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Optical Belt Scale - MultiLink

Installation & User Manual

! Attention, important safety advice !

Do not switch on the sensor until it is completely mounted on the machine and the laser sources are aligned to the conveyor.
The switched on sensor sends invisible laser radiation during the measuring procedure. The sources of laser are activated only when the conveyor is moving. This condition is indicated by the blinking red signal lamp.

When the conveyor is not moving, the sources of laser are switched off automatically. This state is indicated by the red signal lamp with a short flashing signal, followed by a long pause.

However, to guarantee maximum safety, it should be always avoided to look directly into the optical outlets while the sensor is current supplied.

Welding current flowing through the sensor unit causes damage to the Optical Belt Scale!

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1 Extent of delivery

Sensor Unit

CAT B15Q mobile phone, charger unit 110/220V, USB/charging cable, USB charger unit for 12V/24V

Thermal Printer + charger unit 110/220V + thermal paper

Frame & Bolts

Inductive sensor + Support bracket for the inductive sensor

Inductive sensor cable 0,5m + Inductive sensor cable 2,5m

MultiLink-Power cable 2,5m + MultiLink-Power cable 15m

Optional DC/DC Converter 12V/24V 10A + Cables

Technical Data
U In: 11V ... 14,5V
U Out: 24V, limited to 26V
I Out: 6A

2 Installation of the Optical Belt Scale System

2.1 Installing the inductive proximity switch sensor

The inductive sensor is needed to measure the drum speed and has to be mounted in a good position on the drive pulley of the belt conveyor.
(see picture for better understanding)

The inductive sensor on the bracket and the impulse sensor on the conveyor drum shaft must be aligned that they pass each other at a distance of 3–5 mm [0,18 - 0,197 inch].

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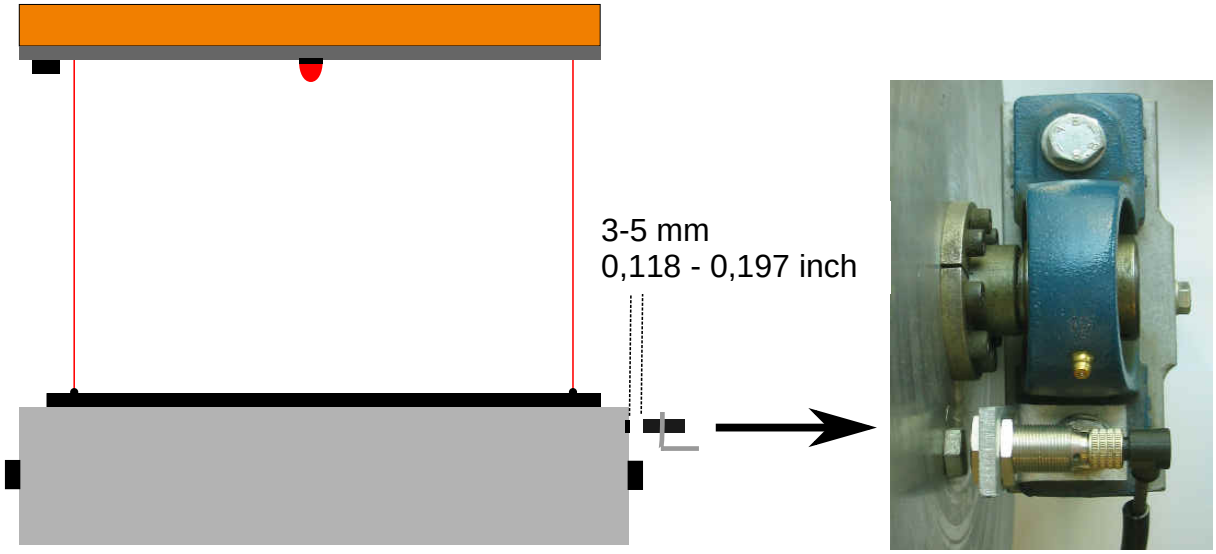
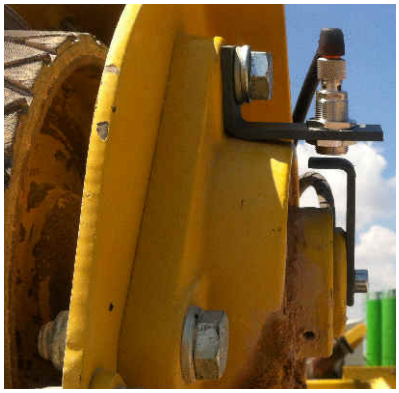


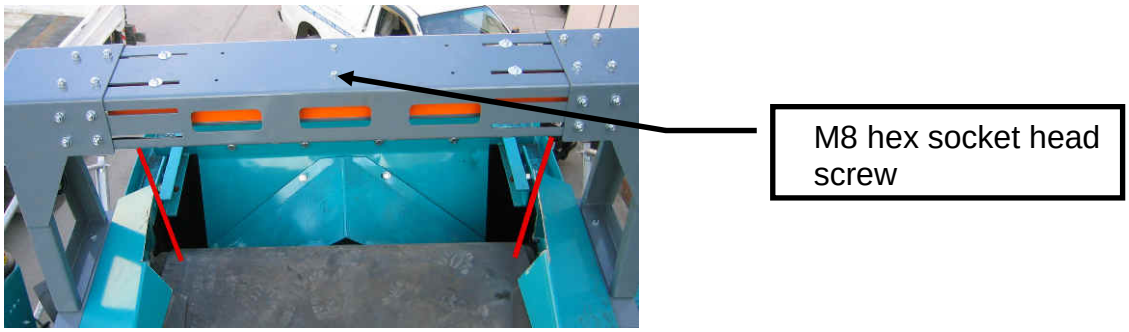


2.2 Connecting the Power Supply Cable

Connect the MultiLink-power supply cable (Cable D) to a power source. The optical belt scale needs
24V DC 5 A power source.

Power supply cable D	
Pin 1 / black wire	-24V DC (GND)
Pin 2 / red wire	+24V DC

2.3 Mounting of Sensor Unit



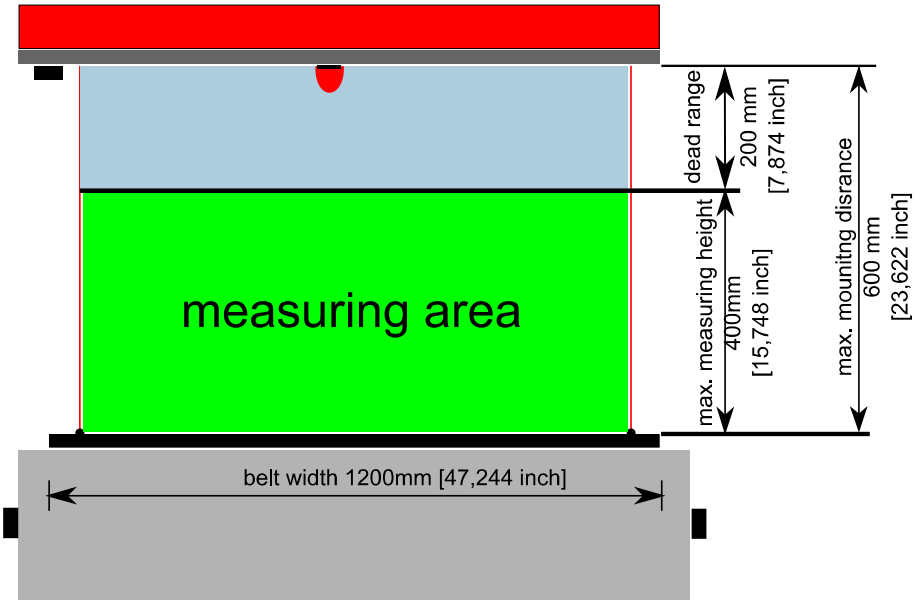
The sensor is fixed on the frame with 6 pieces M8 hex bolts which are supplied with the unit.

Be sure to not exceed the maximum mounting height of 600mm [23,622 inch].
A mounting position on 600 mm [23,622 inch] distance allows to measure material with height of 400mm [15,758 inch] on the belt. If the mounting height falls below 600mm [23,622 inch], it will narrow the full measuring range.

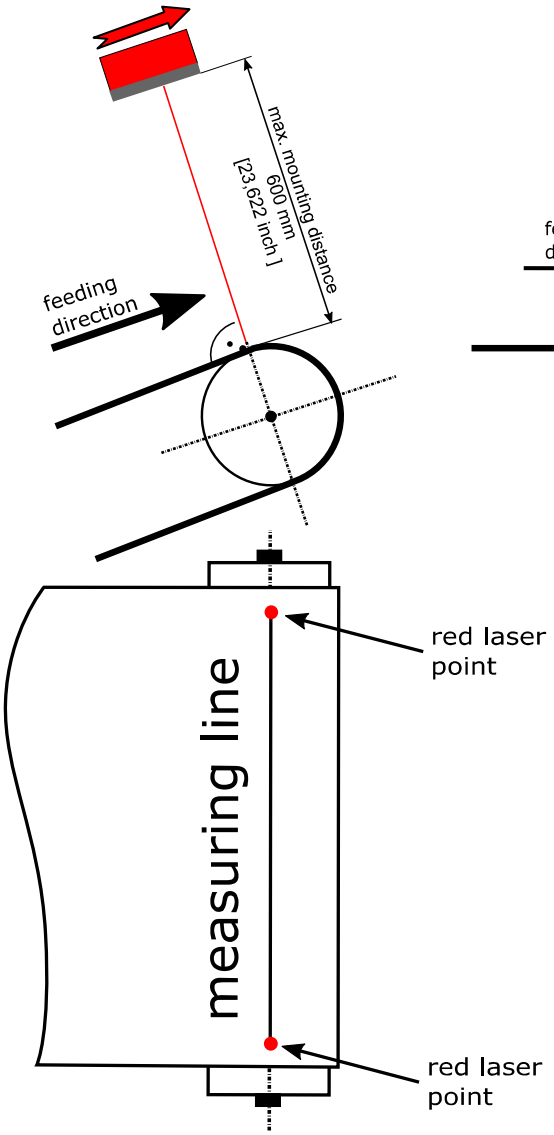
After powering on the sensor, two red laser dots will be visible for about 5 minutes. Use these two dots (which are marking the active measuring line) to position the sensor accordingly the pictures.
To power on the sensor connect the power supply cable **C** to the sensor and to the power supply cable **D.**

The sensor has to be positioned above the apex of the roller. Use the two red laser dots (one on each side of the sensor) to check whether they match the point of contact between belt & drum exactly!

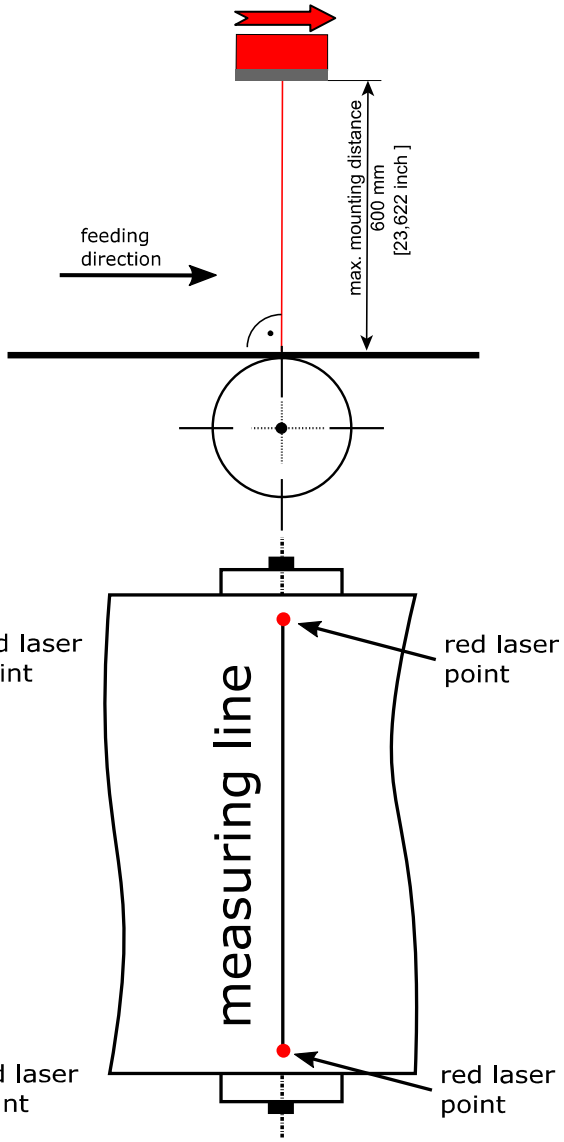
Please make sure that the sensor is mounted in the right direction (running direction of the conveyor)!

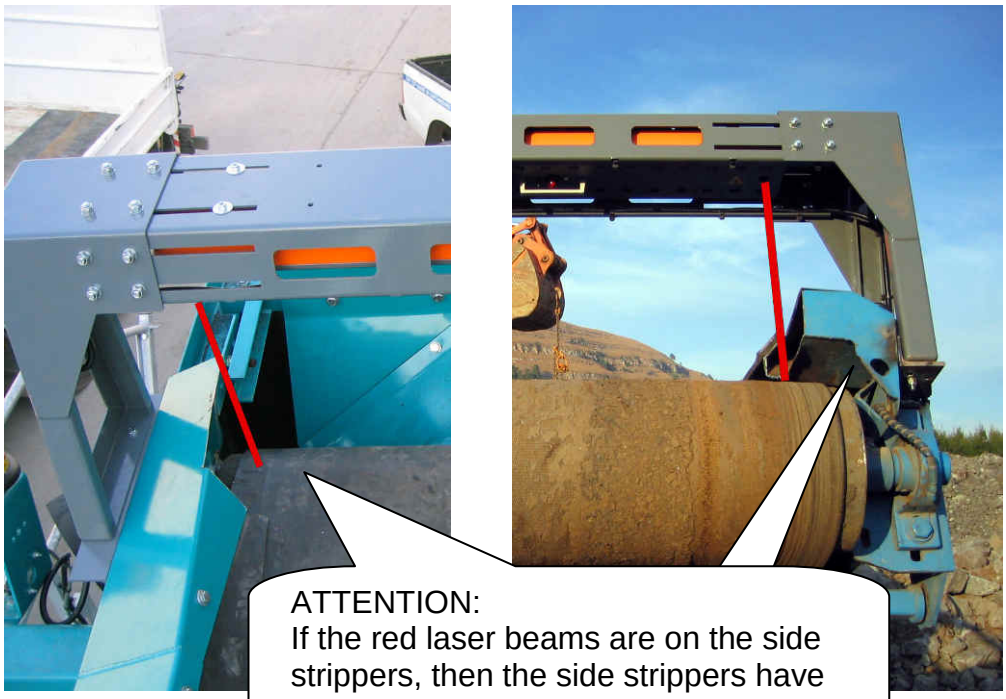


Sensor above discharge drum



Sensor above roller station



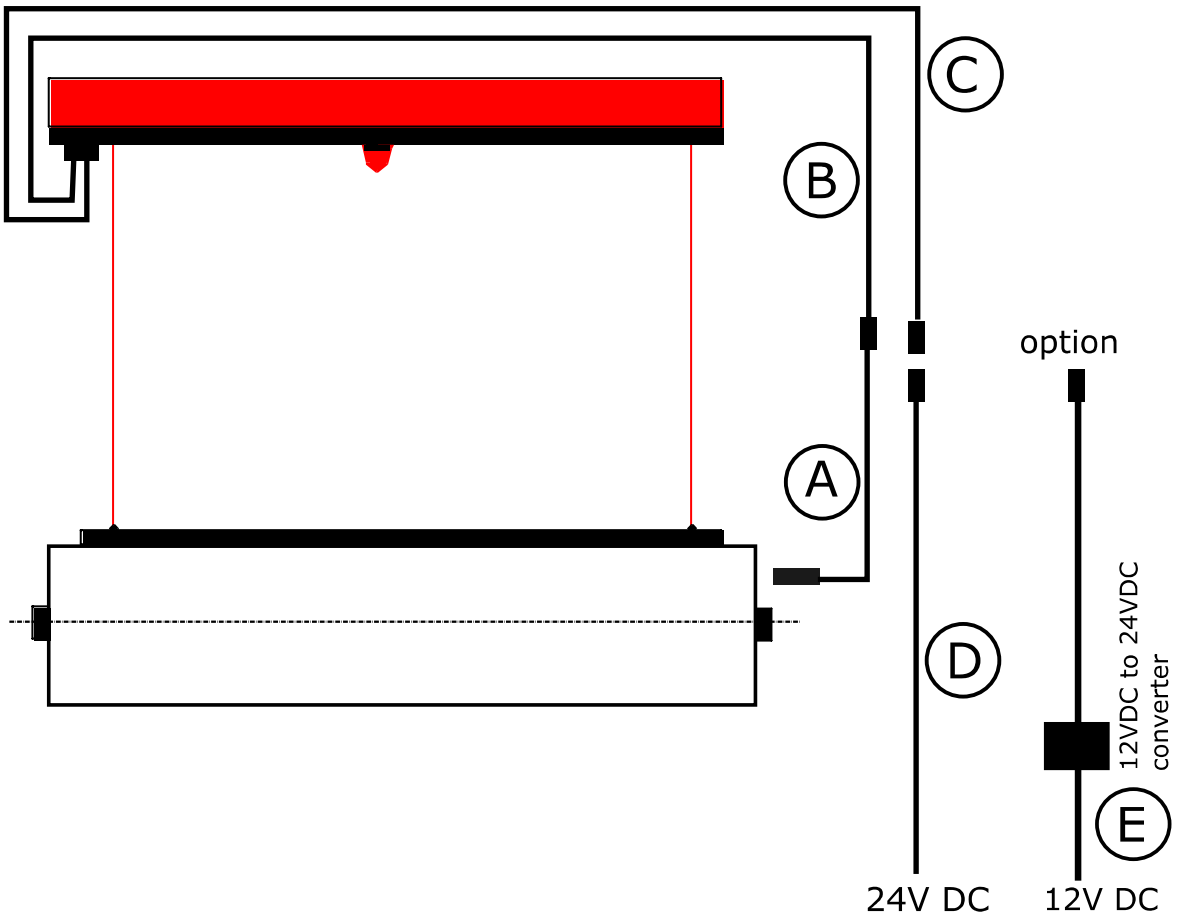


ATTENTION:
If the red laser beams are on the side strippers, then the side strippers have to be cut out like on the pictures!

The following table shows which sensor fits best to each conveyor belt width

Sensor	Measuring width [mm]	Conveyor belt width [mm]	Conveyor belt width [inch]
600	520	400 – 600	15.7 – 23.6
800	720	600 – 800	23.6 – 31.5
1000	900	800 – 1000	31.5 – 39.4
1200	1090	1000 - 1300	39.4 – 51.2
1400	1305	1300 - 1600	51.2 - 63.0
1600	1500	1600 - 1700	63.0 – 66.9
1800	1695	1700 - 1900	66.9 – 74.8

2.4 Connecting the cables of the system



Connect the inductive sensor to the measuring sensor using the data cable **A & B**. The sensor is then connected to the 24 V DC / 5 A power source using the power supply cables **C & D**. If the sensor is used in conjunction with a 12 Volt powered system, the DC/DC converter **E** has to be used. It is advised to connect the sensor to the power supply at the ignition so that the sensor is only turned on when the ignition is on and the plant is running.

Following please find the occupancy of the cable D:

Power supply cable D	
Pin 1 / black wire	-24V DC (GND)
Pin 2 / red wire	+24V DC

While mounting all cables pls ensure that they can't be damaged or squashed when the plant is working or when the plant is being transported i.e. the conveyors are folded.

3 Getting Started with the Mobile Phone

3.1 Inserting the battery

1. Slide the back cover latch to the unlock position.

2. Hook your fingertip under the back cover.

3. Lift the back cover.

You now have access to the battery compartment. Insert the battery. Make sure the contacts of the battery are aligned with the connectors in the battery compartment.

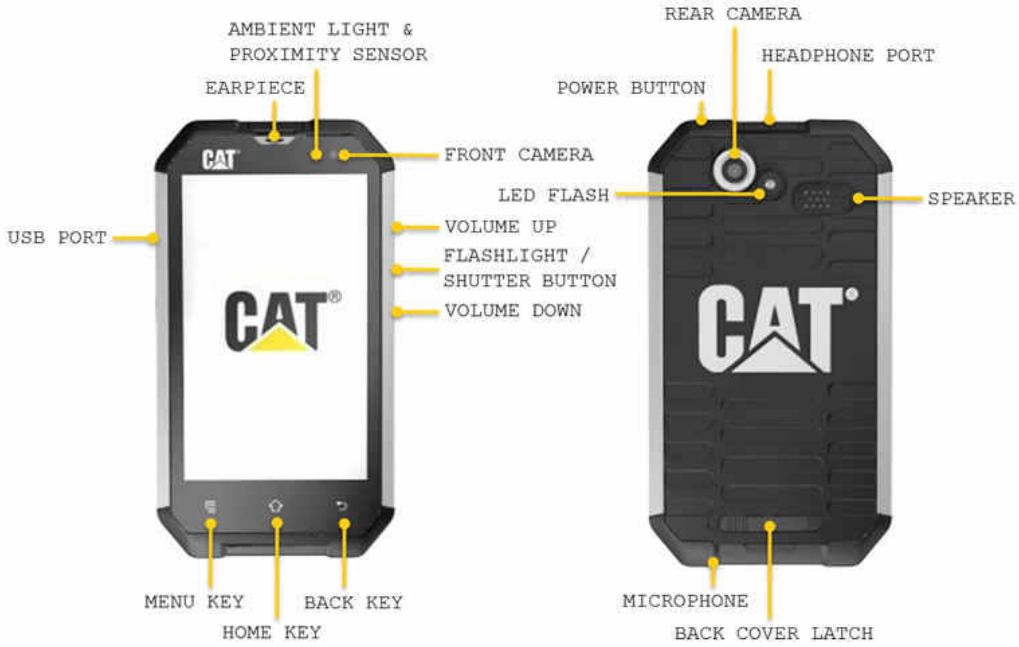
4. Make sure the rear cover is the correct way round.

Engage the hooks on the top of the back cover with the designated holes on your phone.

6. Push the rear cover firmly to secure it into place. Note: Be careful not to bend the lugs/catches/ hooks on the battery cover.

7. Press and hold the bottom of the rear cover and slide the rear cover latch to the left to the lock the back cover.

3.2 Powering on the Mobile Phone



To power on press the Power button.

Key functions at your fingertips:

Power button: Press to turn on your mobile phone.
Press and hold to open the Phone options menu.
Press to lock or wake the screen when your mobile phone is on.

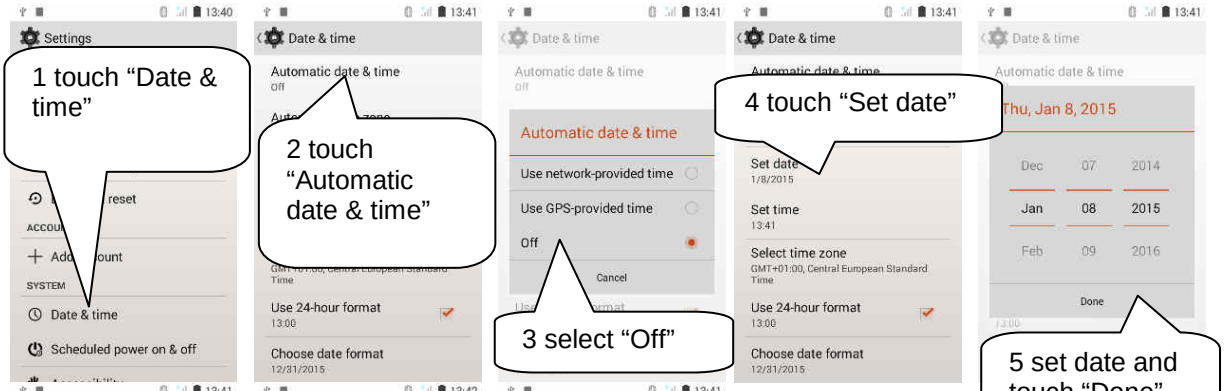
Home key: Press at any time to display the Home screen. A long press of the Home key will launch Google search or Google Now.

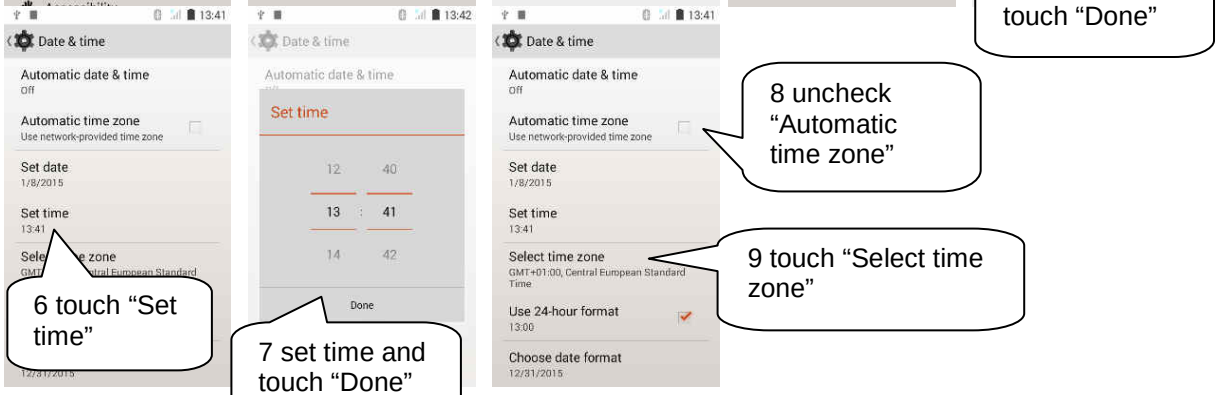
Menu key: Touch to open a menu with options that relate to the current screen or application.
A long press of the Menu key will list the recent applications used.
A short press of the Menu key from the Home screen will display all screen and icon settings.

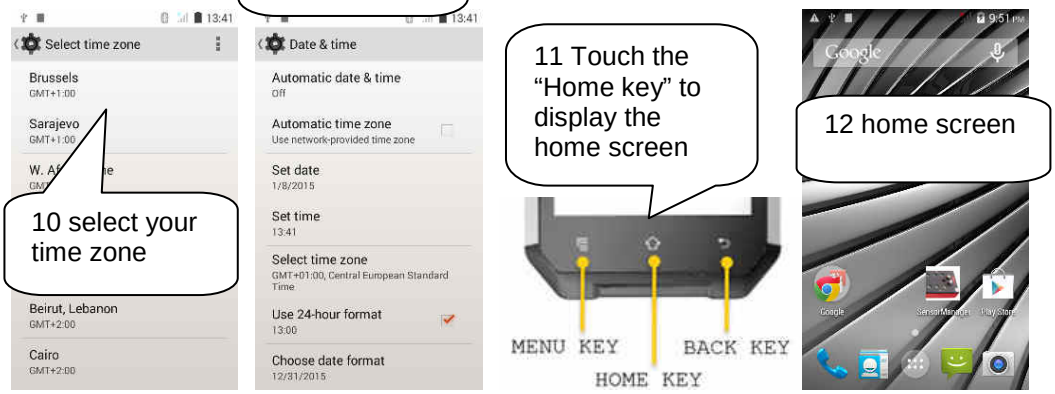
Back key: Touch to display the previous screen you were working in.
Use to close onscreen keyboard.

3.3 Set User Interface Language

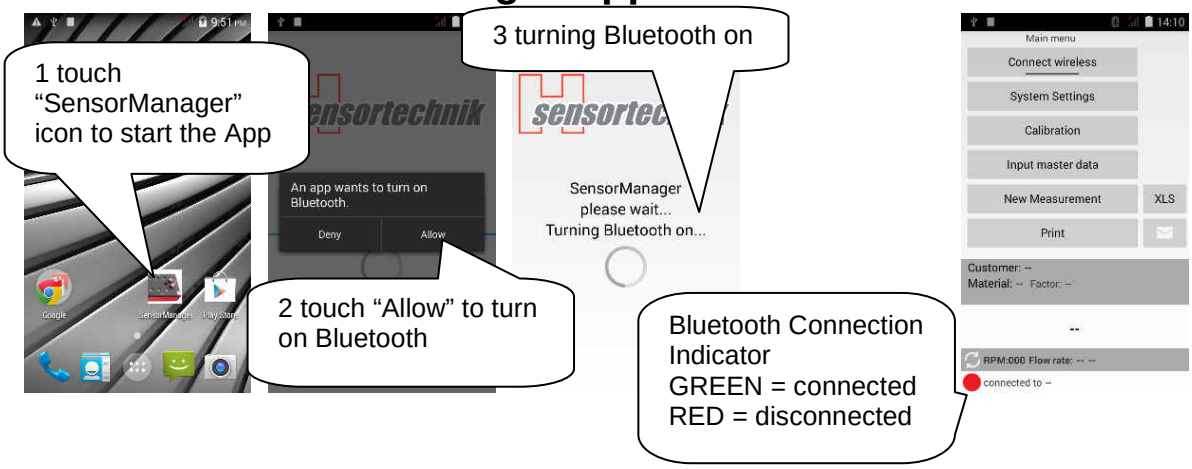
3.4 Set Date & Time





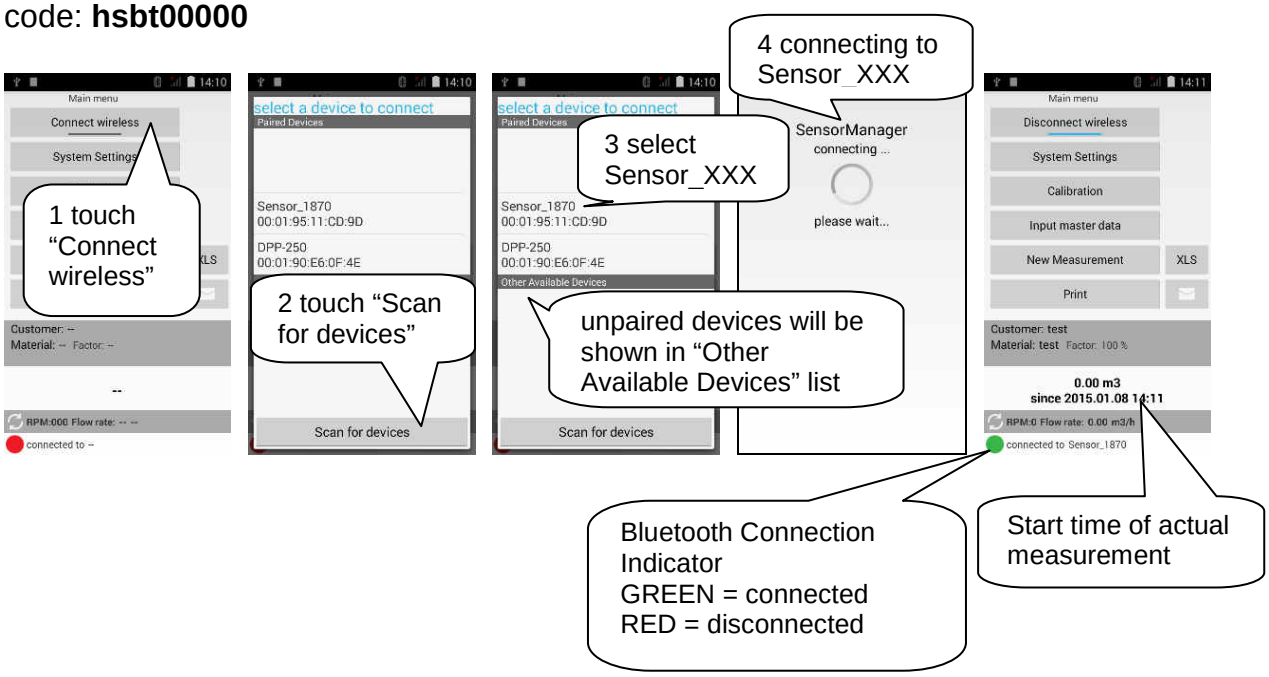


4 Start of SensorManager Application

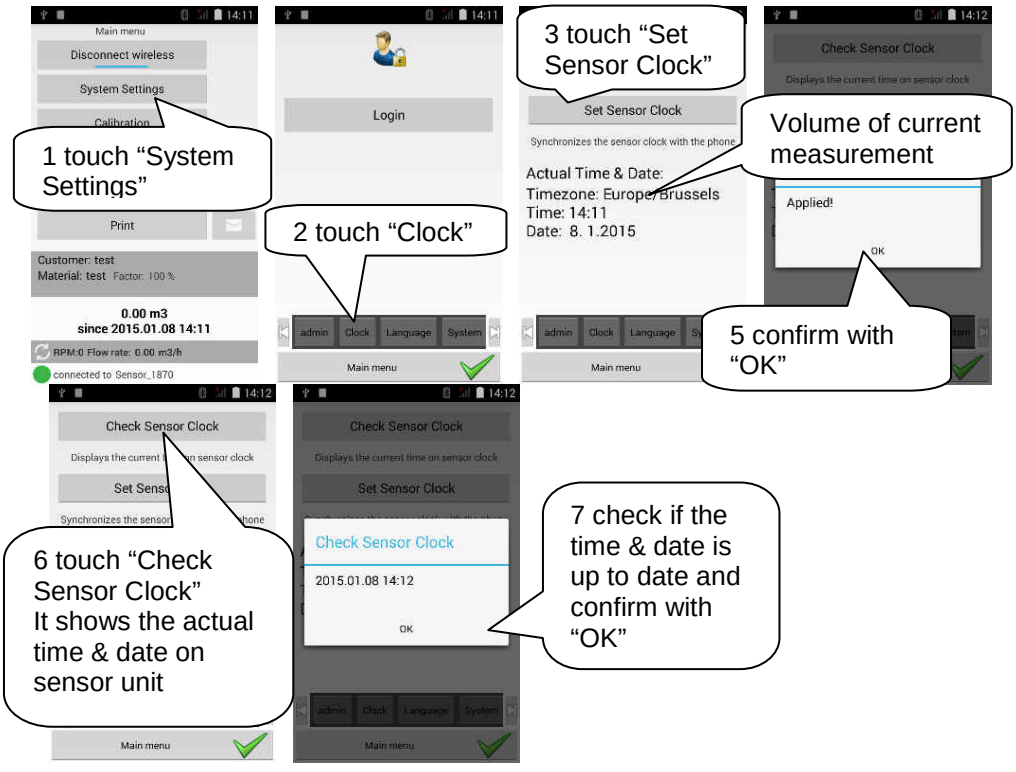


4.1 Connecting to Sensor Unit

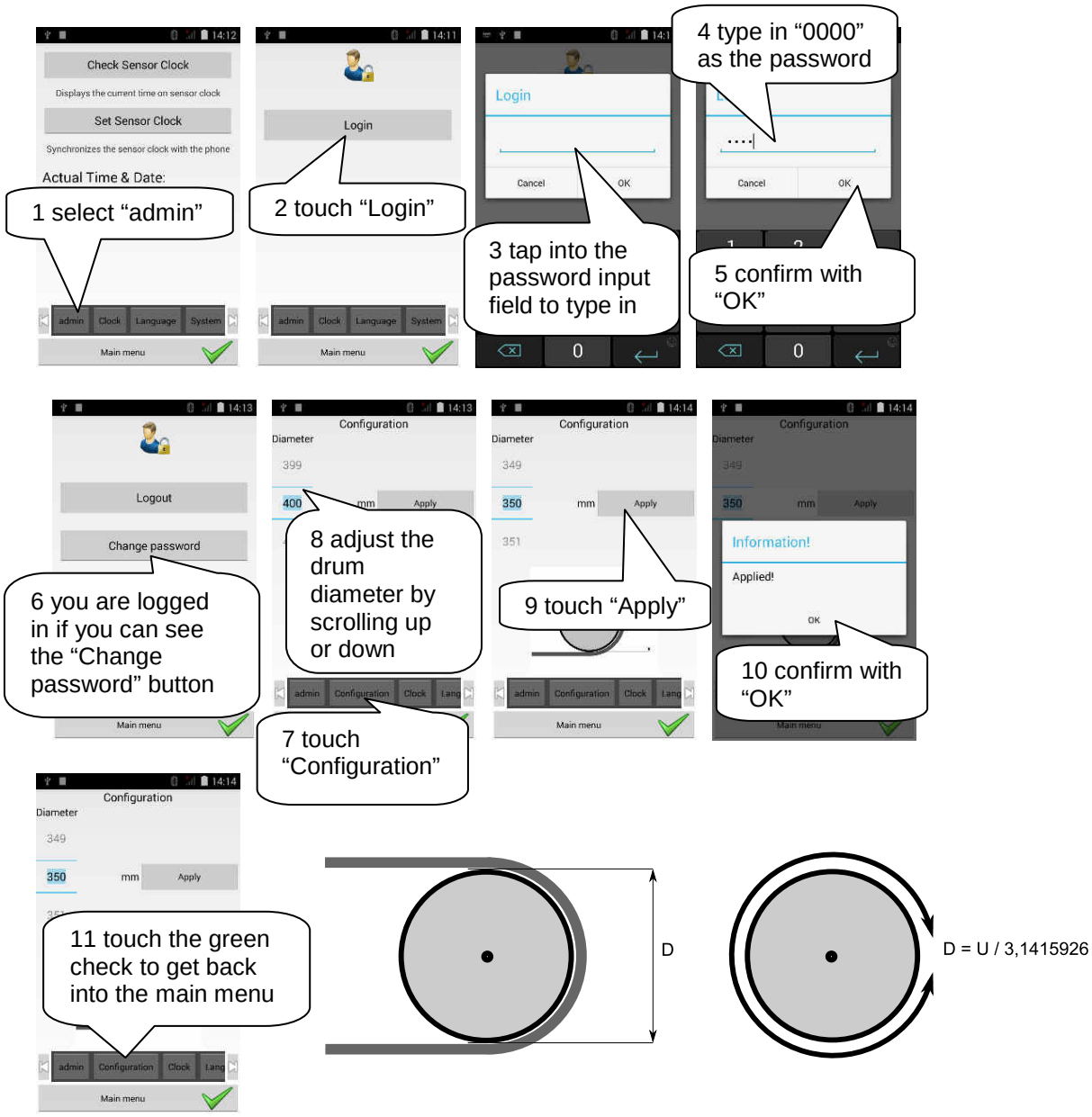
If Android asks for a pairing code for the Sensor then use following Bluetooth pairing code: **hsbt00000**



4.2 Setting Time & Date of Sensor Unit



4.3 Configuration of Drum Diameter



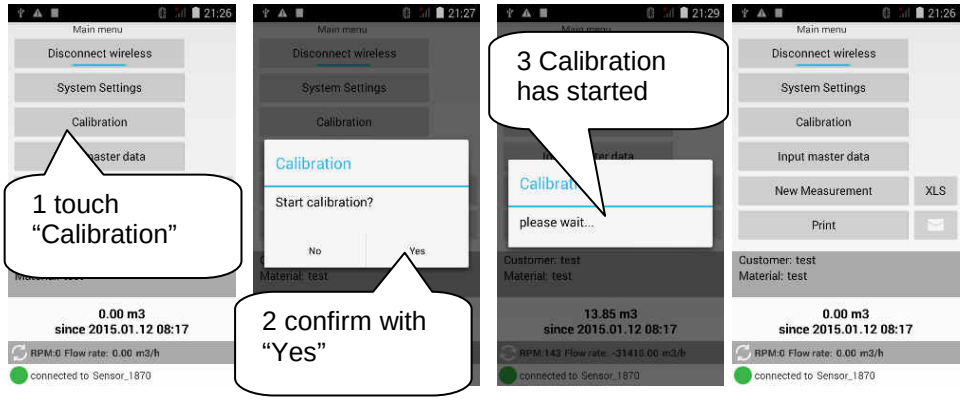
The most accurate way to determine the roll diameter is to measure the perimeter of the drum and acquire the diameter mathematical by dividing with Pi (3,14).
The diameter includes the rubber coating of the roll, but does NOT include the conveyor belt.

4.4 Calibration Run

Hint: prior to the start of a new calibration run please ensure that the SensorManager is connected to the sensor!

It has to be ensured, that the EMPTY conveyor belt is running at working speed (sensor has to be in measuring state, red signal lamp is blinking once per second)

The conveyor belt must be clean and free from deposits of feeding material.



When a calibration run has been started, the red signal lamp starts to flash with fast repetition followed by a short period of steady burning signal lamp.
The calibration run is finished when the sensor enters its measuring state with the red signal lamp blinking every second once.

4.5 Input Master Data

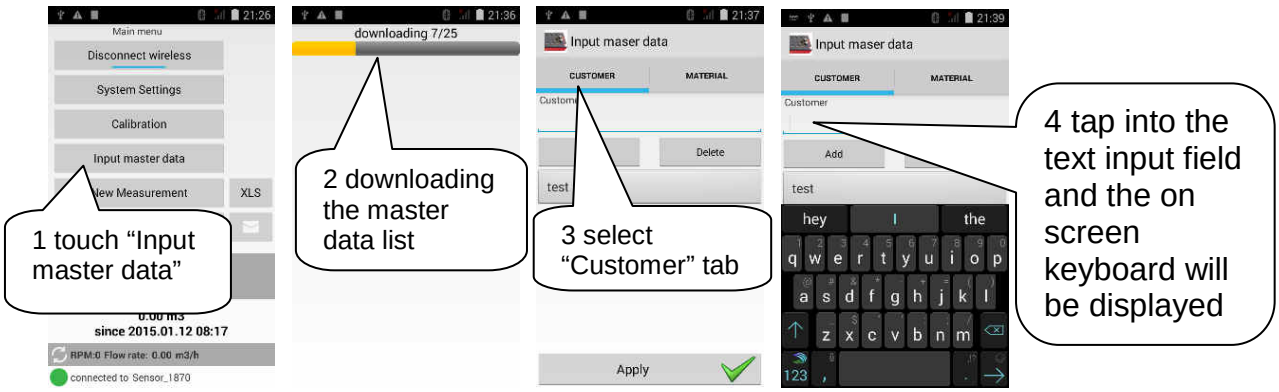
If customer or material name are not yet listed in the master data, the data record has to be added.

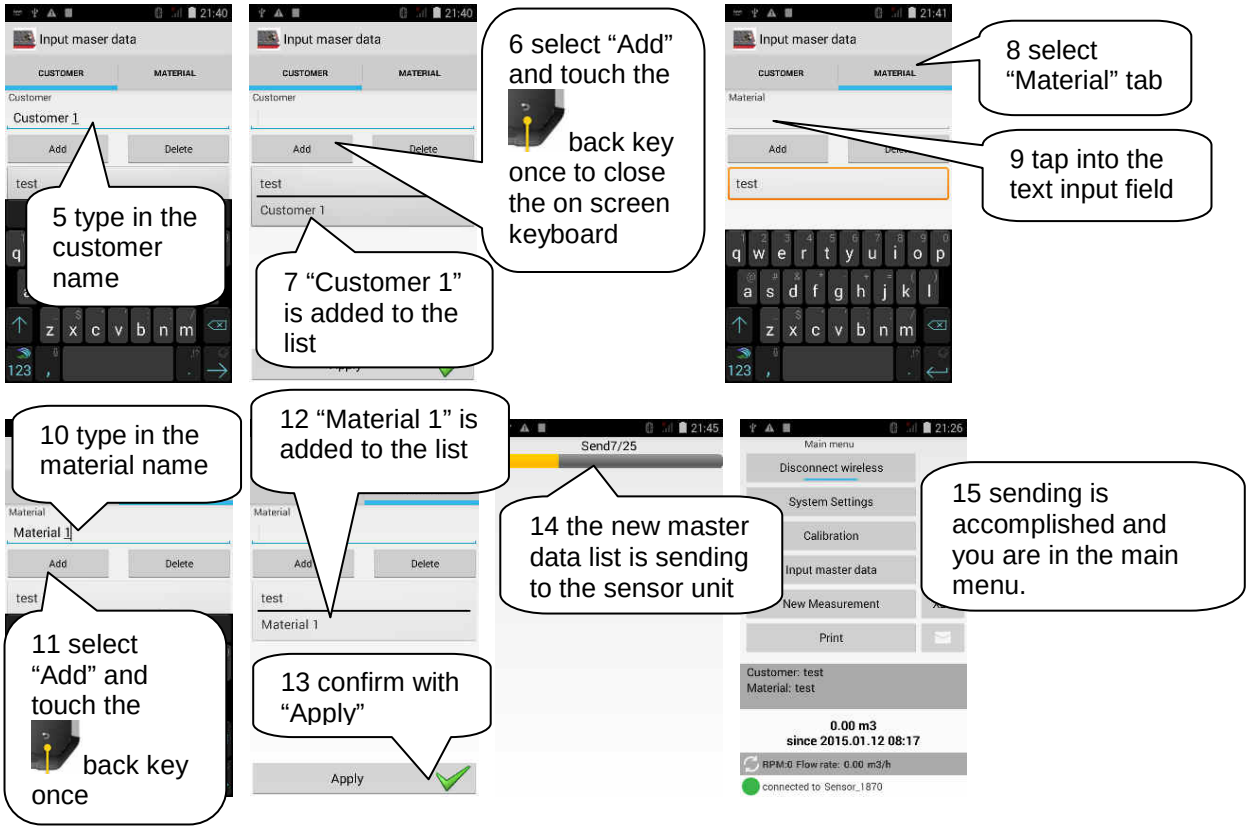
First of all we have to choose the group in which the new data record is to be added. (Customer or Material)

Now a description can be added to the text field by using the displayed On Screen Keyboard.

By clicking the “Add” button, the new description is added to the list.

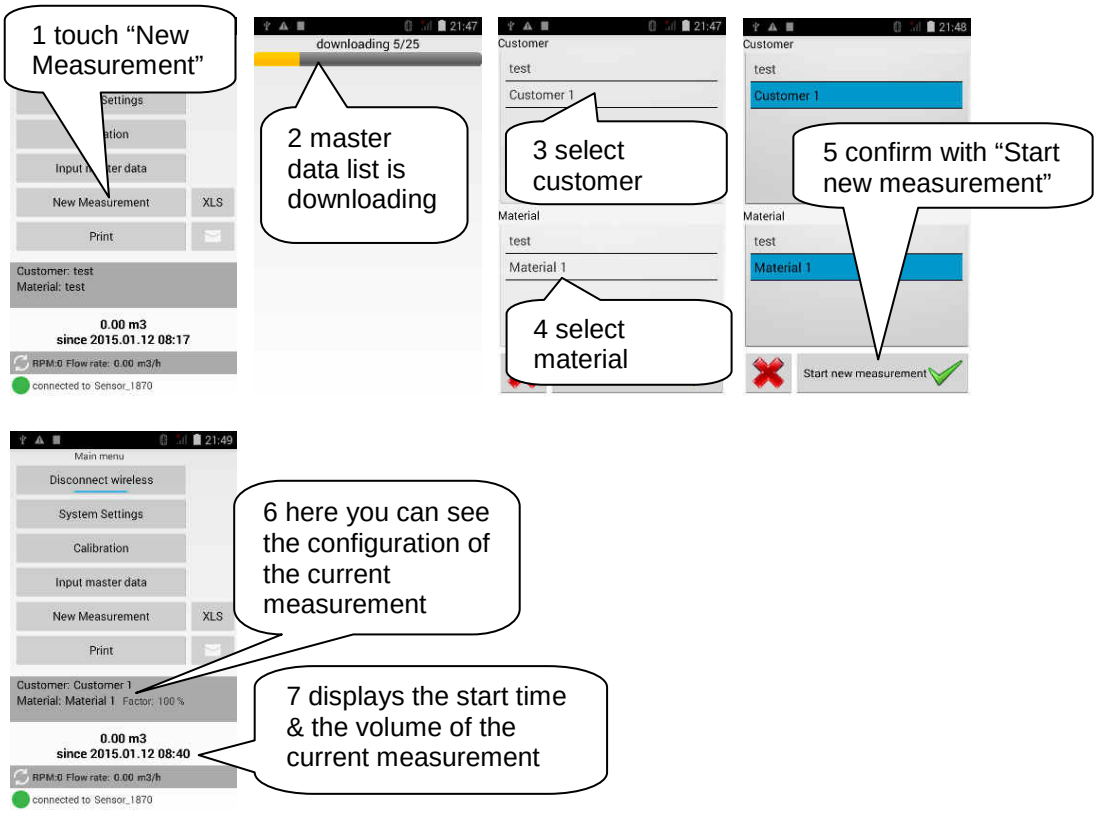
You can change back to the main menu by clicking the confirmation symbol in the bottom right corner





4.6 Start New Measurement

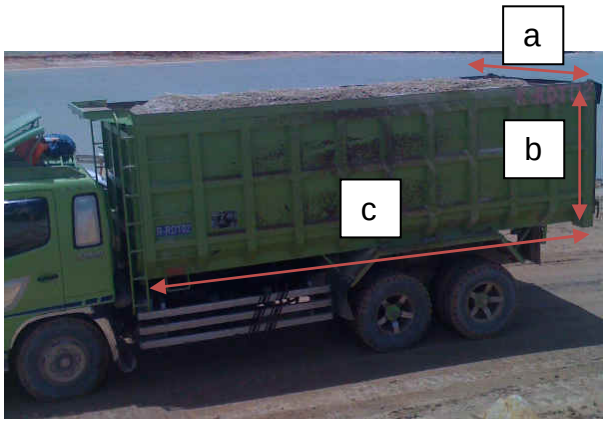
To start a new measurement with the new entered customer name and material name you have to select once those and touch the “Start new measurement” button.

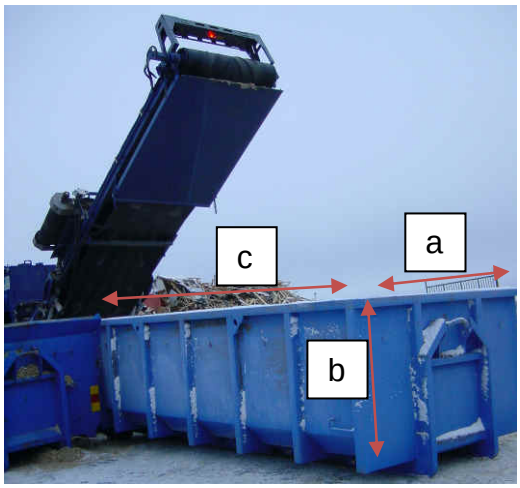


Now the sensor will remember this configuration and will measure all further production with this settings until you change it.
Hint: Ensure that the measured volume which is displayed on the main menu keeps stable at zero while the empty conveyor belt is running.
If the m³ value doesn't keep at zero pls call the H-Sensortechnik service line.

5 Adjusting

For the measuring adjustment you will need a truck like on the next picture or a container.





The capacity of the container or the truck must be at least 7m³.
Measure the distances a, b and c.

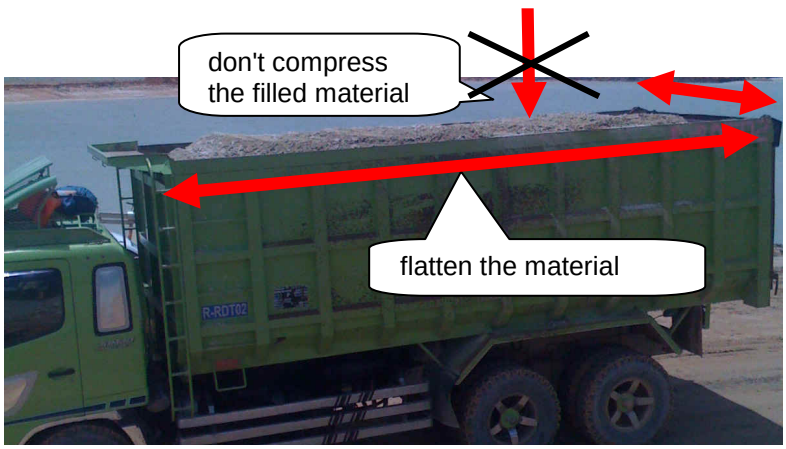
Calculate the volume of the container: V= a*b*c

5.1 Start test measurement

To ensure a good average of the test you have to **measure 3 times**.

Ensure that you have started a new measurement and the span adjustment factor of the material is set to 100 % and it keeps stable at 0 m3 on an empty running belt. (How to set the span adjust see chapter 5.2.)

Start feeding material and fill up the container (truck) until it is full.
Flatten the material in the container. Make sure that the material is not compressed during flattening.



After the known volume of material has run through the sensor and you have measured 3 times, you should have 4 values at hand.

ContainerVolume = the volume of the container

Volume 1 = the value shown on SensorManager after 1st measurement
Volume 2 = the value shown on SensorManager after 2nd measurement
Volume 3 = the value shown on SensorManager after 3rd measurement

TotalAverage = average of the 3 measurements.

The average value is calculated using the following formula:

$$TotalAverage\,[m3] = \frac{(\,Volume1 + Volume2 + Volume3)}{3}$$

The span adjust factor is calculated using the following formular:

$$span\ adjust\ \ [\%] = 100 + \frac{(ContainerVolume - TotalAverage)}{(TotalAverage\,/\,100)}$$

Example :

ContainerVolume = 10m³
Volume1=10,34
Volume2=10,30
Volume3=10,2

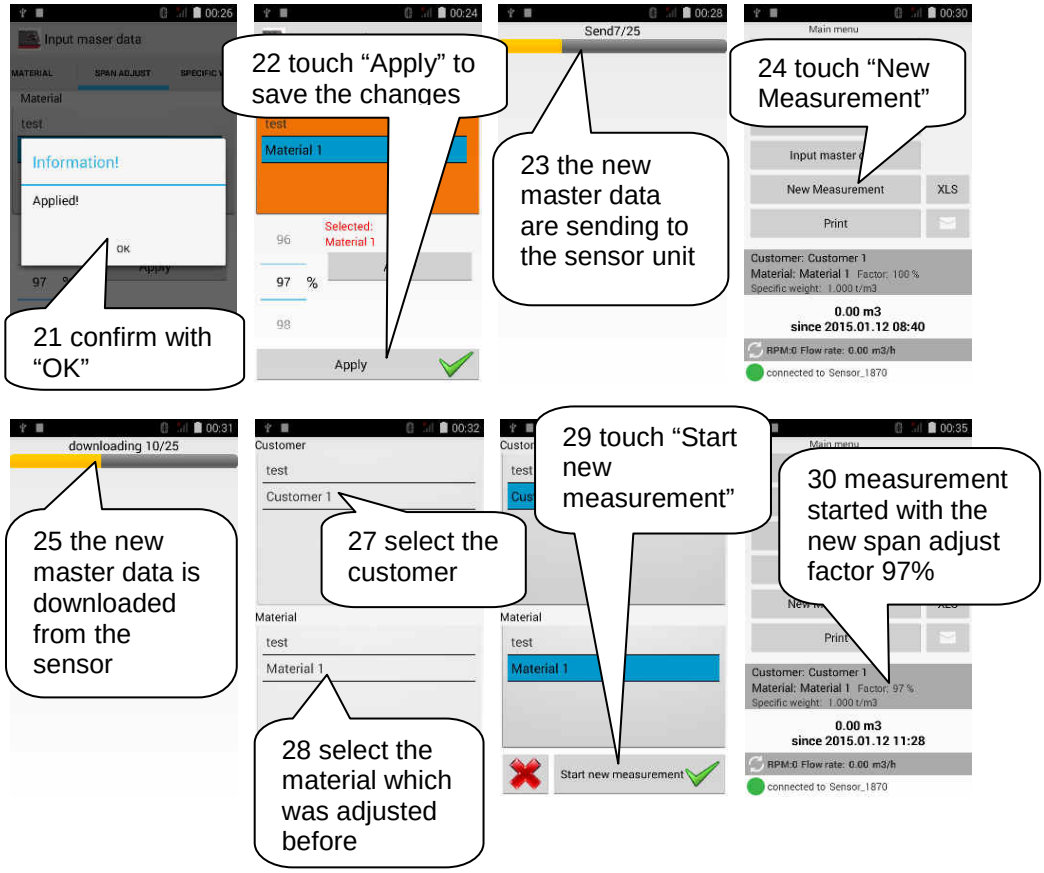
$$SensorManagerTotalAverage\,[m3] = \frac{(10{,}34 + 10{,}30 + 10{,}20)}{3} = \frac{30{,}84}{3} = 10{,}28m3$$

$$span\ adjust\ \ factor\ \ [\%] = 100 + \frac{(10 - 10{,}28)}{(10{,}28\,/\,100)} = 100 + \frac{-0{,}28}{0{,}1028} = 100 - 2{,}7 = 97{,}3 \approx 97\%$$

5.2 Setting the span adjust

To enable the span adjust register page, connect to the sensor, go to system settings and login as administrator. Default (factory set) password is “0000”.


1 touch „System settings“
2 select „admin“ tab
3 touch „Login“
4 tap into the input field
5 type in the default password: 0000
6 confirm with “OK”
7 long click onto the yellow key icon
8 tap into the input field
8 type in: 4957
9 confirm with “OK”
10 tap into the input field
11 type in 1 to activate
12 confirm with “OK”
13 touch “Main menu”
15 touch “Input master data”
15 scroll to the left by swiping
16 select “SPAN ADJUST” tab
17 select the material
18 selected material
19 change the value by scrolling up or down
20 touch “Apply” to confirm the value

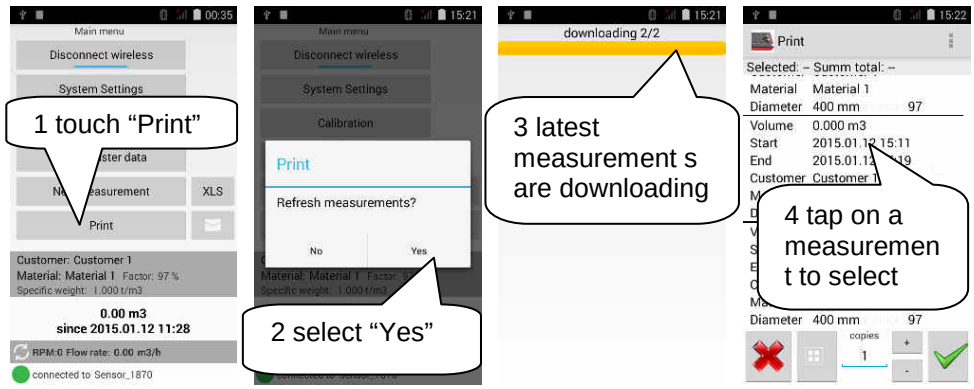


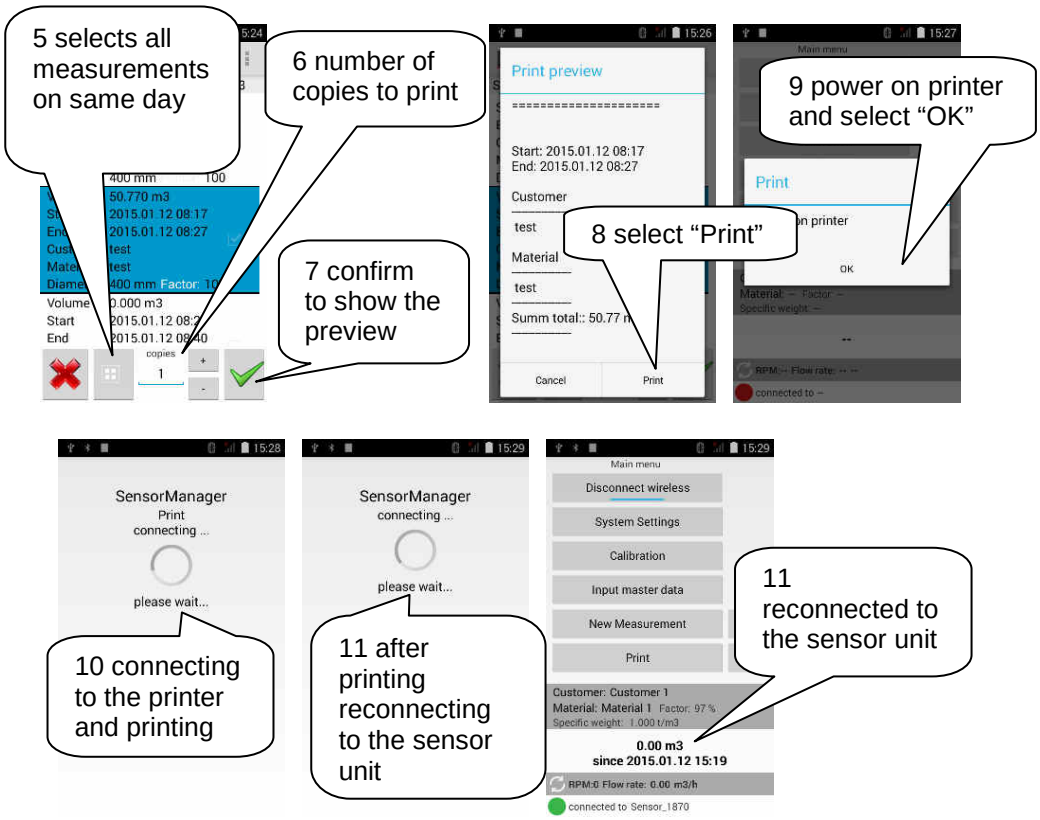
Now you can do a control measurement to check the measured volume.
If you have still difference between the measured volume and the real volume, then you have to repeat the adjustment.

These steps must be repeated with each different material.

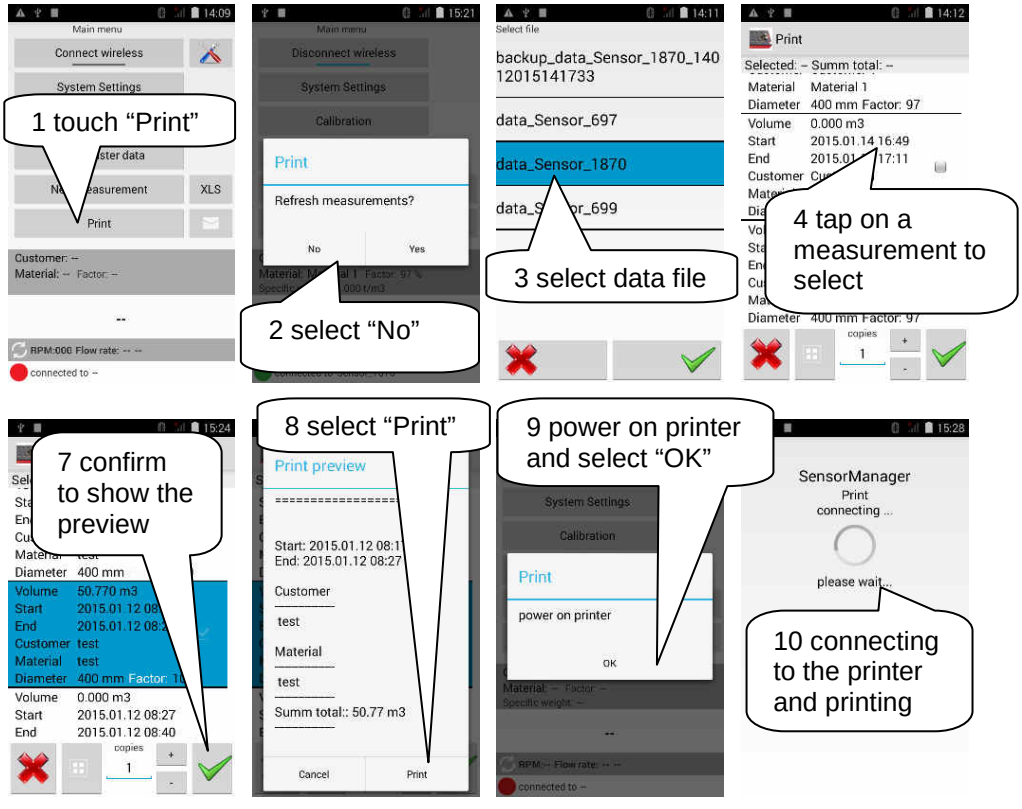
6 Measurements

6.1 Print measurements

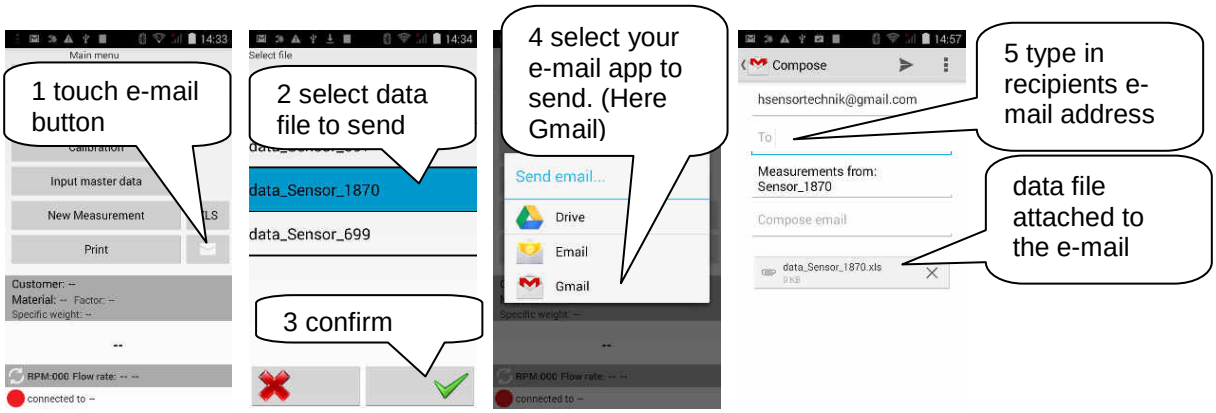


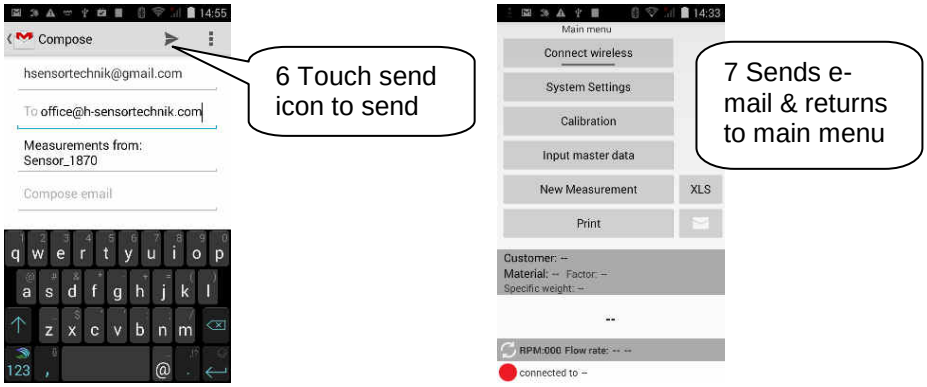


6.2 Print downloaded measurements

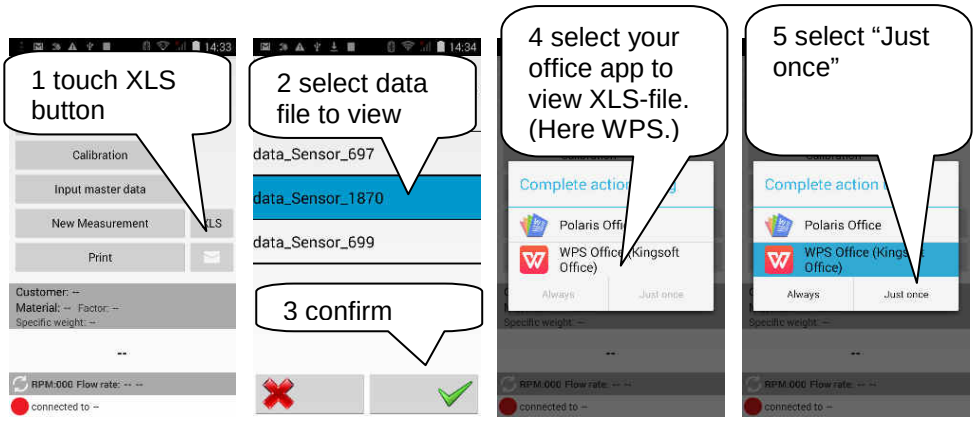


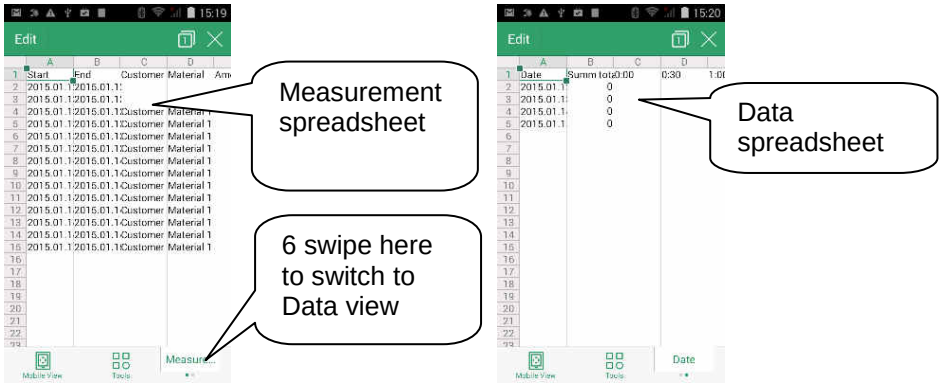
6.3 Send measurements as e-mail attachment



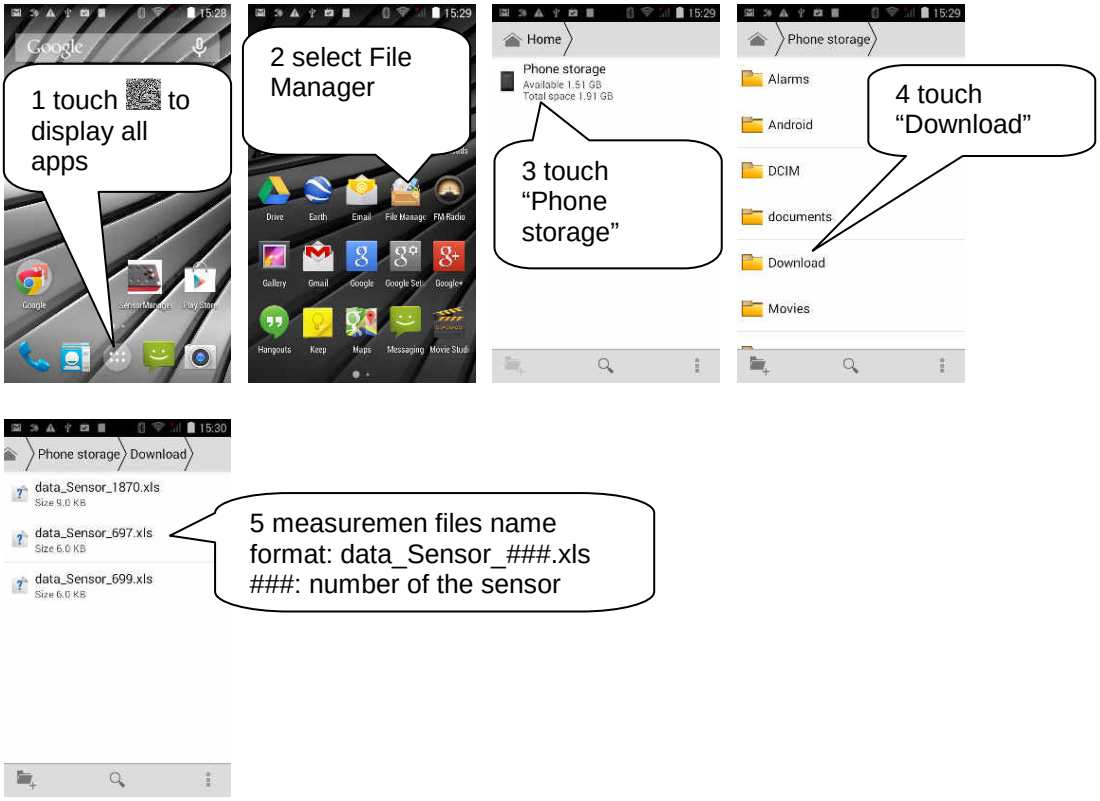


6.4 View downloaded measurement as Excel spreadsheet



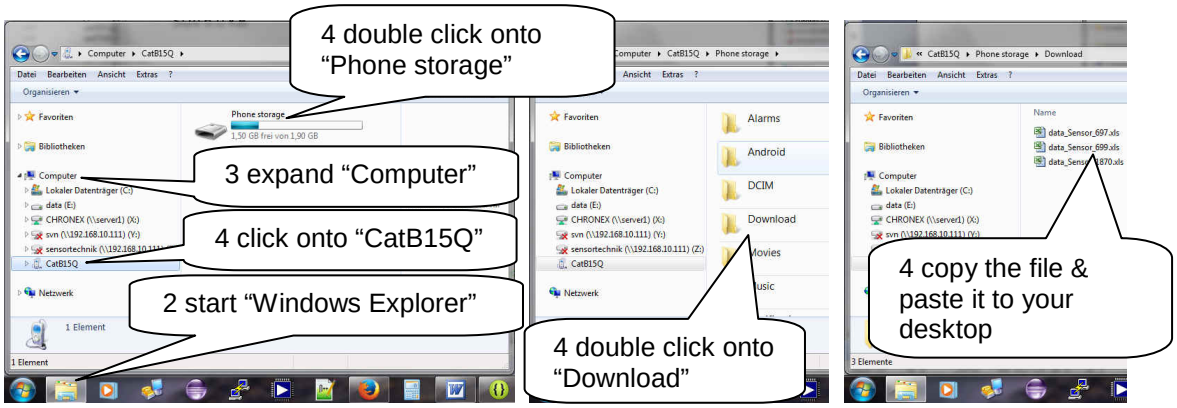


6.5 Location of exported XLS-File on the mobile phone



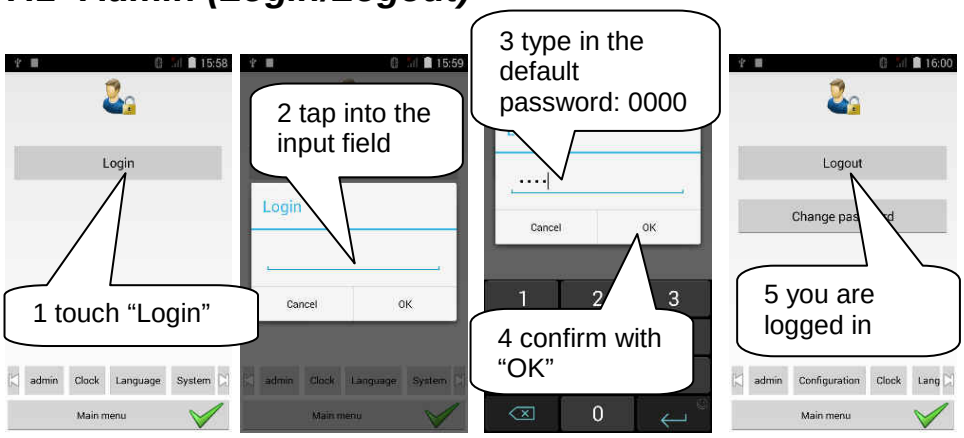
6.6 Copying the XLS-file to your desktop over USB-Cable

1. connect your mobile phone with the supplied USB-cable

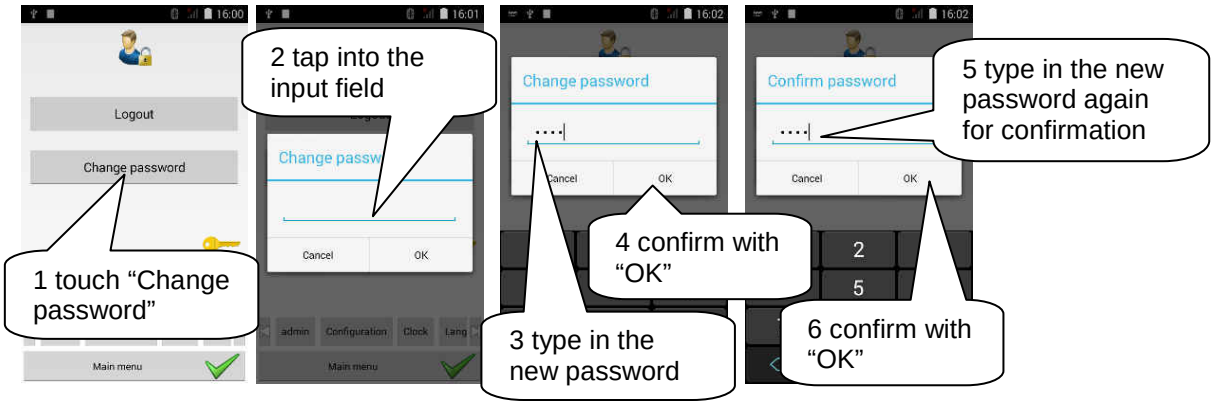


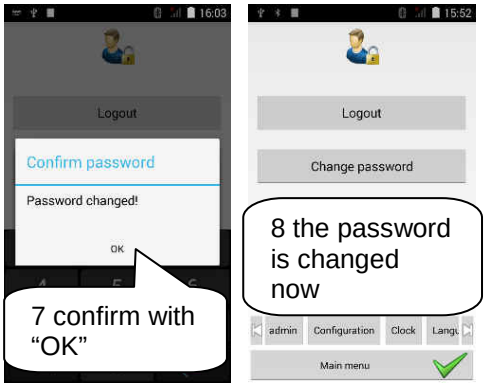
7 System Settings

7.1 Admin (Login/Logout)



7.1.1 Change Login Password





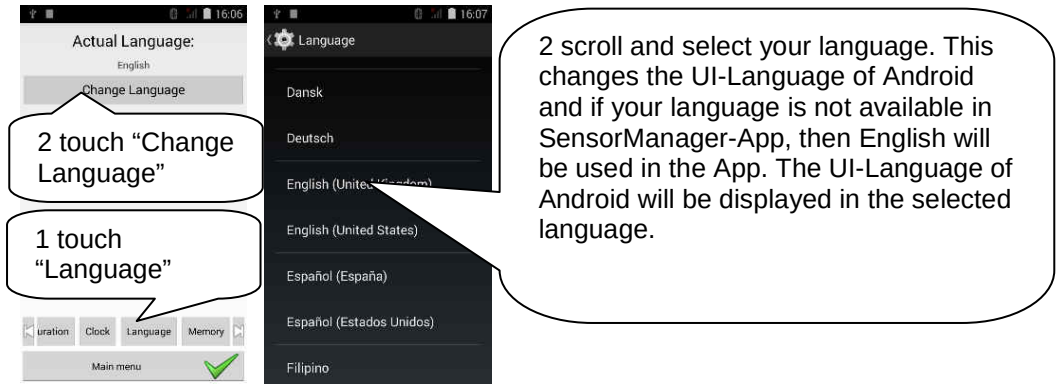
7.2 Configuration

See chapter 4.3

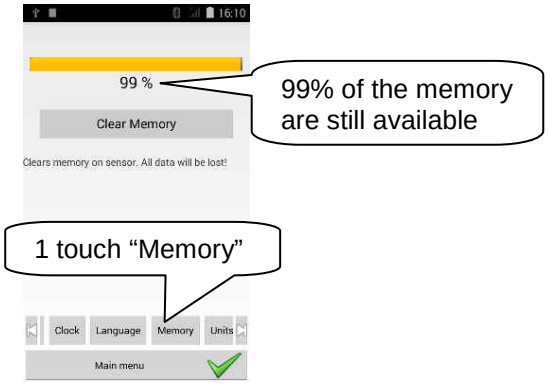
7.3 Clock

See chapter 4.2

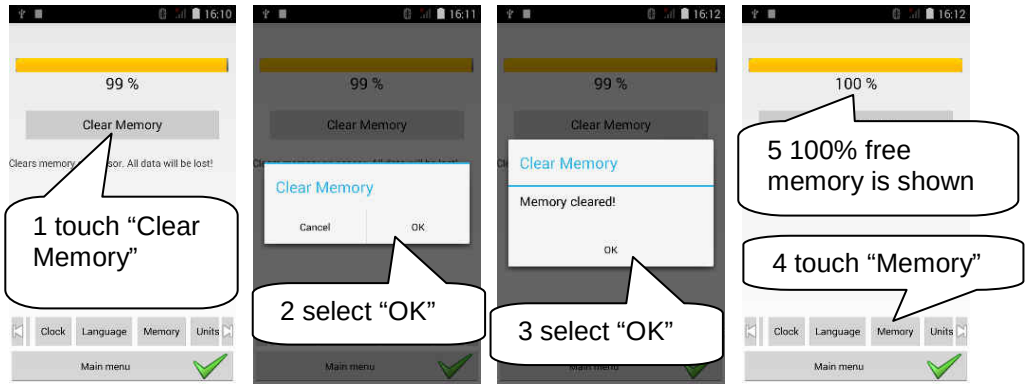
7.4 Language



7.5 Memory



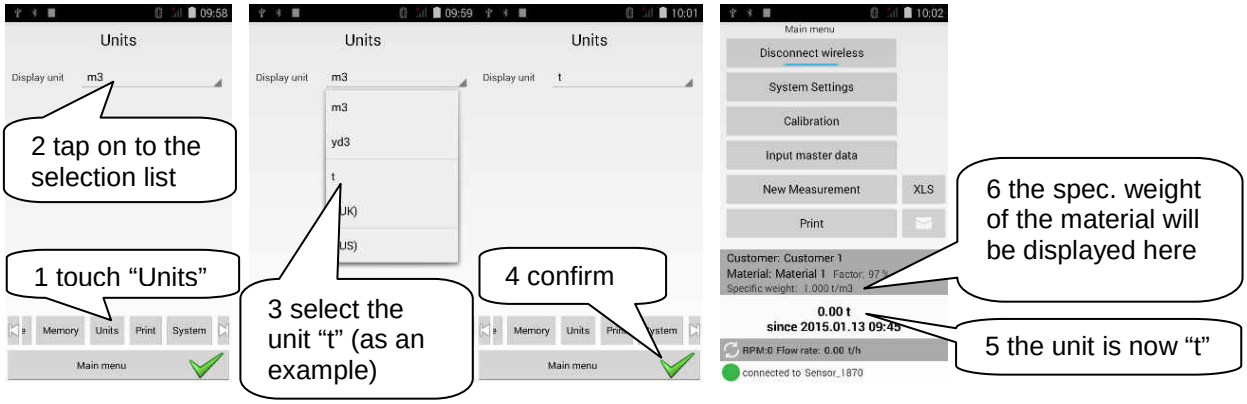
7.5.1 Clear Memory



When the memory is cleared a backup file is stored from the data which were downloaded on to the mobile phone.

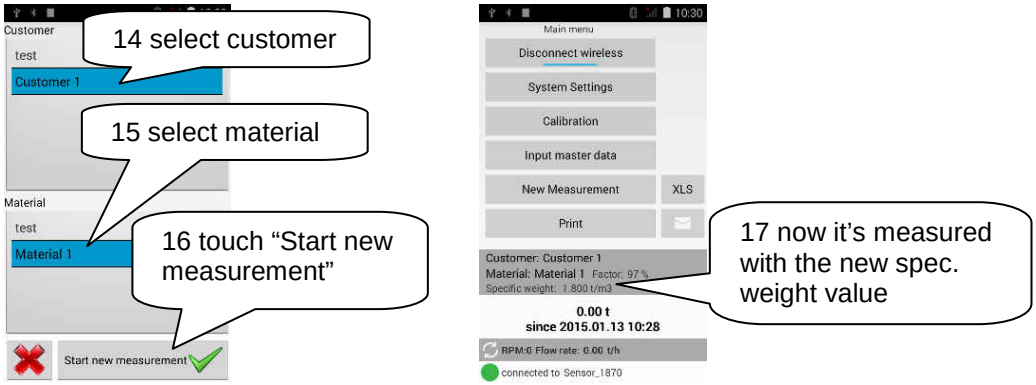
Hint: *Be sure that you have downloaded all measurements before clearing memory!*

7.6 Units

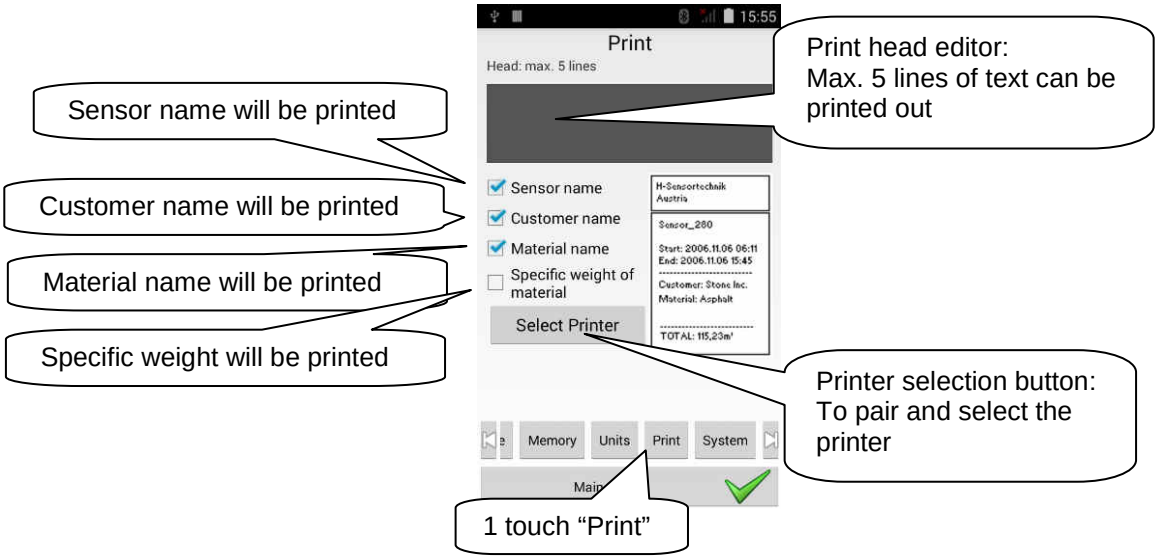


7.6.1 Setting the specific weight of a material

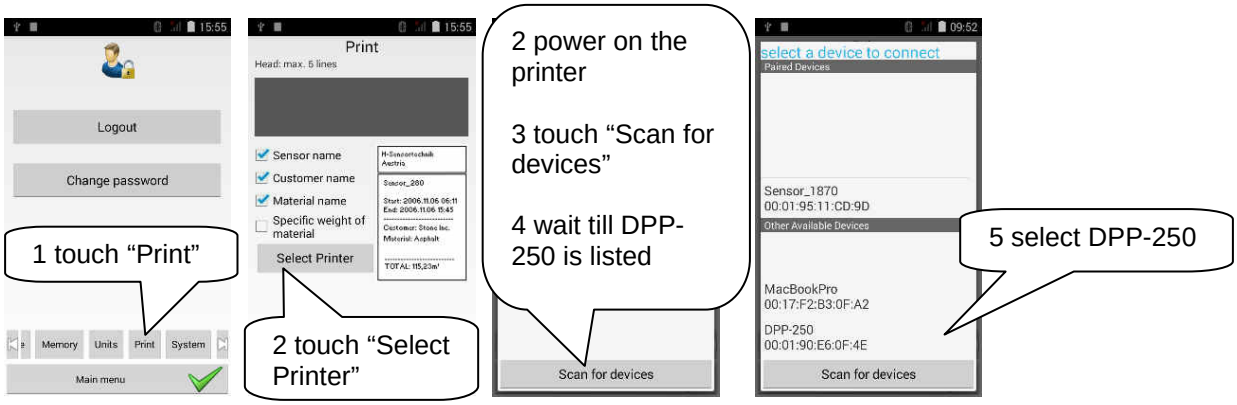
Be sure that you are logged in!

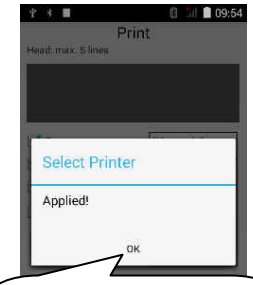


7.7 Print-Settings



7.8 Pairing & Selecting the printer





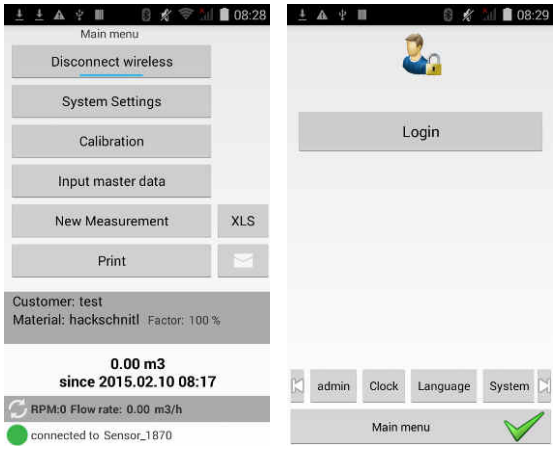
Hint: If a pairing code is requested then use following PIN-code: **0000** for Bluetooth pairing

6 the printer is paired and selected

7.9 4-20 mA Analog Output & Digital Pulse Output Configuration

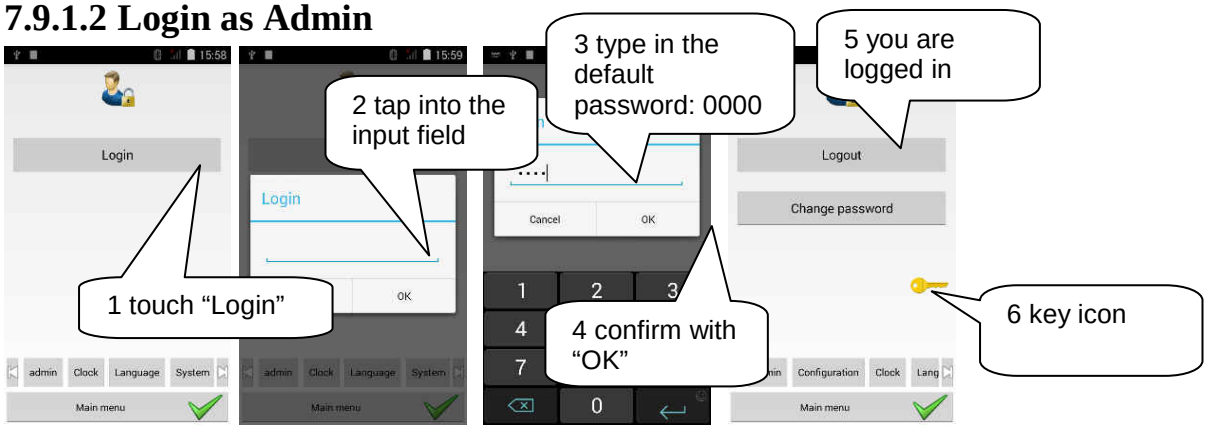
7.9.1 Activation of mA-Tab

7.9.1.1 Connect to the sensor



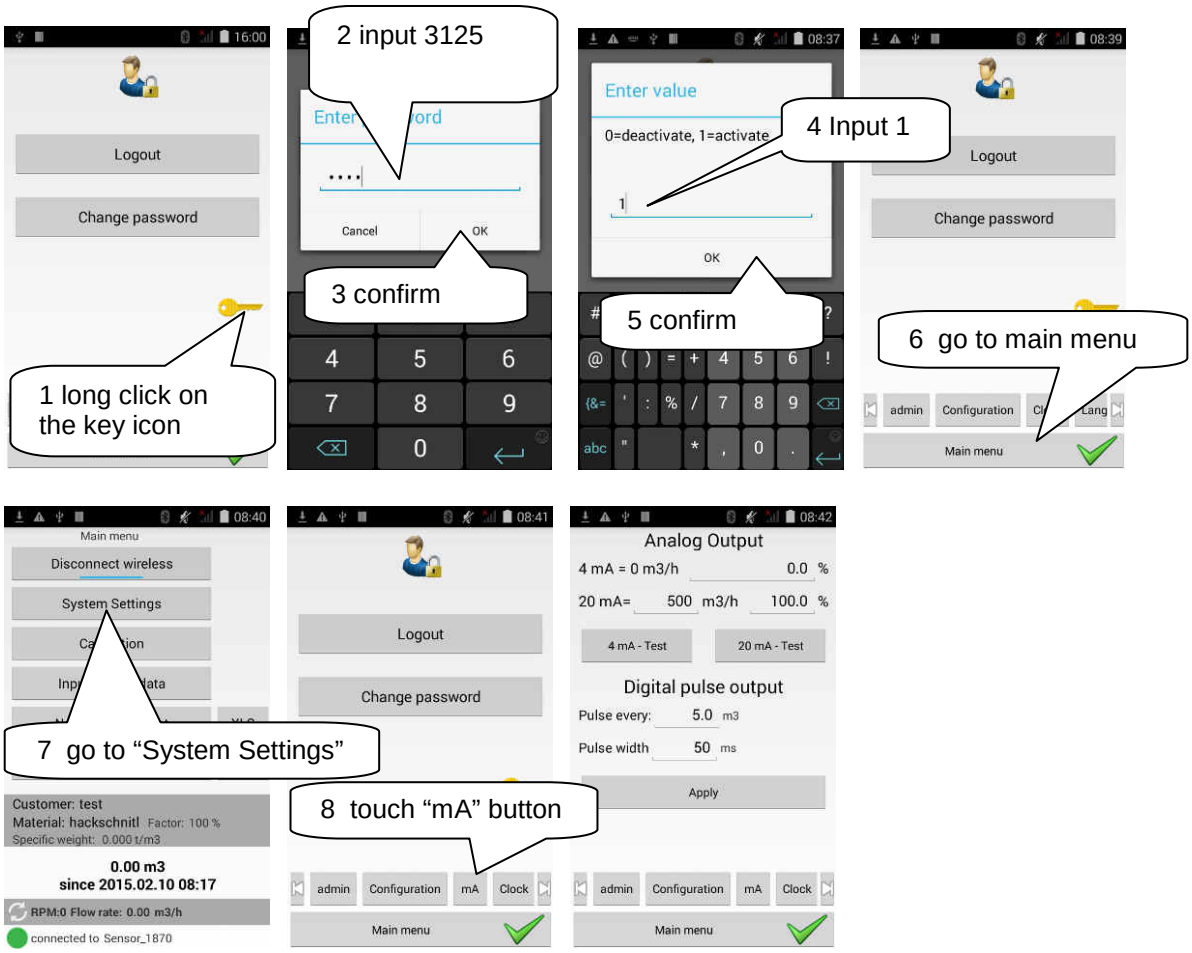
Connect to the sensor, go to system settings and login as administrator. Default (factory set) password is “0000”.

7.9.1.2 Login as Admin



When you are successfully logged in, you will find a key icon on the screen.

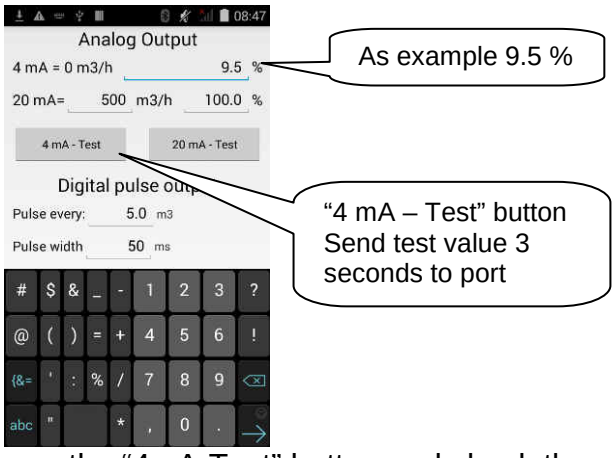
7.9.1.3 Activating the “mA”-Tab page



7.9.2 4-20mA Port Configuration

7.9.2.1 4 mA Configuration

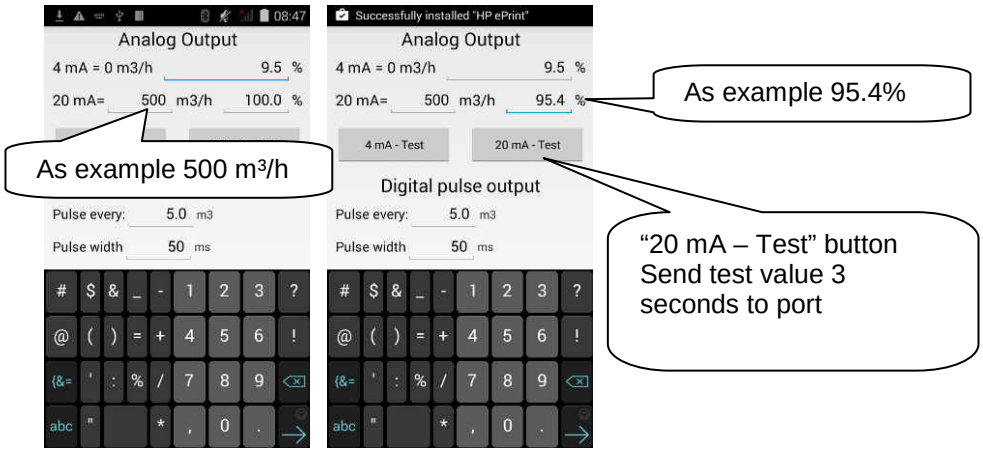
1. Connect a mA-Meter to the output pins of the 4-20mA port.
2. Type in the % value for the 4mA = 0 m³/h



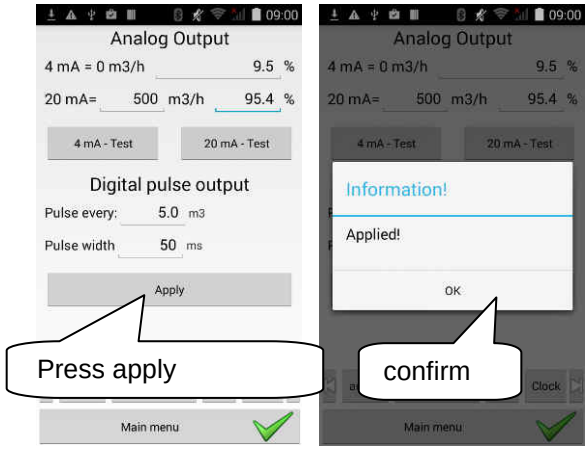
3. Click once the “4mA-Test” button and check the current on the port with the mA-Meter. Repeat this step unitl you measure 4 mA.

7.9.2.2 20 mA Configuration

1. Connect a mA-Meter to the output pins of the 4-20mA port.
2. Type in the m³/h value to set the maximum m³/h value for the 20 mA

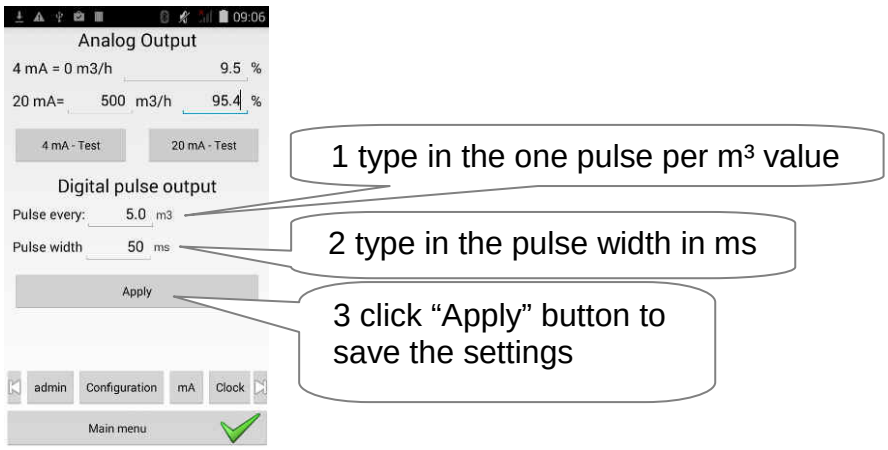


3. Type in the % value for the 20 mA and click once the "20mA-Test" button and check the current on the port with the mA-Meter. Repeat this step unitl you measure 20 mA.
4. Press "Apply" button to save the settings



When all the steps above have been finished successfully the sensor must be switched OFF and ON to start with the new settings.

7.9.3 Digital Output Configuration



When all the steps above have been finished successfully the sensor must be switched OFF and ON to start with the new settings.

7.9.4 MultiLink Cable Configuration

4-20mA Interface cable for Sensor

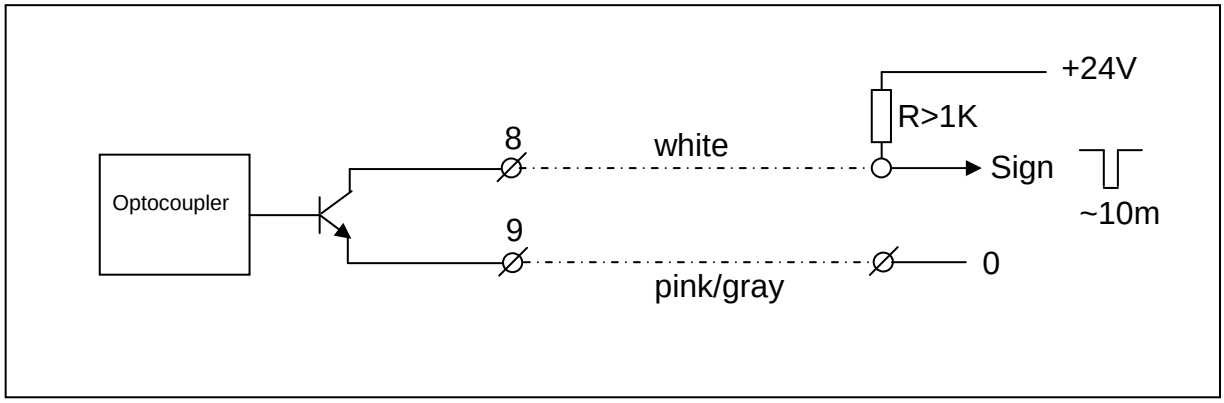
Cable Type: UNITRONIC-Cable LIYCY

Sensor Connector	Signal	Signal direction	Signal info	lead color coding
PIN				
12	NC	NC	NC	pink
11	4-20 mA	output	active +, opto-coupled	red/blue
10	4-20 mA	output	active -, opto-coupled	gray
9	Pulse/Volume	Transistor-output	open collector (E), opto-coupled	pink/gray
8	Pulse/Volume	Transistor-output	open emitter (C), opto-coupled	white
7	RS422 Data sensor output +	differential output	use only in RS422 - mode	brown
6	RS422 Data sensor output -	differential output	use only in RS422 - mode	green
5	RS422 Data sensor input +	differential input	use only in RS422 - mode	yellow
4	RS422 Data sensor input -	differential input	use only in RS422 - mode	violet
3	RS422/Bluetooth mode selector	input	+24V = RS422 - mode 0V = Bluetooth - mode	blue
2	Power +24V/ DC	input	+24VDC +- 20%, Imax=3,5 A	red
1	Power 0V (GND)	GND	GND internal connected to housing via reverse battery protection diode	black

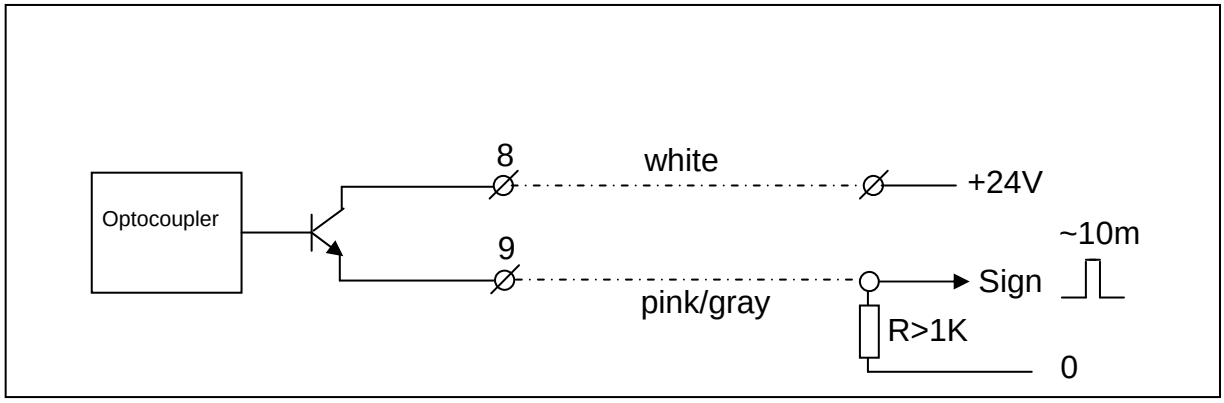
7.9.5 Signal “Pulse/Volume”

Signal „Pulse/Volume“ is an opto-coupled transistor output.

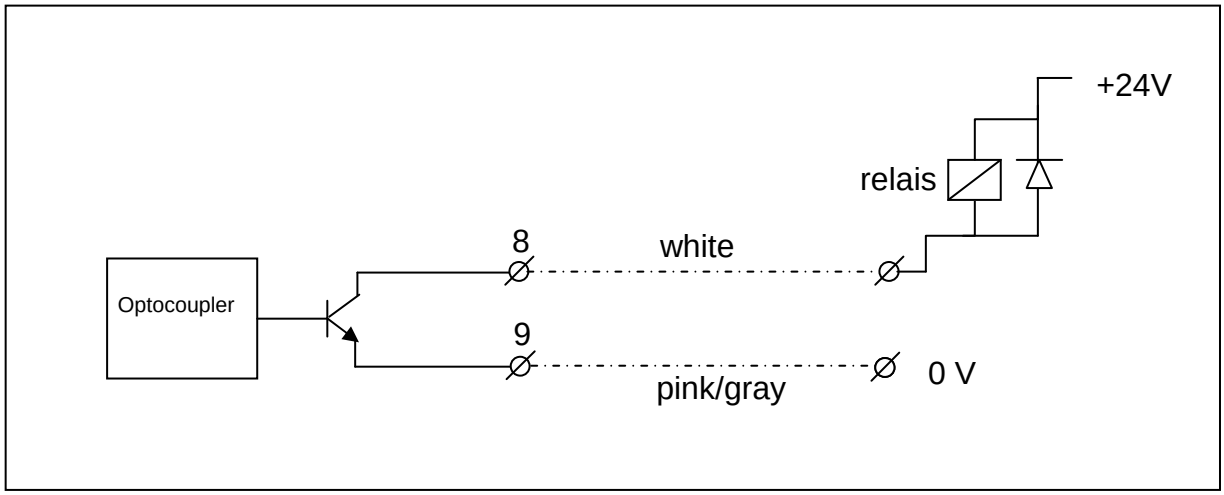
1. **Var.1.**



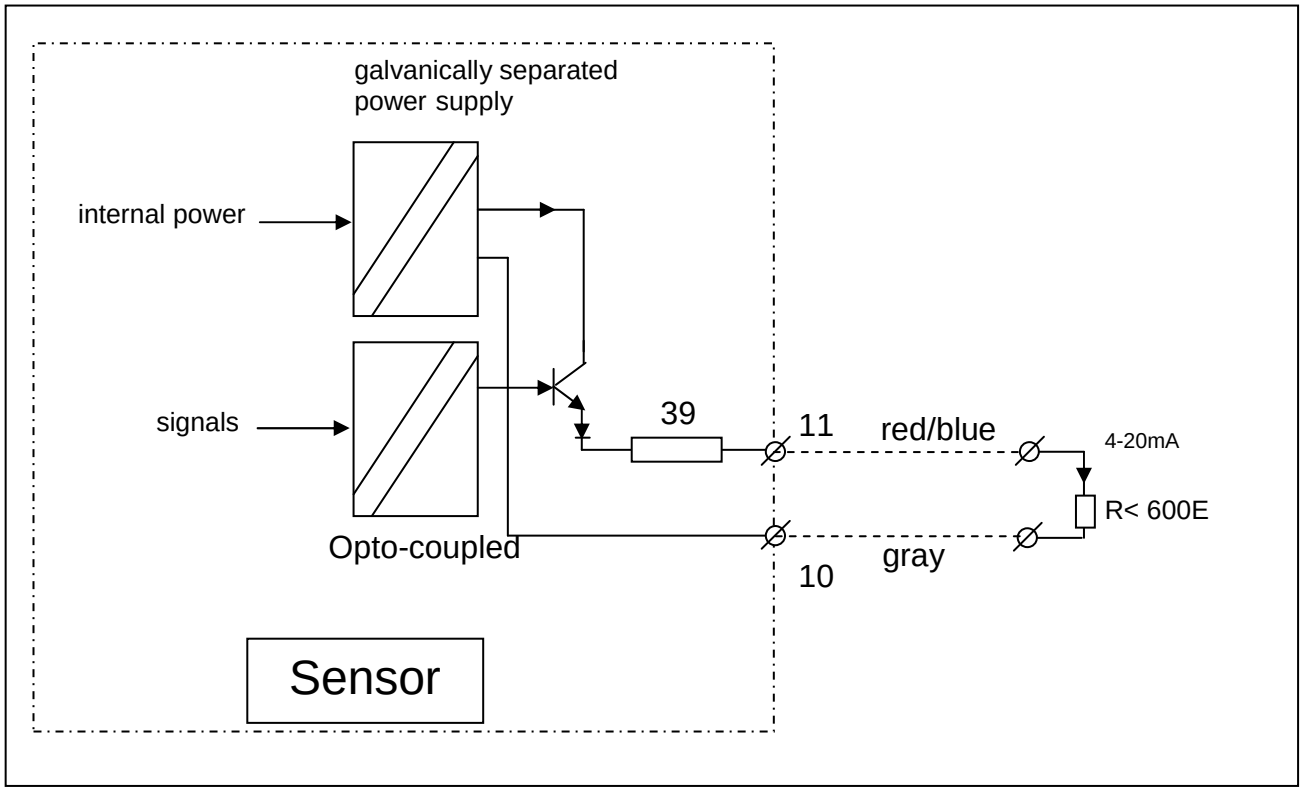
2. **Var. 2.**



3. **Var. 3 How to connect a relais**

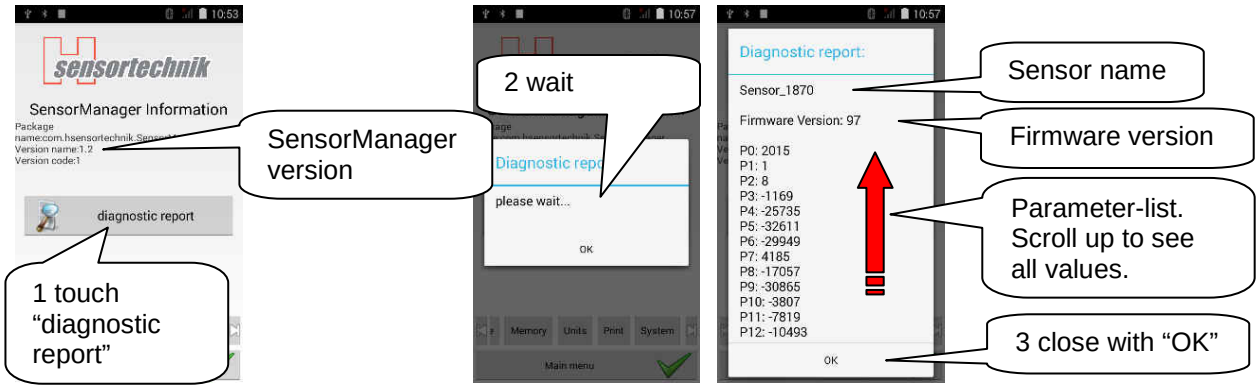


7.9.6 4-20 mA analog output



7.10 System

7.10.1 Diagnostic report



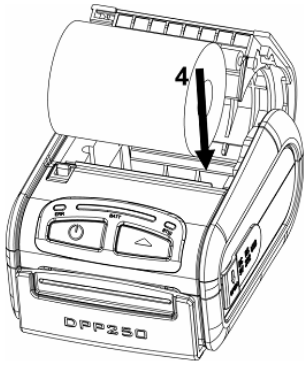
8 Thermal Bluetooth Printer

8.1 Loading paper

The DPP-250 uses a drop-and-load design making paper loading easy and trouble free. To load paper, simply lift up the paper cover latch and drop in the new roll as shown in the steps below.

1. Slide the paper cover latch to unlock the paper cover as shown in the figure.

2. Lift the paper cover latch to open the paper cover as shown in the figure.



3. Insert a new roll of thermal paper as shown in the figure. Be sure to pull at least 12 mms or more of paper above the top of the printer before closing. Close the paper cover until it snaps lock. Slide paper cover latch to lock the cover in place.

9 Safety Instructions Laser Class

9.1 Laser Class of Device

According to IEC 60825-1 : 2007 the sensor is classified as laser equipment of class 3B.
Invisible laser radiation is emitted.

pulse output	P_{max} = 60 mW
pulse duration	t_{pulse} = 400 µs
wavelength	λ = 785 nm
pulse repetition rate	f_{rep} = 200 Hz

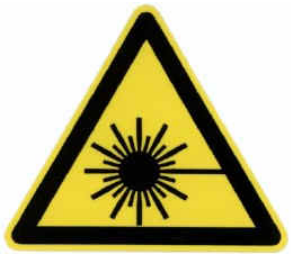
9.2 Warning

Laser radiation of class 3B is emitted as soon as the device is working!

Therefore, the following items must be ensured before starting up the device:

- The sensor may only be started if it is duly attached (pls see sensor mounting). Otherwise all persons concerned must wear safety goggles.
- Belt run must not be simulated.
- The laser beam path must be limited by an impact surface and must not radiate unlimited into the open.
- No reflecting surfaces may be mounted in the laser beam path which might lead to reflections! (For optical path see Fig. 5).
- During operation the operating personnel and other persons must not look directly into the emitted beams!
- The safety instructions demanded in the standard for the use of devices of laser class 3B must be complied with.

The following warning signs must be applied at the device:



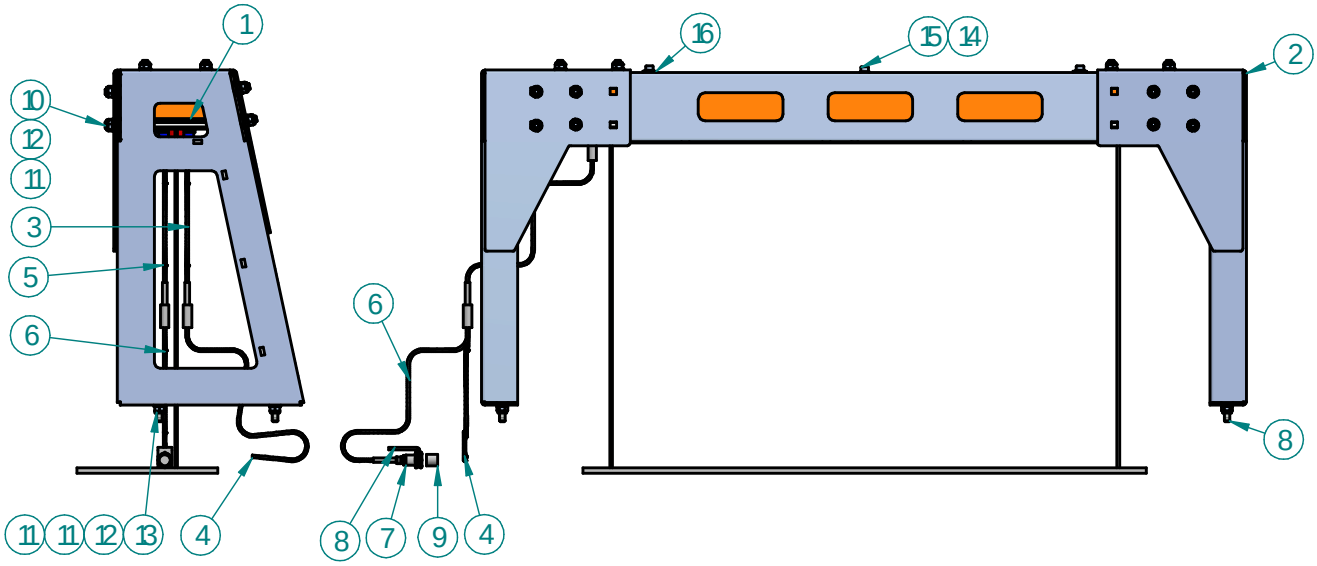
10 Servicing and cleaning

The sensor is basically service free, only from time to time lenses and windows have to be cleaned. They can be cleaned with a cotton cloth.

WARNING!

DO NOT USE A HIGH-PRESSURE CLEANER!
THE SENSOR IS NOT HIGH-PRESSURE PROOF!

11 Spare parts



17 18 19 20 21 22

Position	Art. Nr.	Beschreibung
1	150600	Optical Belt Scale S600
1	150800	Optical Belt Scale S800
1	151000	Optical Belt Scale S1000
1	151200	Optical Belt Scale S1200
1	151400	Optical Belt Scale S1400
1	150604	Optical Belt Scale -MultiLink ML600
1	150804	Optical Belt Scale -MultiLink ML800
1	151004	Optical Belt Scale -MultiLink ML1000
1	151204	Optical Belt Scale -MultiLink ML1200
1	151404	Optical Belt Scale -MultiLink ML1400
2	151205	Frame high for 600-800mm
2	150601	Frame high for 1000-1200mm
2	151401	Frame high for 1400-1600mm
2	151203	Frame low for 600-800mm
2	151201	Frame low for 1000-1200mm
2	151206	Frame low for1400-1600m
3	110030	Power supply cable 2,5m
3	110132	Power supply cable 2,5m-MultiLink
4	110031	Power supply cable 15m
4	110131	Power supply cable 15m-MultiLink
5	110029	Inductive switch cable 2,5m
6	130007	Inductive switch cable 0,5m
7	130017	Inductive switch
8	130015	Holder for inductive switch
9	130022	Indicator for inductive switch
10	110077	Cup square neck bolt DIN603 8.8-M10x25 galvanized
11	110080	Spring washer DIN137B M10 waved, galvanized
12	110078	Hexagon nut DIN982 Kl.8 M10 galvanized
13	110076	Hexagon head screw DIN933 8.8-M10x35 galvanized
14	110079	Spring washer DIN137A M8 galvanized
15	110075	Hexagon socket head cap screw DIN912 -M8x20 galvanized
16	110143	Large diameter washer 8,4x30x1,5 A2, stainless
17	140000	Mobile Handheld
18	140007	Car-USB-Charger for Handheld 12V und 24V
19	140001	Bluetooth thermo printer
20	120008	Paper roll for printer
21	130019	DC/DC converter 12V -> 24V
22	130020	AC/DC converter 230V -> 24V
23	110081	User manual

Contact:
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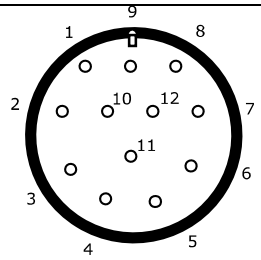
Oberer Markt 3 · A – 4332 Au/Donau
Tel: +43 (0) 7262 54655-0 DW Fax 90
mail: office@h-sensortechnik.com · www.h-sensortechnik.com

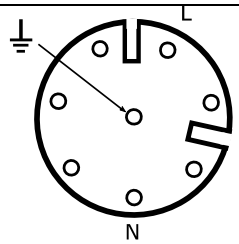
12 Connector & Cable Configurations

12.1 Power supply connector on Sensor



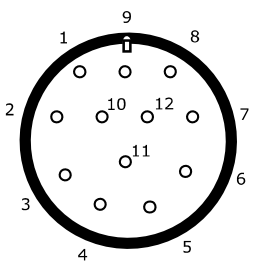
Pin #	Signal	Signal direction	Signal Info
12	NC	NC	NC
11	4-20 mA	output	active +, opto-coupled
10	4-20 mA	output	active -, opto-coupled
9	Pulse/Volume	Transistor-output	open collector (E), opto-coupled
8	Pulse/Volume	Transistor-output	open emitter (C), opto-coupled
7	RS422 Data sensor output +	differential output	use only in RS422 - mode
6	RS422 Data sensor output -	differential output	use only in RS422 - mode
5	RS422 Data sensor input +	differential input	use only in RS422 - mode
4	RS422 Data sensor input -	differential input	use only in RS422 - mode
3	RS422/Bluetooth mode selector	input	+24V = RS422 - mode 0V = Bluetooth - mode
2	Power +24V/ DC	input	+24VDC +- 20%, Imax=3,5 A
1	Power 0V (GND)	GND	GND internal connected to housing via reverse battery protection diode

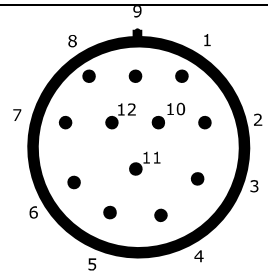
12.2 Inductive switch connector on Sensor



Pin #	Signal	Signal direction	Signal Info
L	+12 VDC	out	Power supply inductive switch
N	Signal	in	Signal receive from inductive switch
⏚	0 VDC	out	Power supply inductive switch

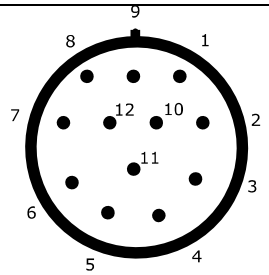
12.3 MultiLink-Power supply cable 2.5m





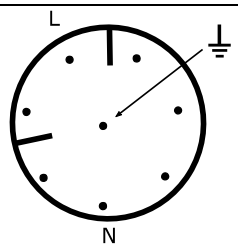
Pin #	Signal	Lead color	Pin #
12	NC	pink	1
1	4-20 mA	red/blue	2
10	4-20 mA	gray	3
9	Pulse/Volume	pink/gray	4
8	Pulse/Volume	white	5
7	RS422 Data sensor output +	brown	6
6	RS422 Data sensor output -	green	7
5	RS422 Data sensor input +	yellow	8
4	RS422 Data sensor input -	violet	9
3	RS422/Bluetooth mode selector	blue	10
2	Power +24V/ DC	red	11
1	Power 0V (GND)	black	12

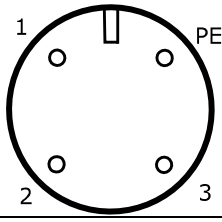
12.4 MultiLink-Power supply cable 15m



Pin #	Signal	Signal direction	Signal Info
12	NC	NC	NC
11	4-20 mA	output	active +, opto-coupled
10	4-20 mA	output	active -, opto-coupled
9	Pulse/Volume	Transistor-output	open collector (E), opto-coupled
8	Pulse/Volume	Transistor-output	open emitter (C), opto-coupled
7	RS422 Data sensor output +	differential output	use only in RS422 - mode
6	RS422 Data sensor output -	differential output	use only in RS422 - mode
5	RS422 Data sensor input +	differential input	use only in RS422 - mode
4	RS422 Data sensor input -	differential input	use only in RS422 - mode
3	RS422/Bluetooth mode selector	input	+24V = RS422 - mode 0V = Bluetooth - mode
2	Power +24V/ DC	input	+24VDC +- 20%, Imax=3,5 A
1	Power 0V (GND)	GND	GND internal connected to housing via reverse battery protection diode

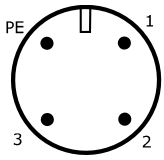
12.5 Inductive switch cable 2.5m

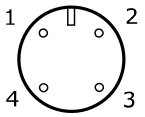




Pin #	Signal	Lead color	Pin #
L	+12 VDC	Brown	1
⏚	0 VDC	White	2
N	Signal	Yellow	3
	Not connected		PE

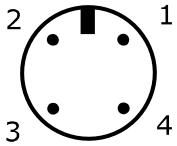
12.6 Inductive switch cable 0.5m





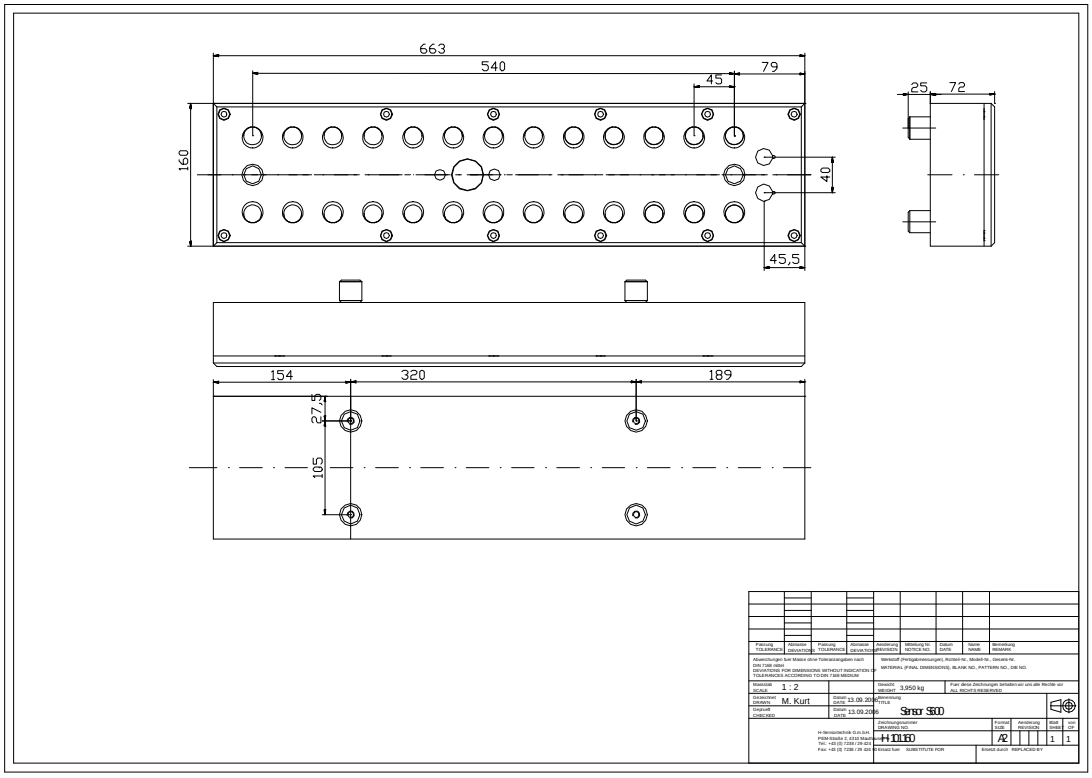
Pin #	Signal	Lead color	Pin #
1	+12 VDC	Brown	1
2	0 VDC	Blue	2
3	Signal	Black	4
PE	Not connected		3

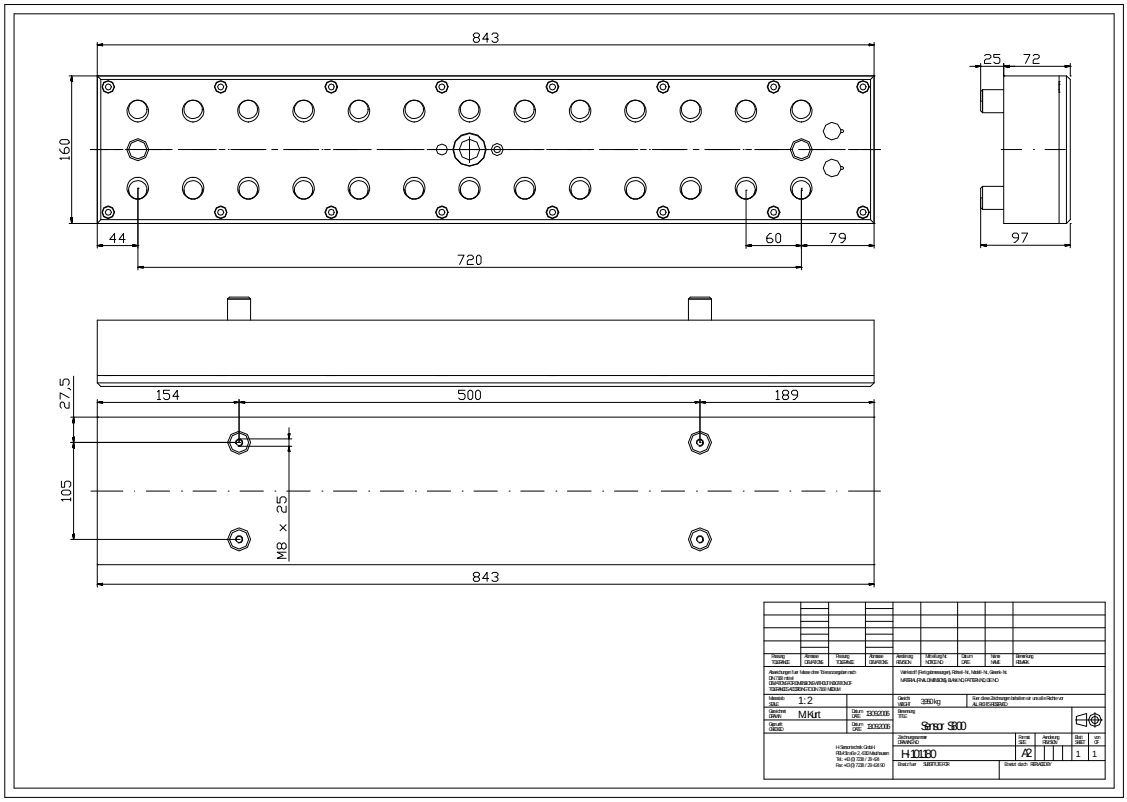
12.7 Inductive switch

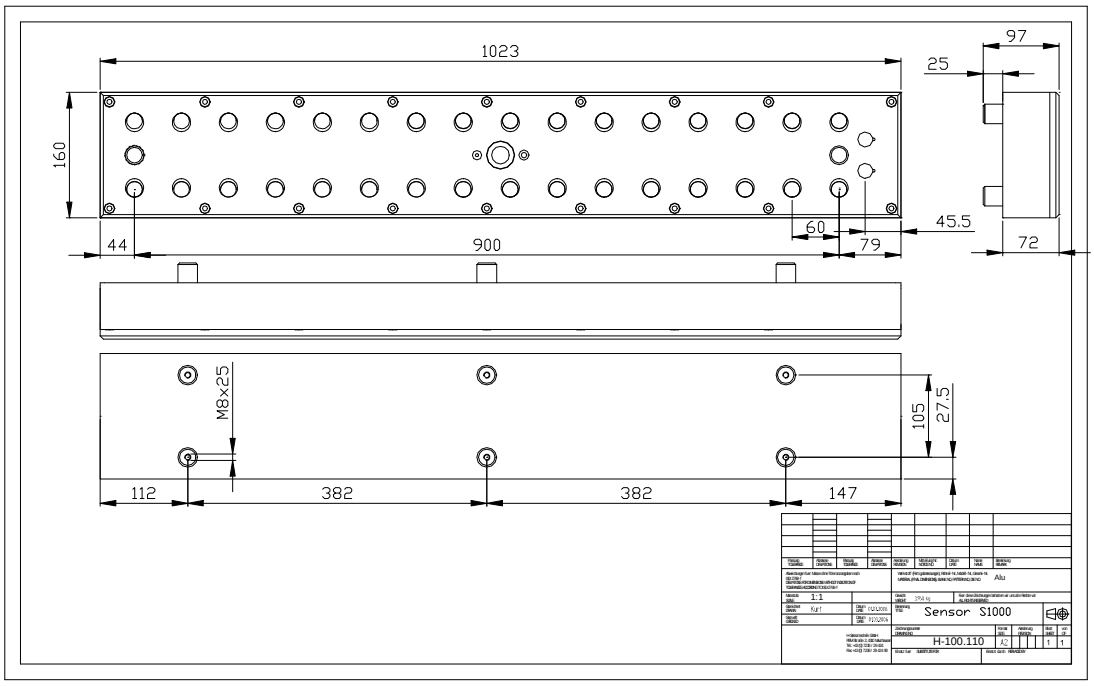


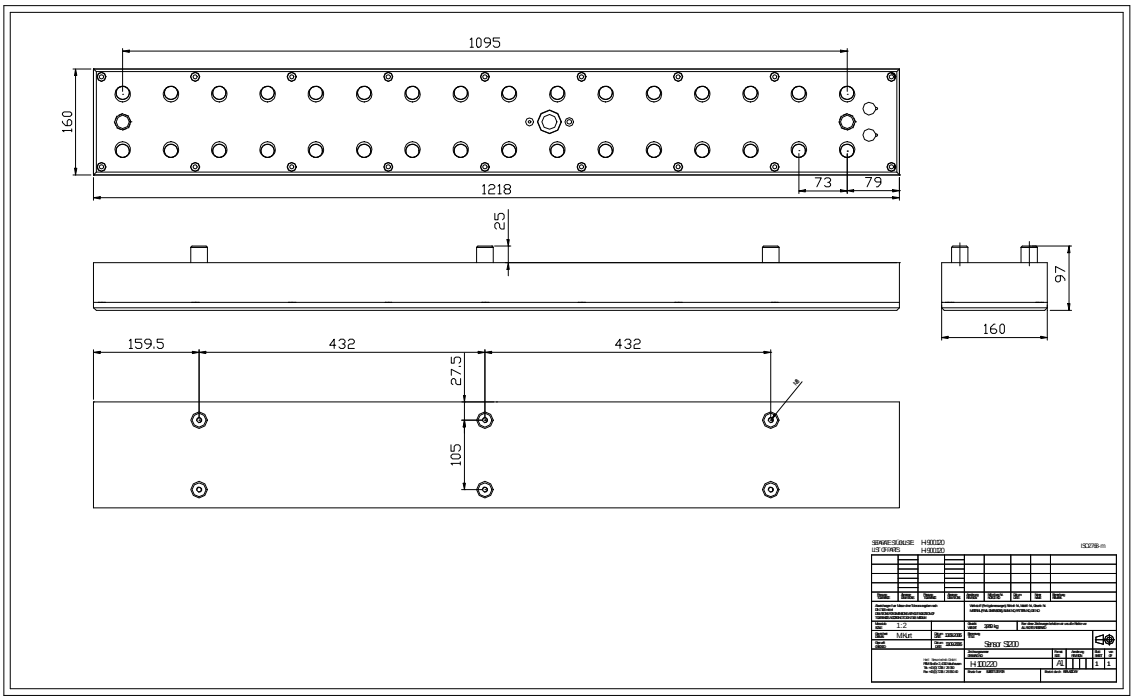
Pin #	Signal	
1	+12 VDC	
2	0 VDC	
3	Not connected	
4	Signal	

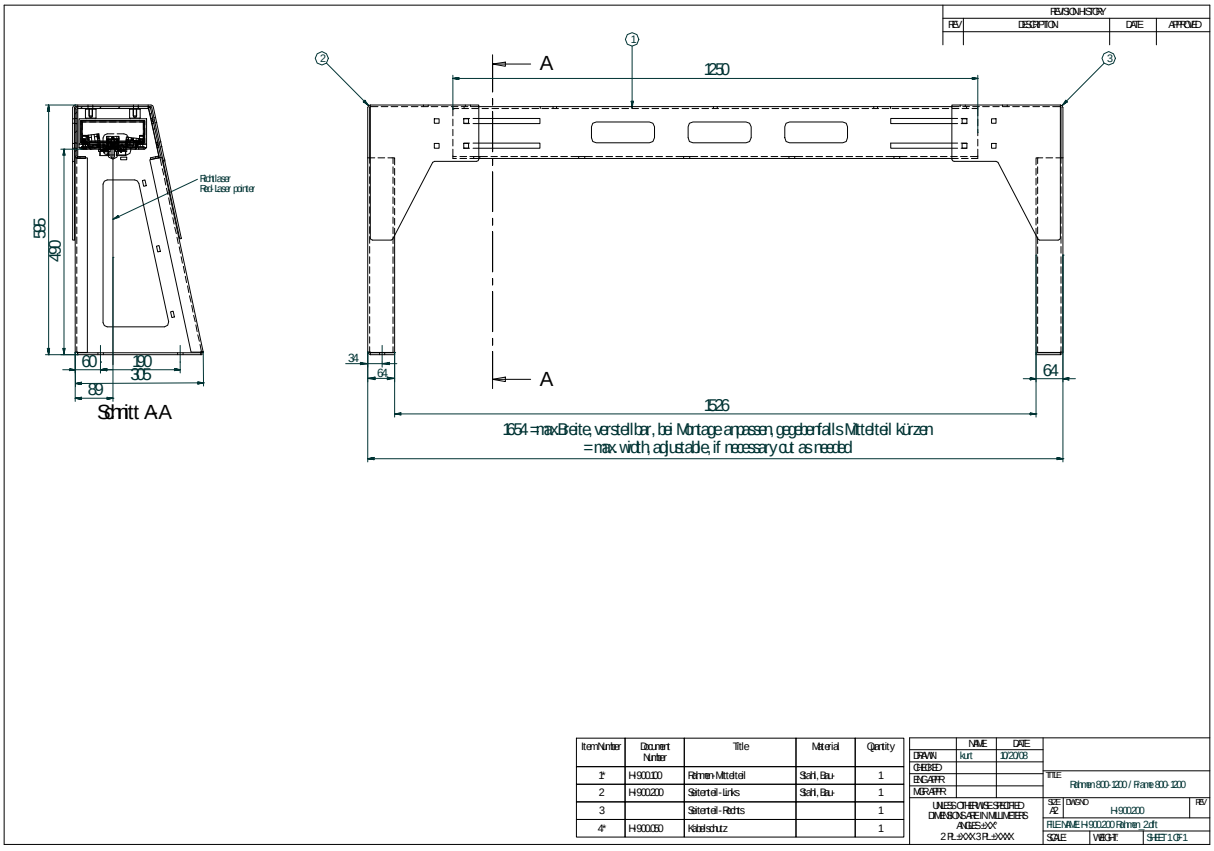
13 Drawings


663
540
79
45
160
40
45,5
25
72
154
320
189
27,5
105
1 : 2
3,950 kg
M. Kurt
13.09.2006
13.09.2006
Sensor S800
H-Sensortechnik G.m.bH.
H 101180
A2
1
1


843
160
44
720
60
79
25
72
97
154
500
189
27,5
105
M8 x 25
843
1 : 2
3,80 kg
M.Kurt
Sensor S800
H 101180
A2
1
1


1023
97
25
160
60
45.5
44
900
79
72
M8x25
105
27.5
112
382
382
147
Sensor S1000
H-100.110


1095
160
73
79
1218
25
97
160
159.5
432
432
27.5
105
Sensor S100
H100120


REVISION HISTORY
REV
DESCRIPTION
DATE
APPROVED
A
1250
A
1526
1654 = max Breite, verstellbar, bei Montage anpassen, gegebenfalls Mittelteil kürzen
= max. width, adjustable, if necessary cut as needed
34
64
64
595
490
60
190
305
99
Richtlaser
Red Laser pointer
Schnitt AA
Item Number
Document Number
Title
Material
Quantity
1*
H-900100
Rahmen Mittelteil
Stahl, Blau
1
2
H-900200
Seitenteil - links
Stahl, Blau
1
3
Seitenteil - Rechts
1
4*
H-900050
Kabelschutz
1
NAME
DATE
DRAWN
kurt
10.2008
CHECKED
ENG APPR.
MFG APPR.
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
ANGLES ±XX°
2 PL ±XX X 3 PL ±XXXX
TITLE:
Rahmen 800-1200 / Frame 800-1200
SIZE
A2
DWG NO
H-900200
REV
FILE NAME H-900200 Rahmen 2.dft
SCALE
WEIGHT
SHEET 1 OF 1