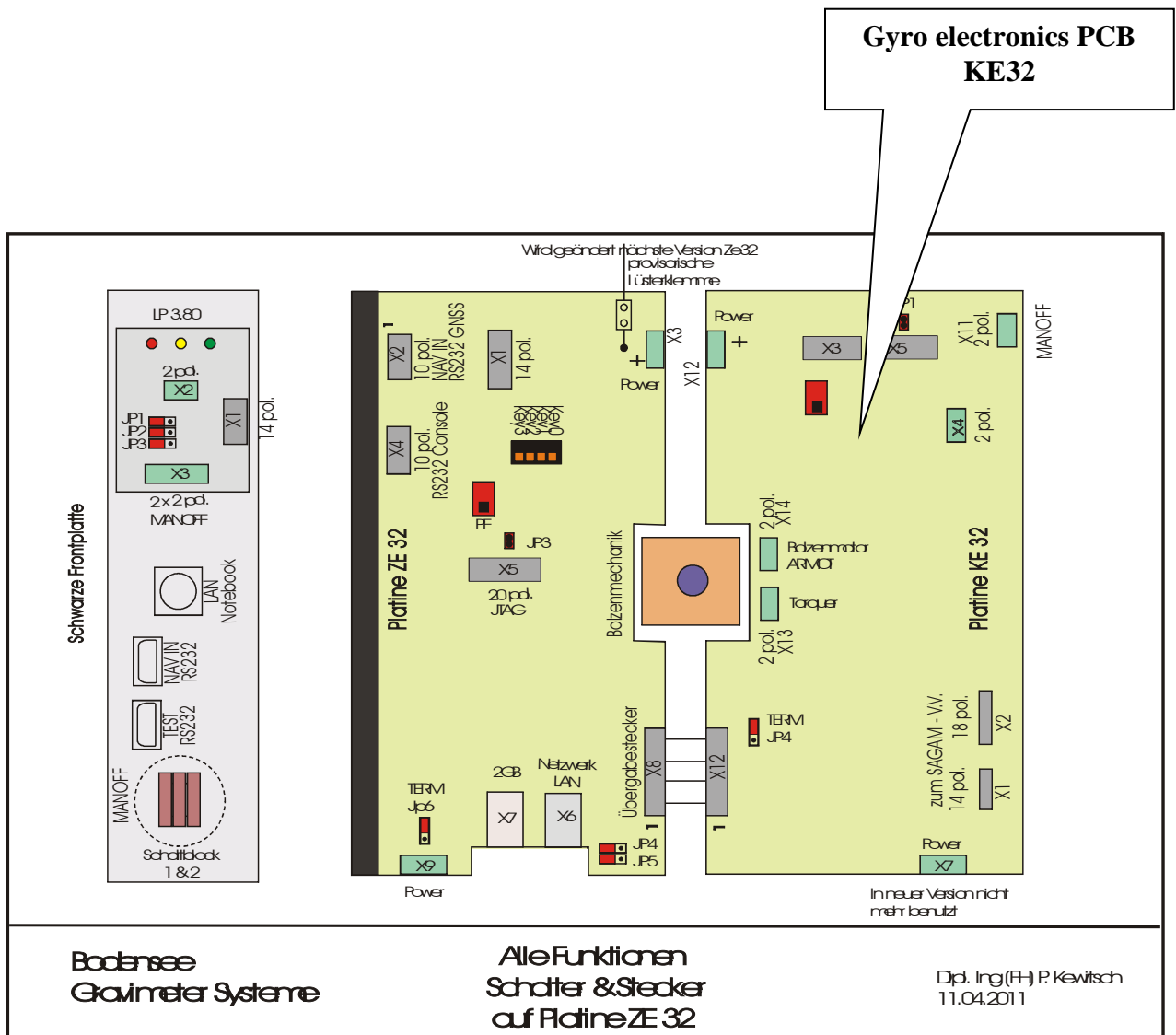
Connector X13

Pins for Torquer

Connector X14

Pins for arresting ARMOT

Switches and Connectors on KE32



High Power Capacitors

The power supply module (PS32) is equipped with a set (10 items) of high performance capacitors. Each capacitor has an extremely high capacitance of 370F. The voltage is 2,33V across each capacitor.

The high performance capacitors inside the PS32 can be monitored and tested in case of power supply failure.

The voltage drop across each capacitor should not exceed 2,33V. If one of the ten capacitors shows a significant higher voltage (more than 3V) a severe problem has occurred.

The programme DACQS provides a location where all voltages across each capacitor can be monitored.

Move to HEALTH & TEST >> HEALTH >> PS32BITE
(BITE stands for "Built In Test".)

Check the voltages of:

PS_VCELLO

*
*
*
*

PS_VCELL9

The nominal voltage must be 2,33 +/- 0,02V

Flash Memory

The flash memory on board ZE32 is for future use.

Replacing Items

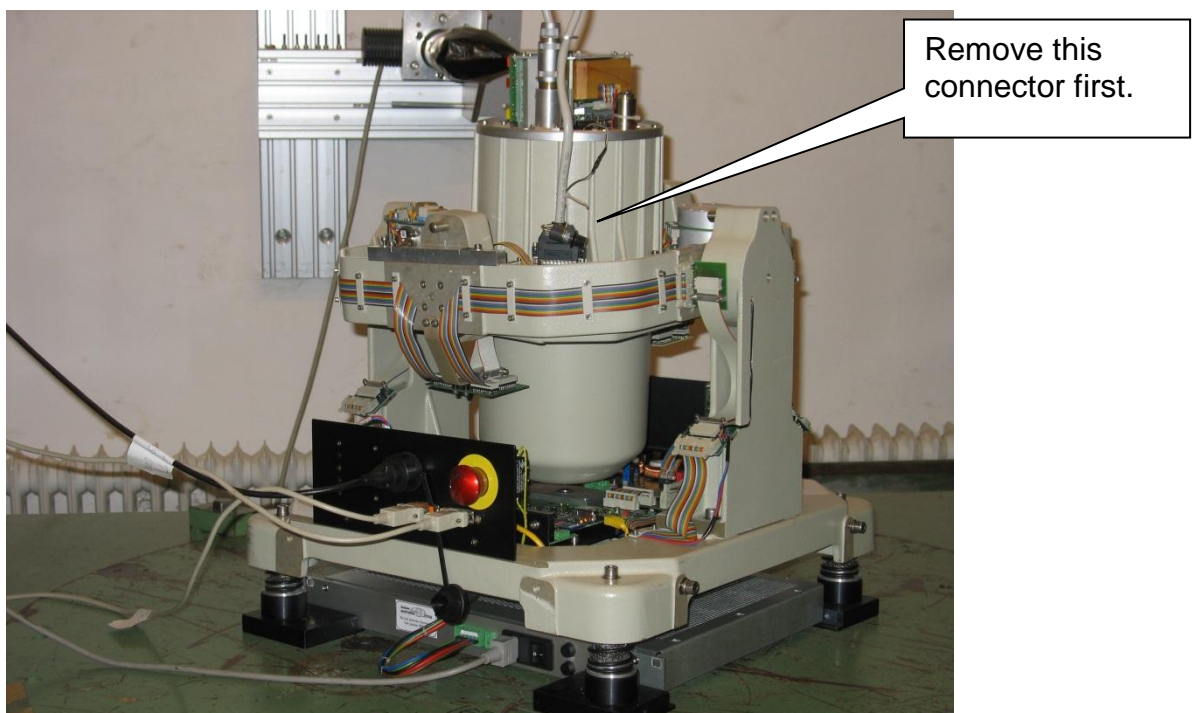
Sensor

In case a spare sensor is available, proceed as follows:

Turn old sensor into MANUAL CAGE (switch on top of the sensor).
Follow the cable from the top of the sensor to the cover on the platform.
Open two screws of the connector in order to remove this cable.
Remove this connector first.
After this carefully remove the round (silver) connector from top of the sensor.
Observe the cable! Sometimes it is rather short!

Remove old sensor.

Install new sensor. The sensor is fastened to the frame by means of three bolts (M6).
Observe two of the bolts, there are pins of about 5mm in diameter next to them. These pins serve as a stop for adjustment of the sensor with respect to the platform. The sensor must be pressed against the bolts to make sure, it is always exactly in the same position.
Tighten bolts, replace connectors.



Static Balancing

It is important to adjust the centre of all masses inside the frames of the platform. This is including the platform itself and the sensor together with all cables and plastic covers. If the static balance is not correct, the motors which move the platform must apply extra torques. If the system is well balanced, the torques are rather small.

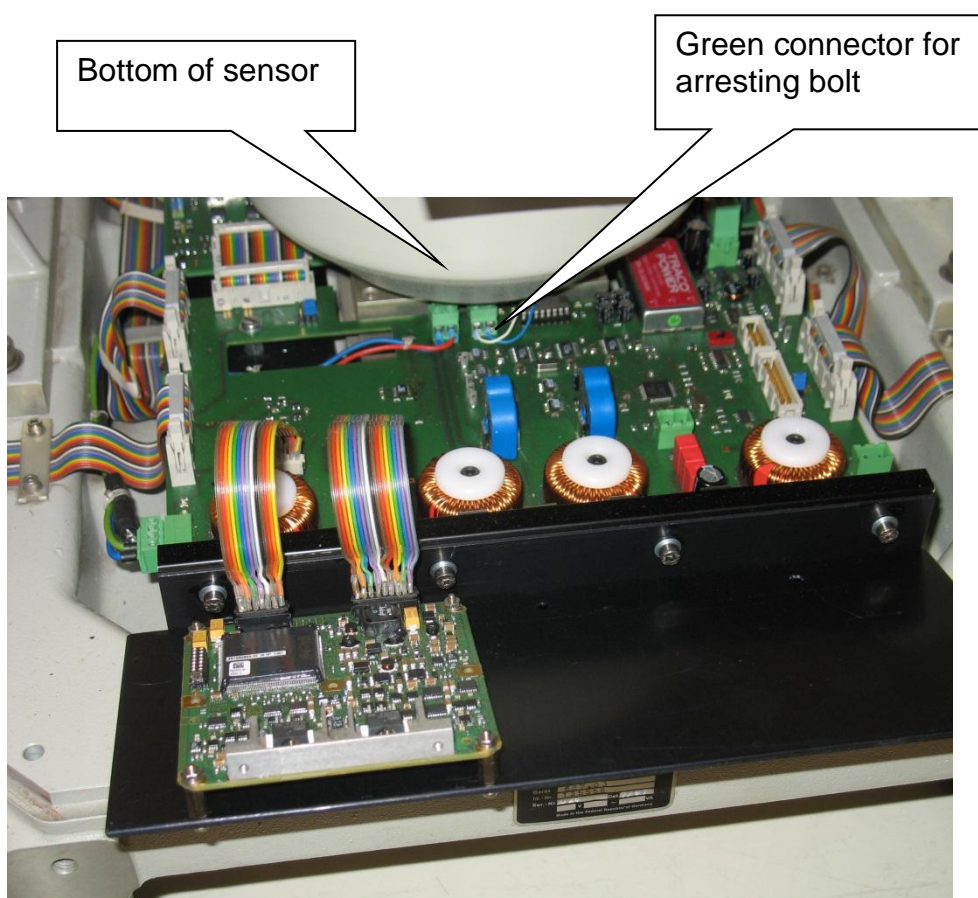
The new sensor might have a different centre. Therefore it is necessary to perform a static balance test.

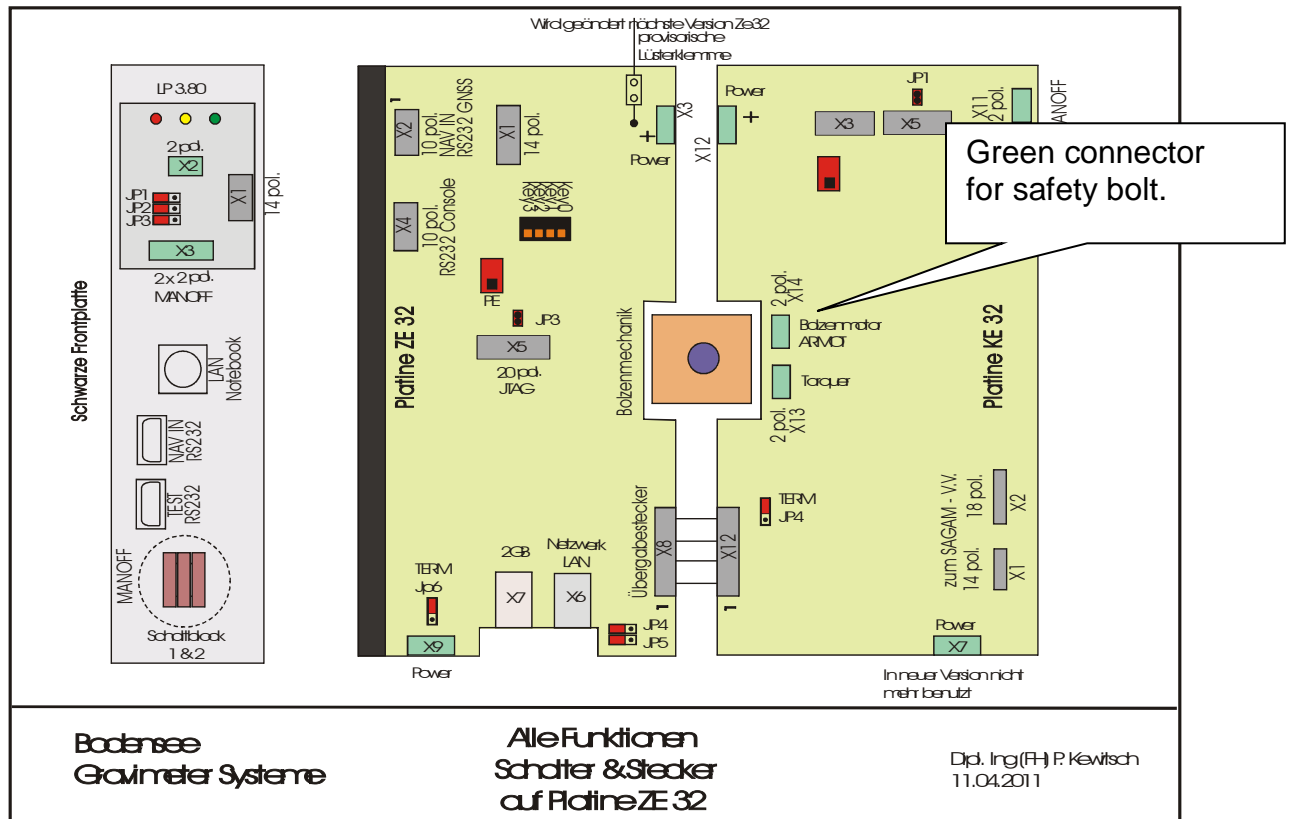
Turn the system OFF until all lights on the electronic boards are out.

Remove the red cover of the KSS32 M to have access to the interior electronics.

It is necessary to pull down (release) the arresting bolt under the bottom of the sensor. This has to be done by means of an extra voltage (9 V from a small battery).

Remove a small green connector (arresting bolt) on the boards KT32 as seen on the photo. Make sure it is the connector on the right hand side, seen on the photo! Use a small screwdriver or pliers to lift (carefully pry) the connector from the surface of the board.





General view of electronic boards of KSS32M

Use a pair of thin wires and insert into each hole of the connector. Apply a battery of 9V. Observe the arresting bolt under the bottom of the sensor. If the polarity is correct, the bolt should be moving downwards. In case it does not move, change polarity. Wait until bolt is fully down.

Remove wires and battery.

The platform should now swing freely. Find out if both axis of the platform are in a horizontal position. If they are not, apply small stripes of lead until the horizontal position of each axis is reached.

An additional test is required to see if there is any counter-torque left. Carefully tilt the sensor. There must be no torque left to drive the sensor back into vertical position. In case the sensor does not stay in the tilted position, the centre of the sensor is not exactly in the middle of both axis.

Take sensor out (ref. to beginning of page). Add or remove pieces of lead from the bottom of the sensor housing. Try several times until no more counter-torque could be felt.

Insert sensor. Use battery to drive bolt back into "safe" position. Place green connector back on the board.

Perform CAGE MOTOR adjustment (see above).

Perform parabola test (see Manual II, Hardware)

Re-install red housing.

The new sensor is now ready for use.

Replacing DVFC 32

Service and adjustment

Calibration:

A new DVFC needs a calibration. Wait for the proper temperature.

In HEALTH call MAGIC EDIT >> DATA ZE >> open ZE Output >> variables VF_CMD

Go to GET VALUE for correct insertion of DEC, HEX, BIN. Select BIN Bit No. 3,

Careful: count bits in this way: Bit0, Bit1, Bit2, **Bit3**

Insert 1 into Bit3

Press Set value,

Press Send to KSS to terminate the operation.

Replacing Gyro

Ref. to Hardware manual

Firmware

Firmware PS32 installation

Run down the system. Disconnect PS32. Remove PS32. All LED must be OFF

Use 10-pin flat cable to connect the notebook serial port COM1 to 10-pin connector beneath electronic board of PS32.

Red sliding switch on ZE32 (PE = programme enable) push to PE.
Attention: for programming only!

Store new firmware on a stick or any other medium.

Files with the extension **.fms** (flash magic settings), to set parameter for the programme „FLASH MAGIC“.

Flash Magic stars after double click.

Read in Flash magic COM1.

Click Browse. Read HEX files.

Select PS32_XXXXXXXX_YYYYY.**hex**

After this read flash magic, under step 3 read the correct file.

Push the red sliding switch to PE, then press START

After this the ventilator will start. This is intended to remind you that the programming routine is busy. When you hear the ventilator stop, push switch back to normal..

Don't forget the switch

The new firmware is installed.

Test PS32 after firmware installation

Turn OFF PS32 and wait for all LED to turn dark..

**Connect cable between TEST and COM, start Hyperterminal.
COM1 wird mit 9800,8,n,1 konfiguriert.**

PS32 ON.

Type B = BITE (Built In Test) im Hyperterminal

The following status is on display:

Current of capacitors IN/OUT

Voltage Cell 0 to Cell 9

Voltage total

Temperatur PS32

After 1 minute all voltages across cells must be 2,4V. Charging current is a few mA only.

Testing ventilator

The ventilator has to start at a temperature of approx. 40°C

Hyperterminal: Type TH = Temperature Setpoint. You can reduce the starting point

of temperatur. Typ 20°C and the fan will start at room temperatur.

Go back to 40°C

More functions for Hyperterminal:

S = Status

C = Current control

JR = Jump to reset (Erzeugung des alten Originalzustandes)

Firmware DVFC 32

Necessary preparations to load new firmware:

Run down KSS32, engage “Red Button” until all LED are OFF. Turn PS32 OFF.

Open and remove cabinet in order to have access to internal electronics. Remove flat cable between ZE32 and KE32 electronic boards. Insert special cable in the place. This cable is called DVFC Programme. This cable is also provided with a 9 pin connector. This connector is made for COM1 on your notebook. Use extension cable if too short.

Turn PS32 ON and wait for LED on PS32 to blink. Start Hyperterminal.

Note:

The sliding switch intended for initializing Firmware Setup (ref. to PS32 Firmware) is not easily accessible in the field. You can simulate the switch by means of the Hyperterminal

In Hyperterminal press „JB“ (jump to bootloader)
Disconnect by using the little ICON, depicting a telephone. The telephone must be down!

Starte Flash Magic as in PS32. Browse to DVFC_XXXX_YYYYY.hex and press START.

Atten.: Time OUT after 5 minutes

Don't be slow when doing the procedure.

You can test if the programming was successful. Start Hyperterminal again. Wait until a data string of any kind is to be seen on the display. In that case everything is OK.

Engage “Red Button” until all LED are OFF. Turn PS32 OFF. Remove special cable and insert the old one again. Close cabinet.

Worst case:

In case this kind of procedure does not work, you have to open the DVFC. Use extension cables to have access to the interior of DVFC electronics.

Use sliding switch on LP 1.9D. Refer to drawing to find DTR Reset.

Proceed as usual.

Software

Hyperterminal

The programme Hyperterminal can be used to check the KSS32M by means of a serial Connector.

- Send information between Notebook and KSS32
- Install software updates
- Generate license codes
- Run test programmes PS32, ZE32, KE32, DVFC32

Use COM1 on the notebook.

The KSS32 M has a number of shortcuts to start various options on Hyperterminal

S	=	Status
V	=	Version number
C	=	Current control
JR	=	Jump to reset (go back to factory settings)
LB	=	Jump to Bootload
ZNL	=	Read MAC Address
TH	=	Temperature Setpoint.

Interne Service-Software

Einige der Elemente der Service-Software werden durch eigene Passworte geschuetzt.

Health and Test

Versions	Firmware
Health	Spann, Ströme, Temper.
Tests	Ball Test, VF MUX Test, PreAmp Input Test, Gyro Drift Test
Magic Edit	Variablen können hier eingegeben werden, die nicht so sichtbar sind.

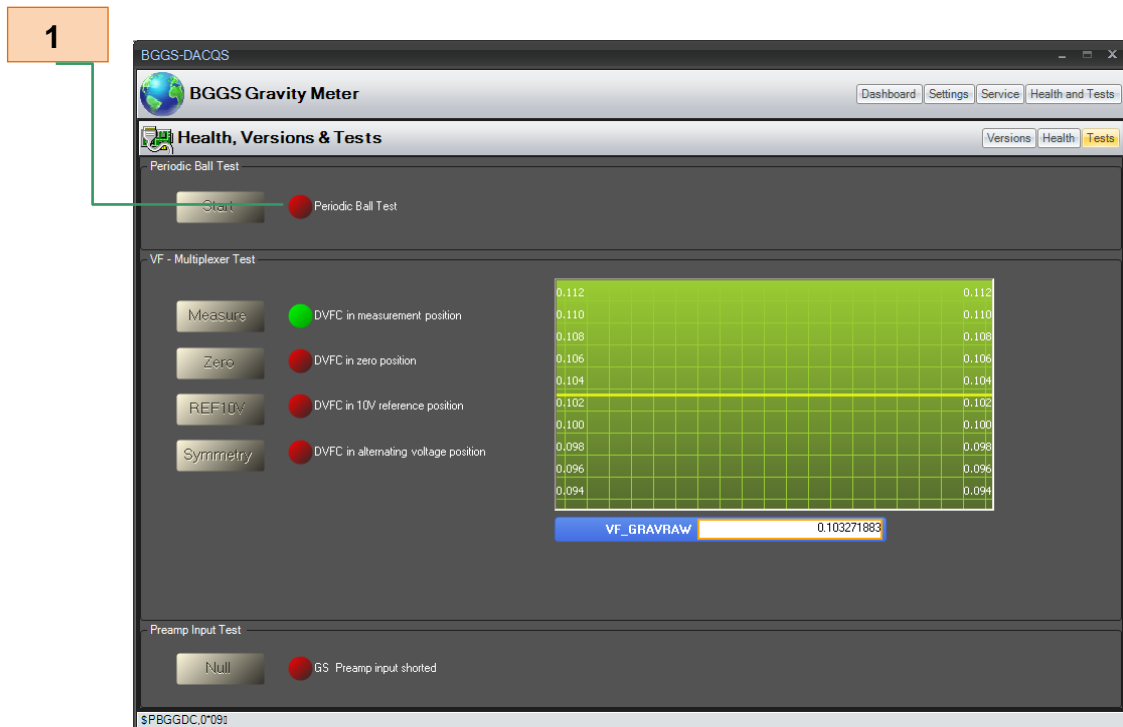
Paßwort:	HEALTH
Menu ausblenden:	UNHEALTH

Designer

Paßwort:	DESIGNER
Menu ausblenden	UNDESIGN

Menu HEALTH and TEST, Submenu TEST

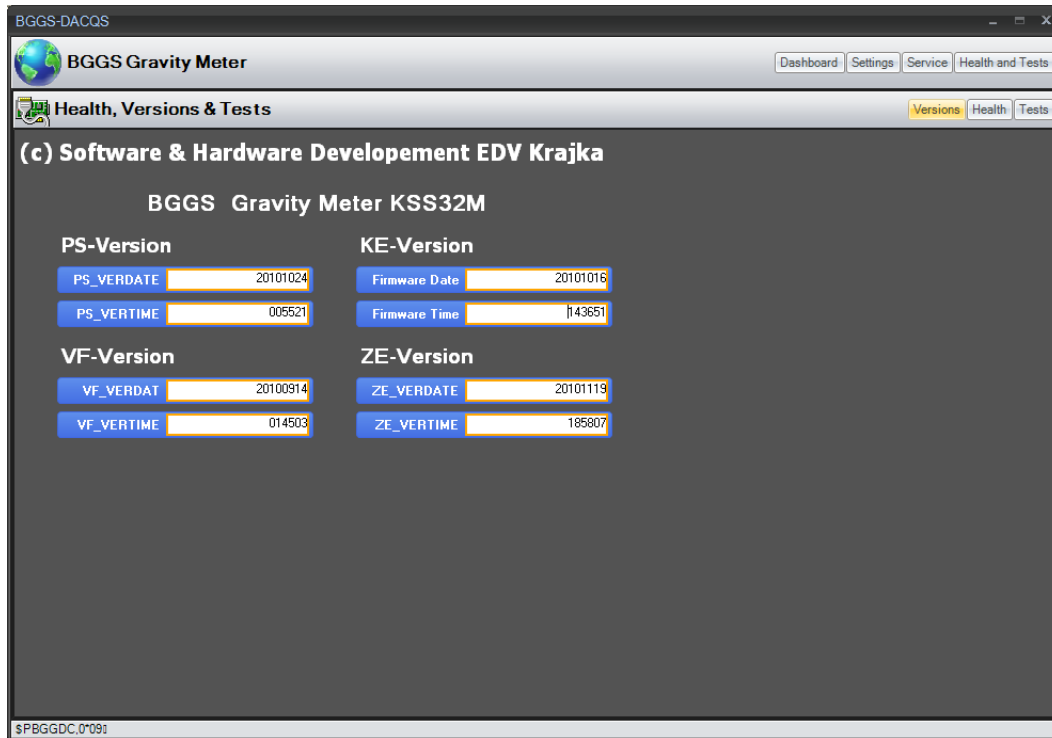
Periodic BALL TEST



Press START for beginning of BALL CALIBRATION
Press again to stop.

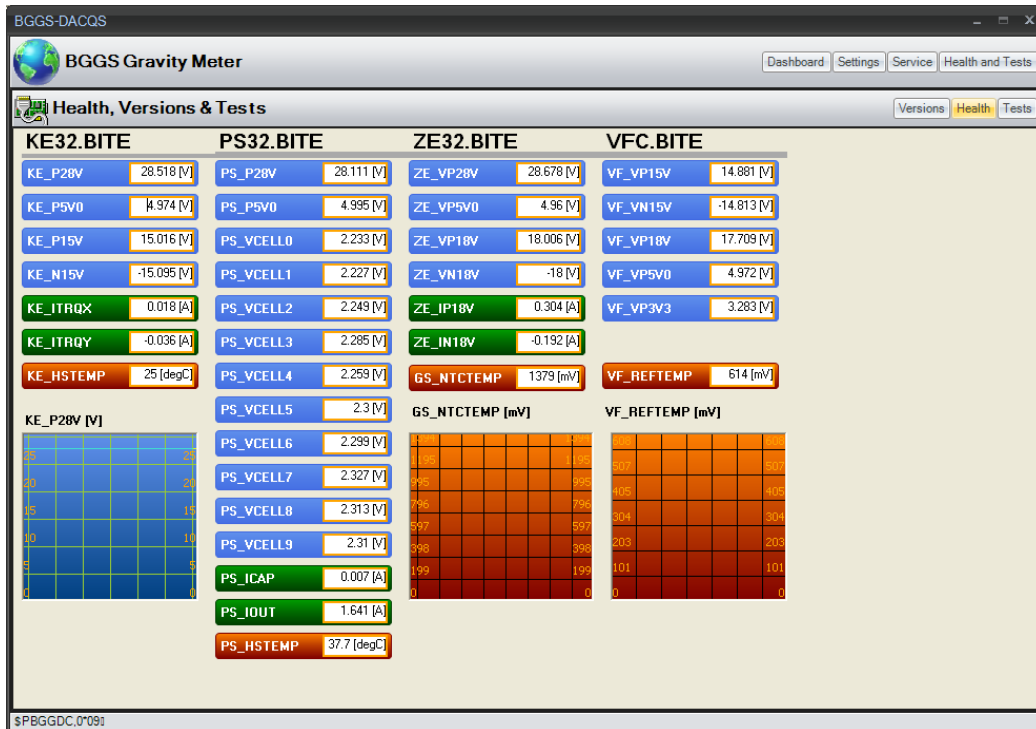
The other functions are for internal use only. No customer activity allowed.

Internal Menus HEALTH and TEST, Submenu VERSIONS



For internal use only. The date and time of the last update for specific firmware is shown: PS, KE, ZE und VF

Internal Menus HEALTH and TEST, Submenu TESTS



Built In Test

All internal voltages, currents and temperatures are shown here;

KE32.BITE

KE_P28V	=	Betriebsspannung	+28V
KE_P5V0	=	Betriebsspannung	+ 5,0V
KE_P15V	=	Betriebsspannung	+15V
KE_N15V	=	Betriebsspannung	-15V
KE_ITRQX	=	Torquerstrom X-Achse	mA
KE_ITRQY	=	Torquerstrom Y-Achse	mA
KE_HSTEMP	=	Gehäusetemperatur	°C

PS32.BITE

PS_P28V	=	Totalspannung über den Kondensatoren
PS_P5V0	=	geregelt Spannung 5,00V
PS_VCELL0	=	Zellenspannung Kondensator Nr. 0 (2,3 V)
PS_VCELL1	=	Zellenspannung Kondensator Nr. 1 (2,3 V)
PS_VCELL2	=	Zellenspannung Kondensator Nr. 2 (2,3 V)
PS_VCELL3	=	Zellenspannung Kondensator Nr. 3 (2,3 V)
-	-	
-	-	
PS_VCELL8	=	Zellenspannung Kondensator Nr. 8 (2,3 V)
PS_VCELL9	=	Zellenspannung Kondensator Nr. 9 (2,3 V)
PS_ICAP	=	Strom (A)
PS_IOUT	=	Ausgangsstrom aus Kondensatoren (A)
PS_HSTEMP	=	Gehäusetemperatur (°C)

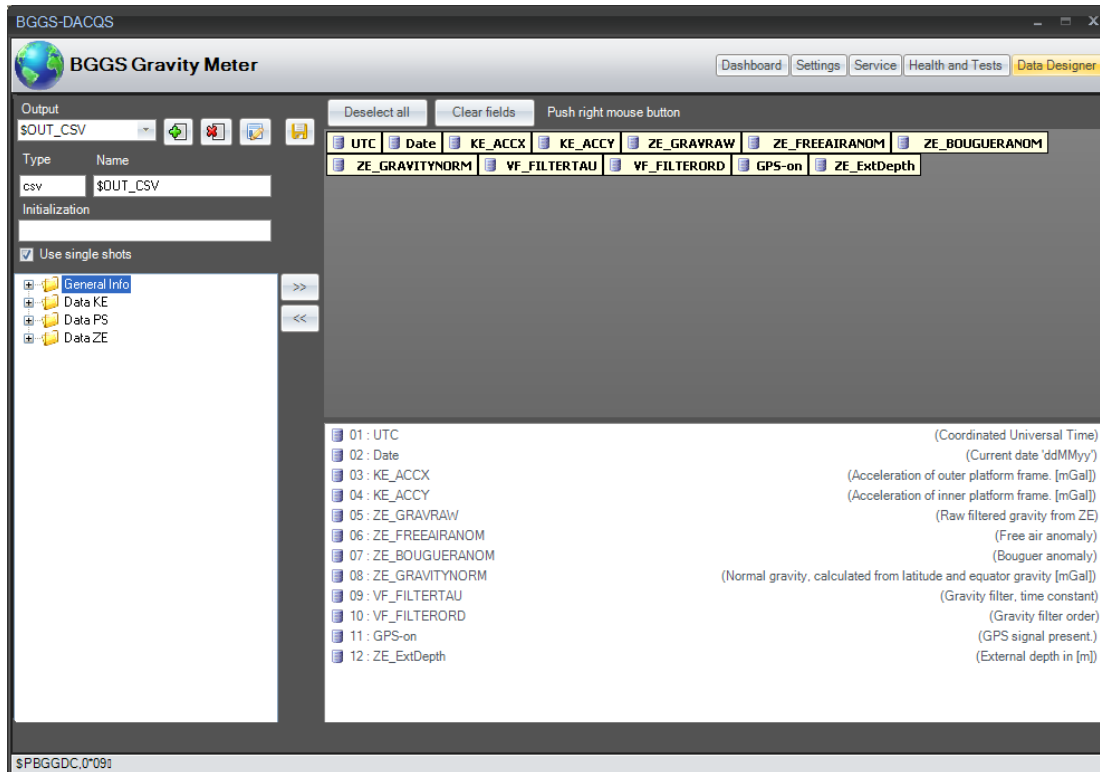
ZE32.BITE

ZE_VP28V	=	geregelt Spannung +28V
ZE_VP5V0	=	geregelt Spannung +5,00V
ZE_VP18V	=	geregelt Spannung +18,0
ZE_VN18V	=	geregelt Spannung - 18,0V
ZE_IP18V	=	Strom in den Sensor (positiv)
ZE_IN18V	=	Strom in den Sensor (negativ)
GS_NTCTEMP	=	Gravimeter System Innentemperatur in mV

VFC.BITE

VF_VP15V	=	+15V
VF_VN15V	=	-15V
VF_VP18V	=	+18V
VF_VP5V0	=	+5V
VF_VP3V3	=	+3,3V
VF_REFTEMP	=	VF Wandler, Temp., Spannungsreferenz in mV

Data Designer



The Data Designer offers a way of creating your own format for any given string of data output

ref. to Manual Software

Details:

How to remove bugs

On very rare condition the system may refuse starting at all. This can be due to the internal "WATCH DOG". The watchdog is intended to automatically restart the internal processor in case a time-out of an external interrupt. If the watchdog fails to reset the system, the entire gravity meter will not finish the run-up process.

You can activate the RESET function from outside:

Connect TEST (RS232) to COM1

Start Hyperterminal

Push the PE-switch (red sliding switch) to PE and back again. This will generate an internal RESET and the watchdog will resume operation.

Don't forget to set into normal position again

You can also observe the status of watchdog via Hyperterminal.

In Hyperterminal type DW (debug watchdog)

The HEX word D5AB = watchdog = OFF

Any other HEX reads watchdog = ON

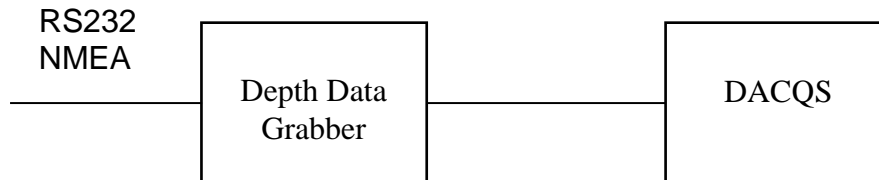
Connecting other Instruments

Echo sounder

Most marine echo sounder are furnished with NMEA-Datastrings. The programme „DATA GRABBER“ is intended to connect NMEA files.

For instance gravity meter S/N 049 in Shanghai:

\$--DBK..... example
\$--DBS.....



Start Data Grabber (ICON) >>> Settings. Select COM, Baudr. etc.
>>> Start „Short Test“. A small window indicates if data are coming at all.

>>> Short Test finish. >>> Next >>> select according to customer.

Note: Cchecksum do not cross.

IC = 192.168.0.100

>>> „directly“ to KSS32 >>> “Short Test” skip >>> SAVE und CANCEL. (cancel is serving as a terminator).

Note:

If you want to connect the echosounder via RS232, you have to leave the menu prior to the request for the IP address. All questions must be skipped. Leave with SAVE and CANCEL

Wenn der Anschluß der Echolote nur über RS232 laufen soll, muß man das Menu verlassen, ehe die Frage nach IP Adresse kommt. Die folgenden Fragen müssen also übersprungen werden. Verlasse mit SAVE and CANCEL.

Back to Data Grabber >>> Start >> Data are coming.

Important:

Data from echosounder must be stored in the data files by means of DATA DESIGNER.

Special Connection for NAV (Polarstern)

Data Strings Output

1. Standard design

Standard Output for all data going to an external acquisition system is via one of the COM-ports attached to the notebook.

Ref. to DATA DESIGNER for details.

2. Special design: (Polarstern)

Polarstern wanted to output all measurement data and the input of navigation data via the NAV - RS232 connector on the front board of KSS32M

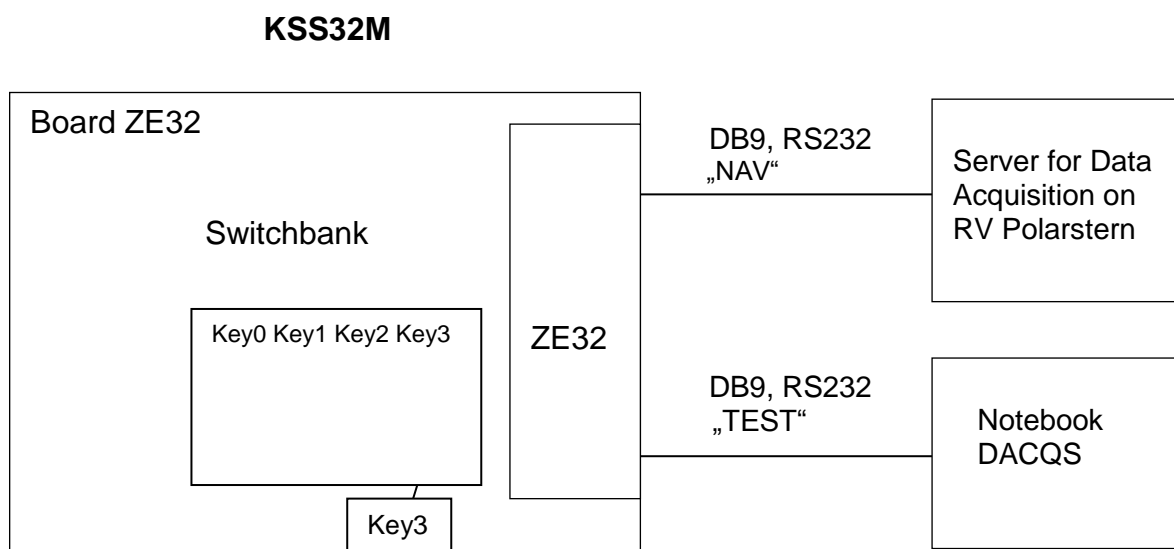
This can be accomplished by turning the ZE Electronics Board ZE32 into bi-directional mode. In this case the NAV input can also serve as an output of data files.

Ref. to DATA DESIGNER for details.

When turning Key3 to the ON position,
The bi-directional mode for RV Polarstern will be set into operation

Switchbank on ZE32

Board ZE32 has a switchbank with four switches



The meaning of the switches is: Switch OFF = Function not active
Switch ON = Function is active

Key 0 = ON

Check the serial connection "TEST" for proper operation. One of the three LED on the front plate will blink >>

Green = NAV – Data are coming

Yellow = DVFC – Data are coming

Red = internal timer is blinking at 4/sec (Operation of main loop >
very important function of processor.

Key 1 = ON

Can simulate PS32. Set to ON if no PS32 is available.

Key 2 = ON

Simulate KE32 (ref. to key 1)

Key 3 = ON

Data Output via NAV Data output (ref. to special connection for NAV)

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