Transaction Information

Tool ID	AVT100
Tool Status	Connected
Location	Dresden, Germany
Wafer Size	300 mm
Fab Section	Lithography
Tool Available Date	2024-11-18

General Product Information

Vendor Supplier	InnerSense
Model	Load Port - P/N: ALP613A
Vintage	2017
Serial No	0030
Asset Description	InnerSense BIC-Sensors Smart Wafer [TW]
Software Version	2.1.11025
CIM	SECS-GEM
Process	Vibration wafer charging and data collection

Hardware Configuration (Fab)

System Type	Description	Quantity	Status
Main System	Load Port	1	OK
Options System	none	0	
Others	none	0	
Handler System	none	0	
Factory Interface	FOUP	1	OK
Main System	Computer	1	OK

Hardware Configuration (Subfab / Auxilliary Units)

Description	Quantity	Status
none	0	

Missing/Faulty Parts / Accesorries List

Description	Quantity
none	0

Tool Pictures

General	General View

| Hardware Fab | Loadport, computer |

Hardware Fab	Loadport, computer

Manufacture Serial	AVT100 Serial Plate
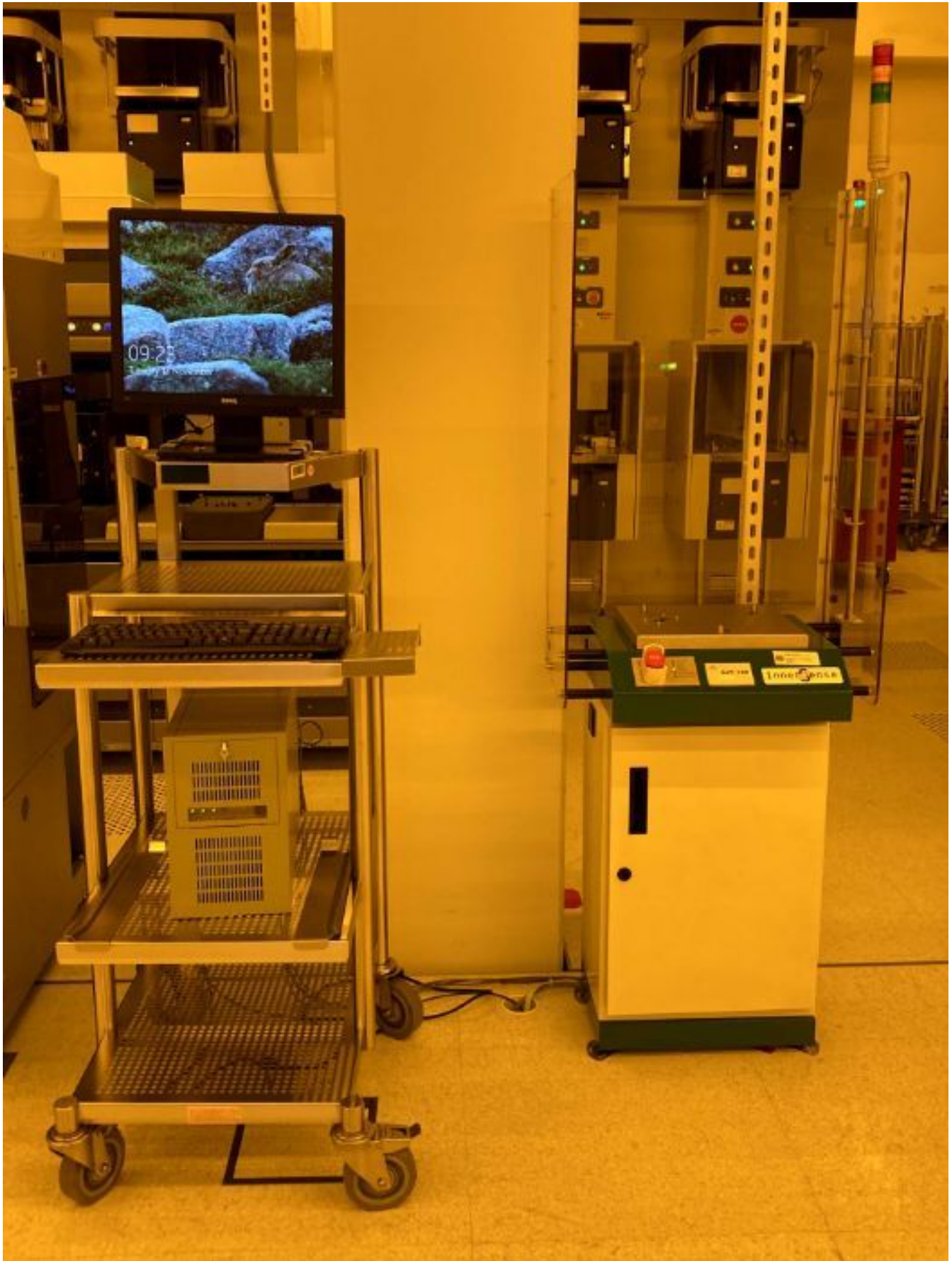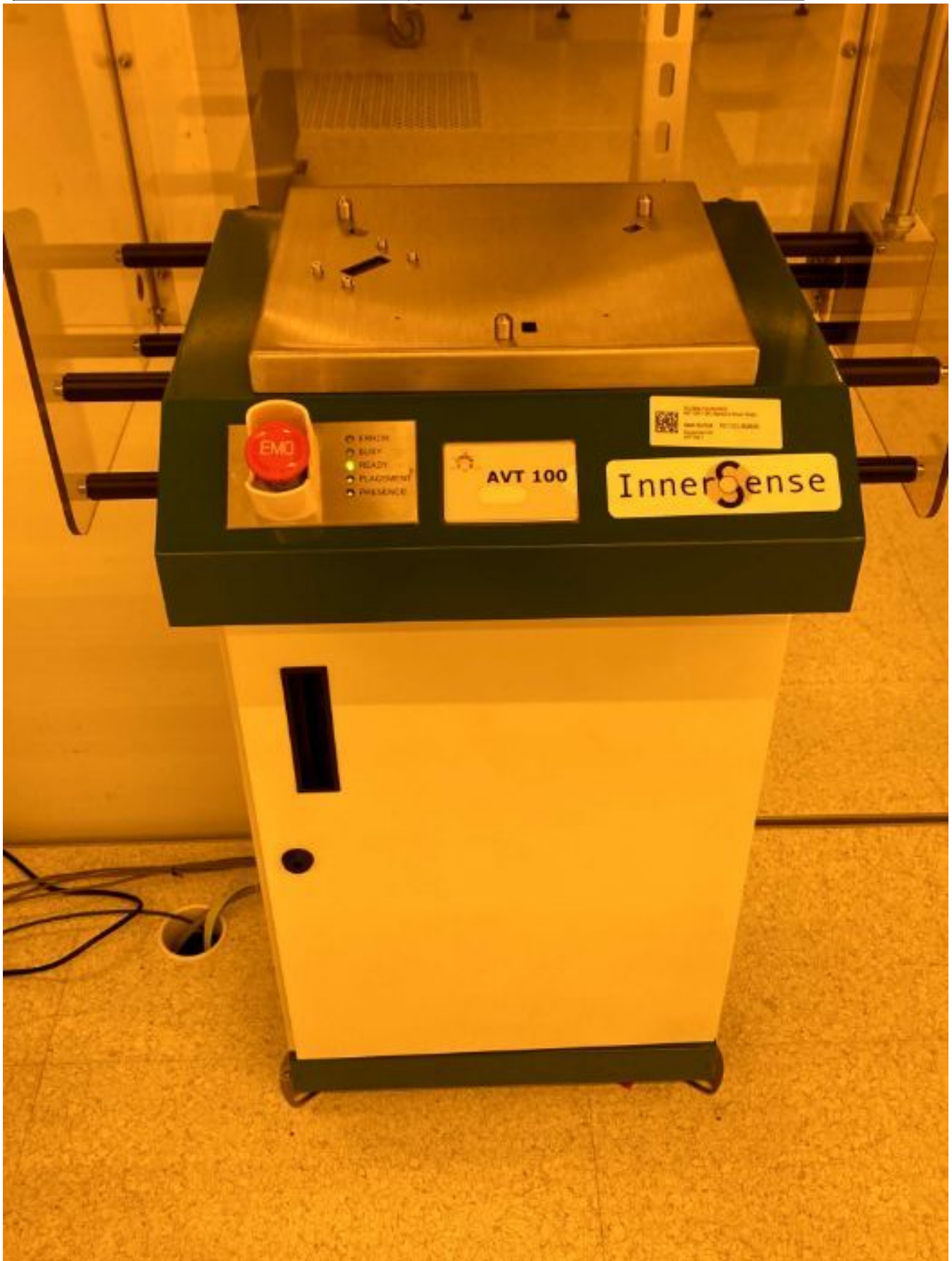
Inner**S**ense

19, Hartom St. Jerusalem 9777518, Israel

Manufacturer's name: INNERSENSE Ltd

Model: Loadport – P/N: ALP613A

Serial No: 0030

Country of Origin: ISRAEL

Voltage: 100-240VAC.

Wiring Configuration: 2 Wires + Ground.

Frequency: 50/60 Hz.

Machine Main Breaker Rating: 4A.

Full Load Current: 2A.

www.innersense-semi.com

Additional Tool Data Files

InnerSense
Smart Wafer 2

Automated Mode

SmartWafer2 (SMW2)

Miniature vibration sensors with an electronic circuit and a battery, are mounted on a bare Silicon test wafer.

How does SMW2 work?

- Records every motion, impact and placement in the process tool
  - The engineer can "see" exactly what the wafer "feels" inside the process tool.

- In the automatic mode, the SMW2 can automatically monitor and be used to diagnose the mechanical condition of most production tools in the fab.
  - **Absolute best method of detecting, trending and preventing mechanical related tool issues.**

The SmartFOUP

- **The Reader & Charging Unit is integrated into a standard FOUP**

- **Contactless charging and data-communication inside FOUP**

- **Recording starts/stops automatically when SMW2 deployed**

InnerSense Docking Station

InnerSense Docking Station

- Designed for 300mm automated fabs

- Permits the utilization of the Smart Wafer in production mode
  - Runs like any other routine monitor

- Automatically connects to the SmartFOUP
  - Power charging and all data transfers

- Prepares the wafer for recording
  - The AMHS/OHV system will send it to the designated tool

- Data automatically downloaded to the computer and analyzed

General Operation Flow (Full Auto)

1. The Host sends command to the AMHS/OHV to transfer the SmartFOUP to the docking station. SmartFOUP stored in Stocker.

2. After checking the charge status & initialization in the docking station, the SmartFOUP is transferred to the process tool

3. The Station Controller Host runs the vibration test on the process tool with a special vibration test recipe (typically a standard mechanical sequence through tool).

Smart Wafer

Smart FOUP

Docking station

Test results

4. The SmartFOUP returns to the docking station where the data is uploaded, parameters (Toolset, tool# & recipe) are automatically imported by the Host to the remote database (RDB).

5. The data is analyzed automatically by the docking station PC s/w, and SPC results are published internally and able to be sent to fab wide SPC system.

6. Engineering can access all data from inside or outside the fab.

Automated System Summary

- Ease of use
  SmartFOUP Stored in Stocker
  No laptop required to run
  Can be scheduled automatically to run as a regular monitor
  Data stored on Remote Database, accessible from outside fab

- Predictive Monitor
  AutoSync, AutoSPC, OOC and Tool Comparison features
  Software flags OOC's and trends
  Dog tool/Best Tool matching

- Minimal Engineering time
  Review data and OOC report from desk

Other InnerSense Products

- RH (Relative Humidity) – Uses ALP

- EWG (Eccentricity and Wobble Gauge) – Uses ALP

- AVG (Air Velocity Gauge) – Real Time (Bluetooth device)

- SMR (Smart Reticle)

- EWG-R (Eccentricity and Wobble Gauge for Reticle)

Next Modules

- InnerSense Vibration training
- Interpreting Vibration Data
- Working with Software

Table of Contents

1. Pre Installation:

a. Disable Antivirus:

If you are using an Antivirus, please disable it before the installation.

For further details please refer to the "Disabling the antivirus.0" section.

b. Verify .Net 4.5 is installed (For windows 7 / Vista):

1. Go to: **Control panel →Programs and Feature**.
2. Make sure a record exists for "**Microsoft .NET Framework 4.5**".
3. If it is not installed Please install Microsoft .NET Framework 4.5.You can download the installation file from Innersense's site:
   ftp://innersenseguest:guest@files4.cyberlynk.net/InstallationFiles/dotnetfx45_full_x86_x64.exe
   Or from Microsoft's site:
   http://go.microsoft.com/fwlink/?LinkId=225702
4. After installing .Net 4.5restart the computer.
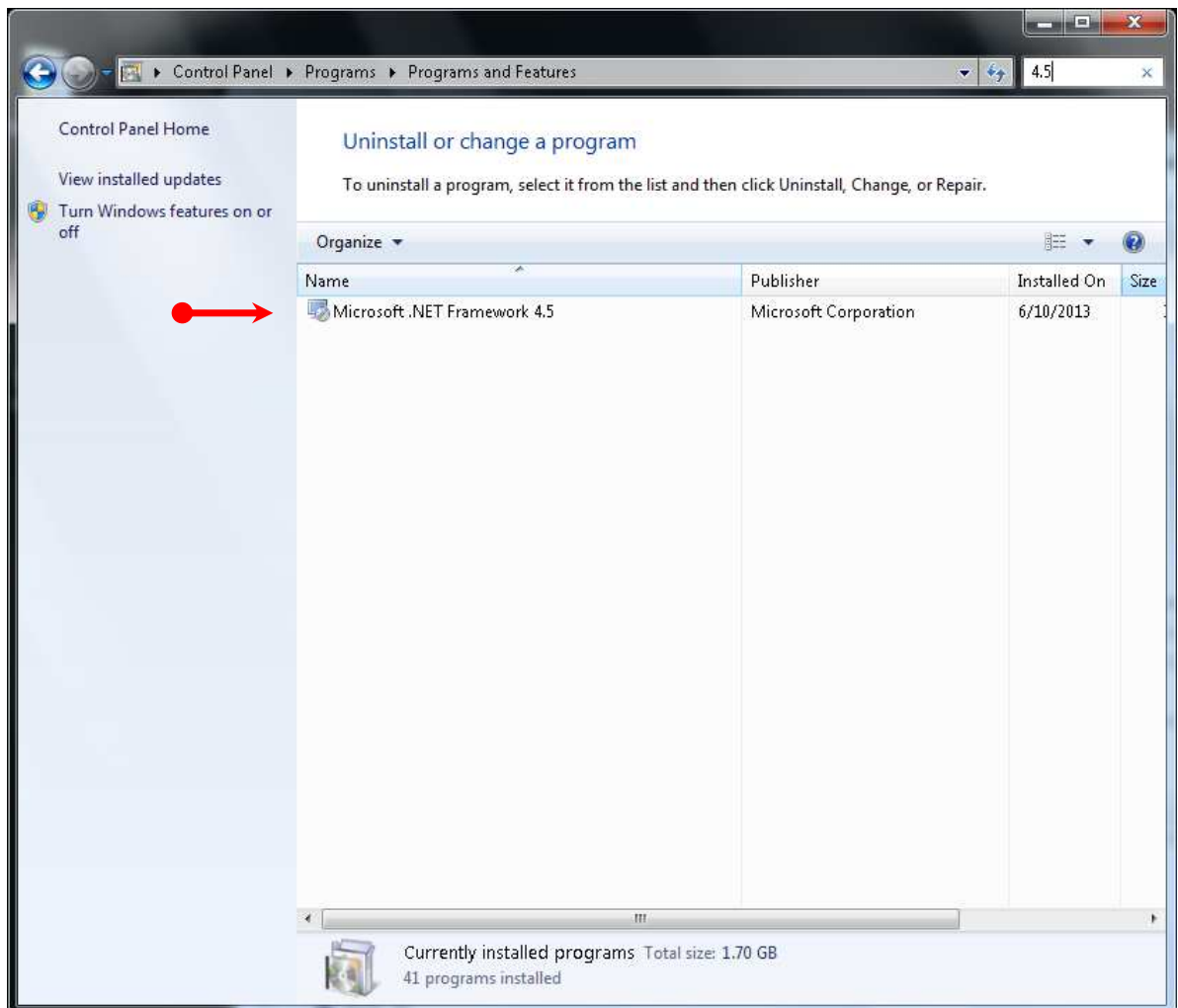
c. Verify administrator rights

1. Go to: **Control Panel→User Accounts and Family Safety→User Accounts**.
2. Locate your account.
3. Under your user   name, it should specify "Administrator"
4. If it "Administrator" is not specified under your user name. Please set you user as an administrator using the **Change your account type** link.
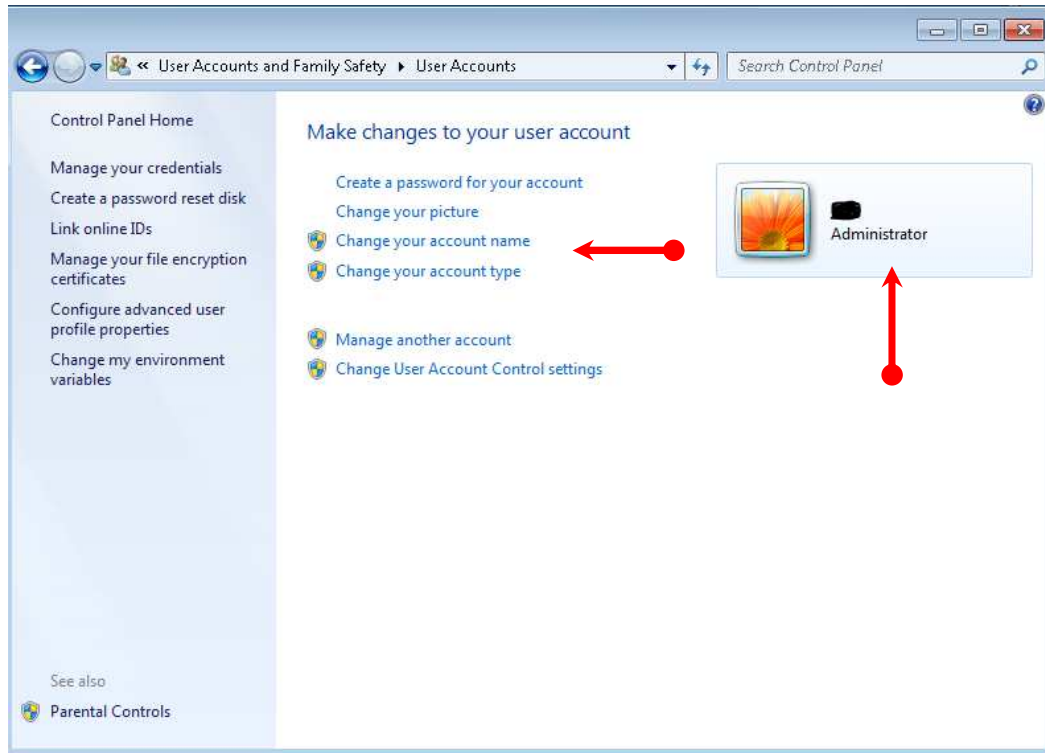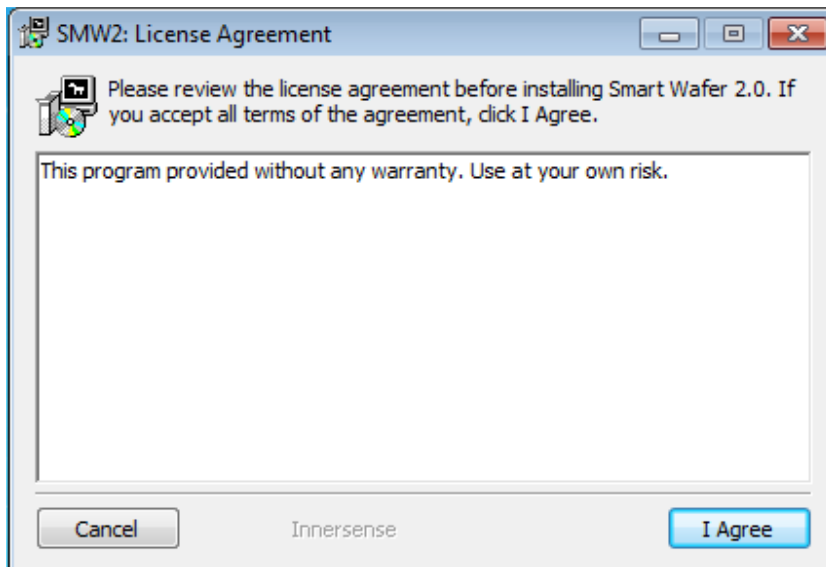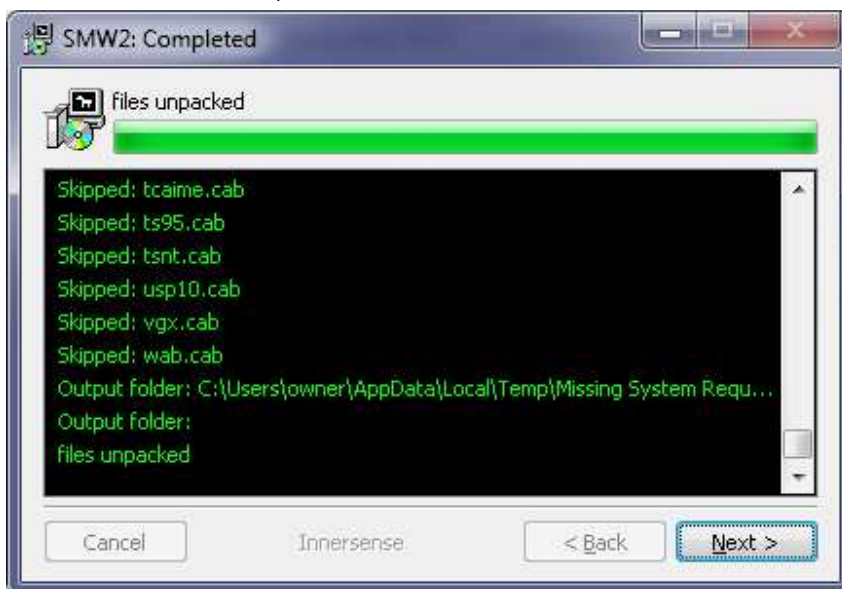
2. Installation:

1. Download the **SMW2 Full Installation** file from http://innersense-semi.com/Downloads.
2. Set the file to run with administrator privileges.
   a. **Right click**on the application icon → **Properties**→**Compatibility** tab→**Runthis program as an administrator**.
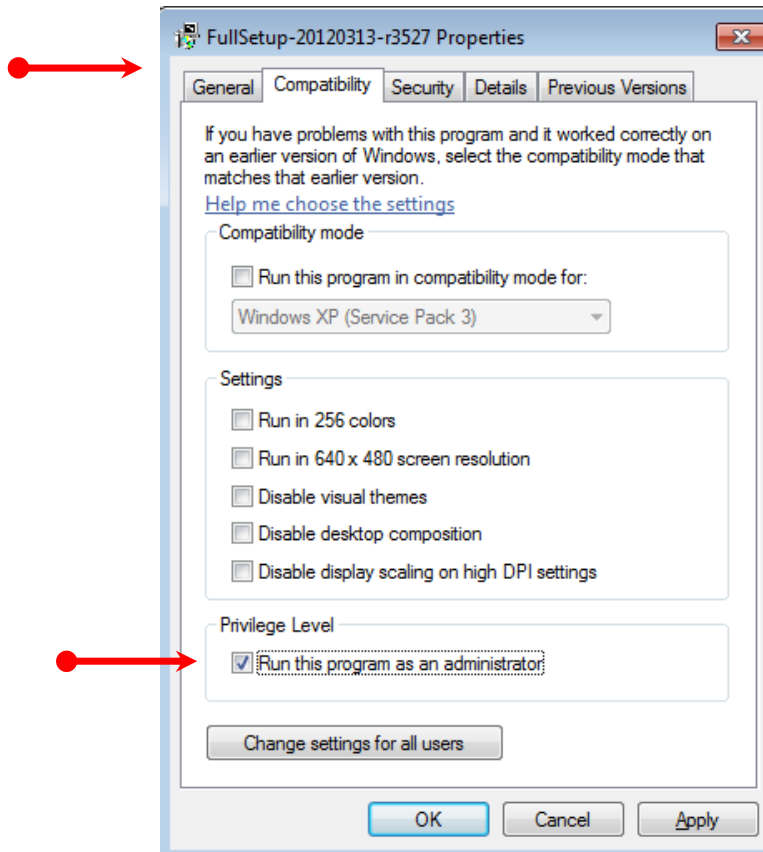

3. Run the installation program.
4. On the window that opens, read the license agreement and click on **I Agree**.

5. The installer will now extract all installation files. This may take a few minutes.
6. After files are extracted, click on **Next**.

7. The installation manager window will open.
    a. Advanced:
        i. If you do not wish to install SQL Server, leave **Install SQL-Server** checkbox unchecked. Please note that SQL-Server 2008 R2 is required for Analysis to run properly. If you do not have it installed, and you are not planning to use a remote database, you will be required to install it manually later.
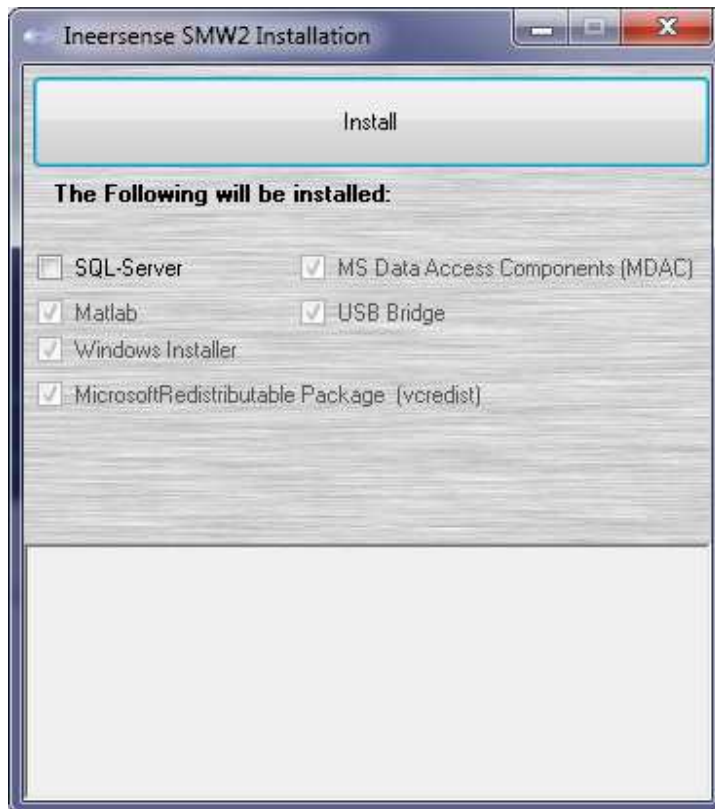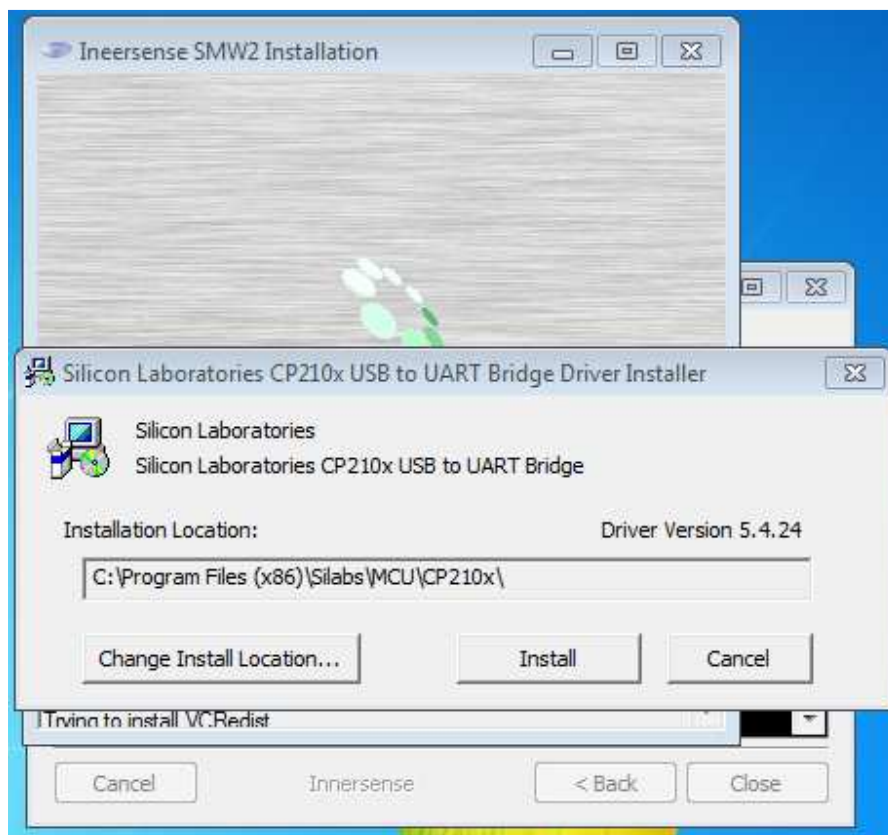
8. Click on **Install**.
9. The installation manager is now installing all required prerequisites for SMW2 Analysis. This might take few minutes.
10. If you are prompted about an existing database, we recommend keepingthe existing database. You can do this by clicking **No.**
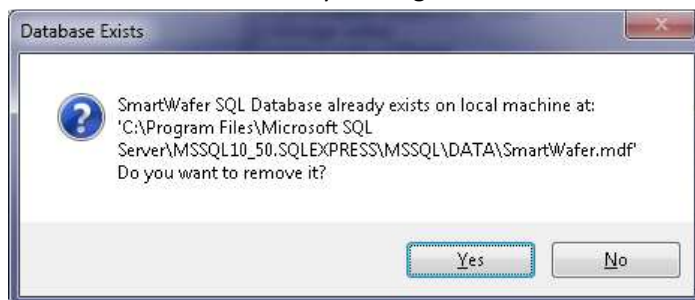

11. In the meanwhile you can view the progress of installation in the log box. Please note that installing Matlab and SQL-Server in particular might take a while.
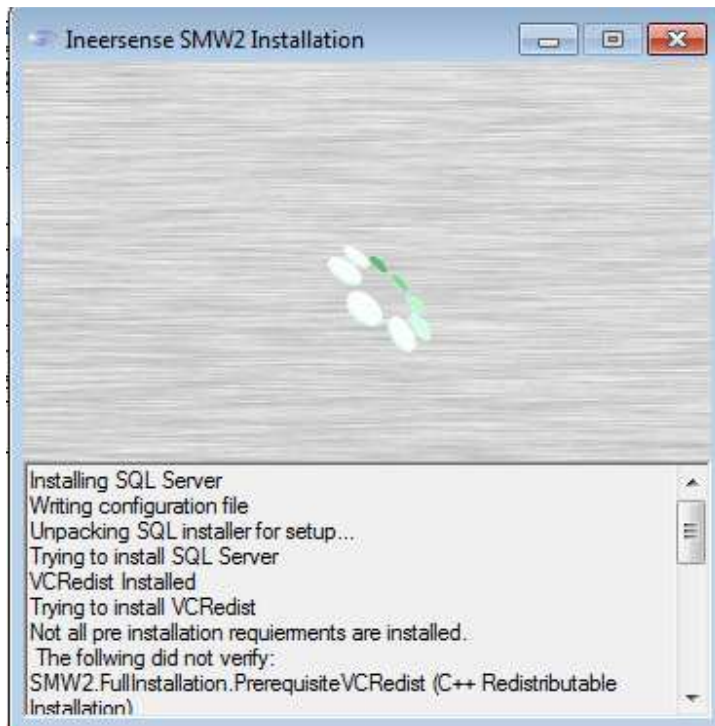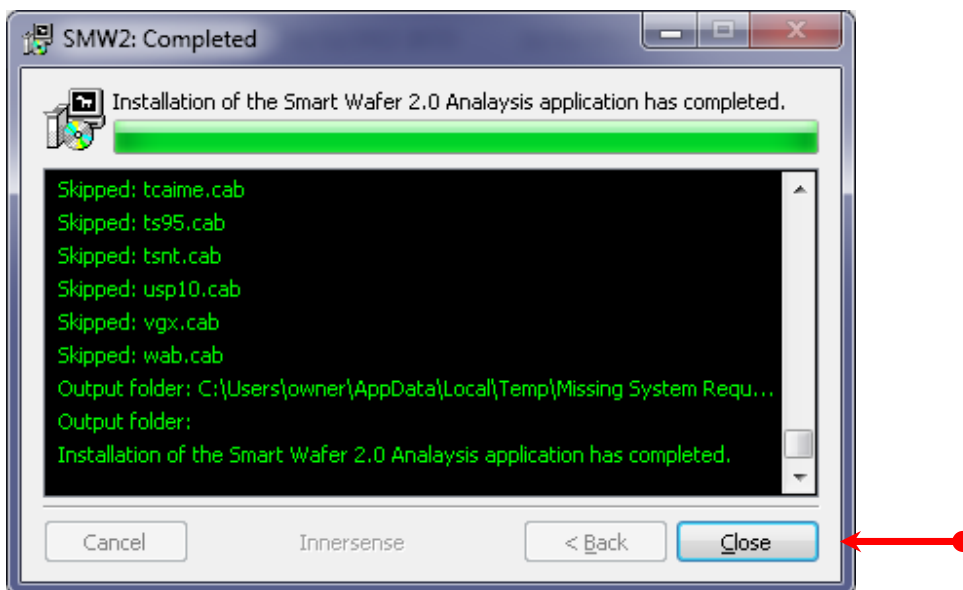
12. During installation you might be prompted to start a specific installation. If you are, please confirm in order to continue installation.

13. When Installation is complete, please click on the **Close** button.
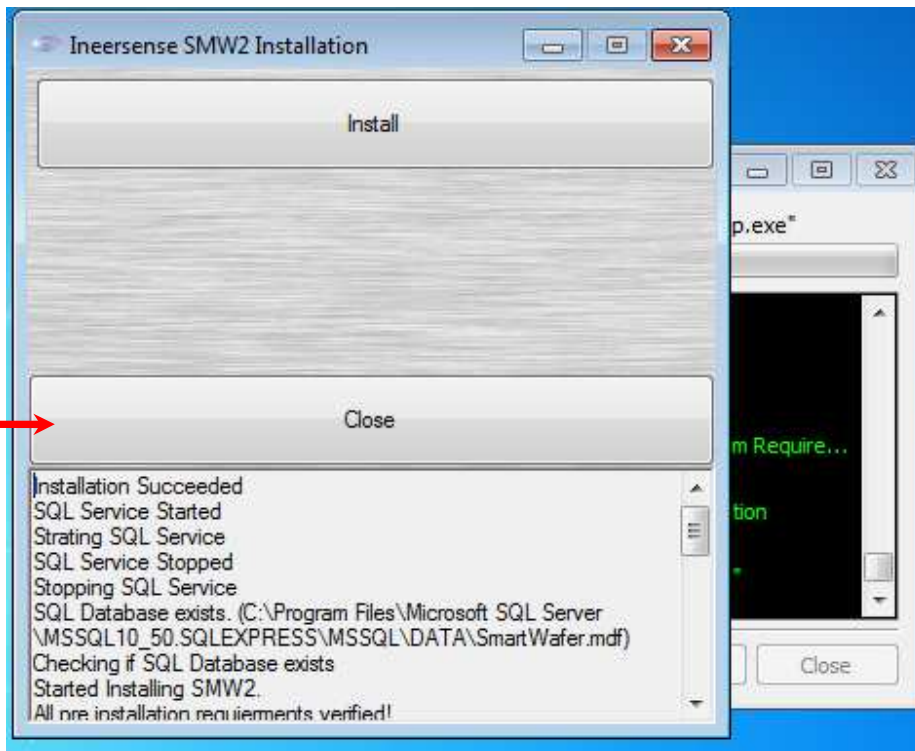
14. Click on the **Close** button.
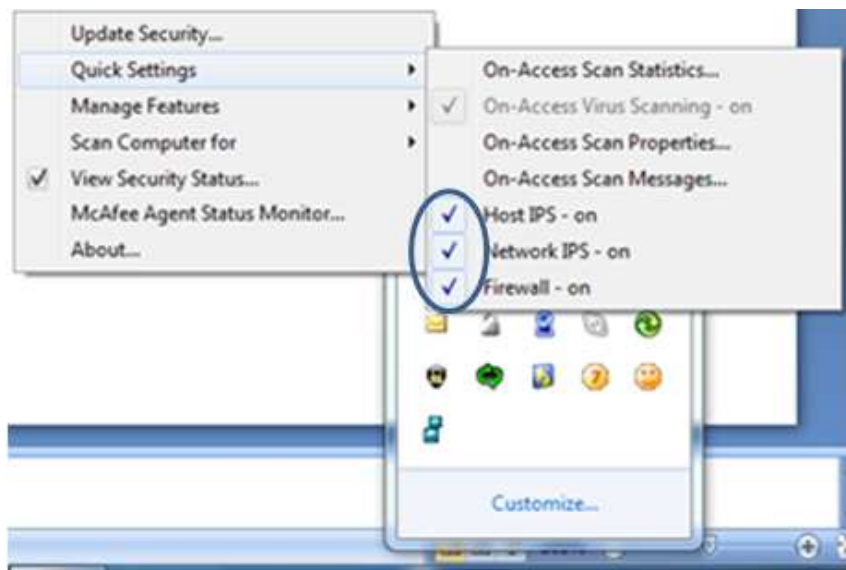
3. Appendix

a. Disabling the antivirus.

I.   For **Symantec Antivirus**, please disable "Symantec Endpoint":

Right Click on the **Symantec icon→** Click on **Disable Symantec Endpoint Protection**

II.   For **McAfee** Antivirus, please disable (by **Unmarking**):

    a.   Press on McAfee Icon
    b.   Select Quick setting
    c.   Unmark Host IPS to be OFF
    d.   Unmark Network IPS to be OFF
    e.   Unmark Firewall to be OFF

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4. Troubleshooting

a. SQL Server failed to install

In case SQL-Server fails to install automatically, a window will open for manual installation of SQL-Server. If this happens - please ask your IT to assist you in SQL-Server 2008 R2 Installation.

    a. Common reasons for SQL-Server to fail installation:
        i. User without permissions.
        ii. An older version of SQL-Server is installed with an instance called SQLExpress (this could be easily tested using a udl file).

b. Installation failure

In case the SMW2 Analysis installation failed, a copy of the log file will be copied to your desktop. When you contact Innersense, please send this file as well.

## c. When installing the SQL, getting "error code 0X84b40000 ...<null or empty string>..."

Cause: If the operating system's language is different (e.g. Turkish etc...), you may encounter this error while installing SQL Server 2008.

Solution: Change the "Regional and Language Options" to United Kingdom or United States via "**Control Panel**".After installation of SQL Server 2008 with the new settings, you can roll back the "Regional and Language Options" to original region and language setting.
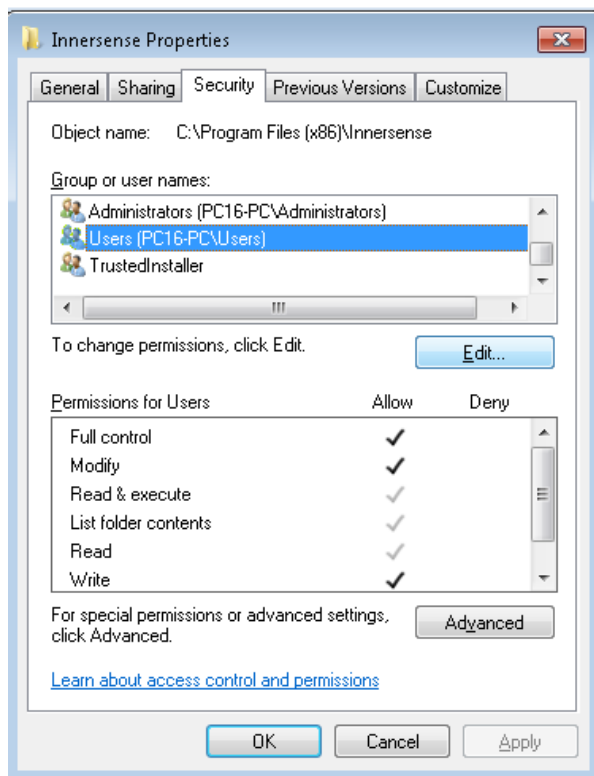
d. When starting application, getting 'Mathematical Engine failed to start' error

This is a windows 7 permissions issue. Please follow instructions:

1. Go to the "C:\Program Files (x86)" folder.
2. Right click on the "Innersense" folder.
3. Select "Properties".
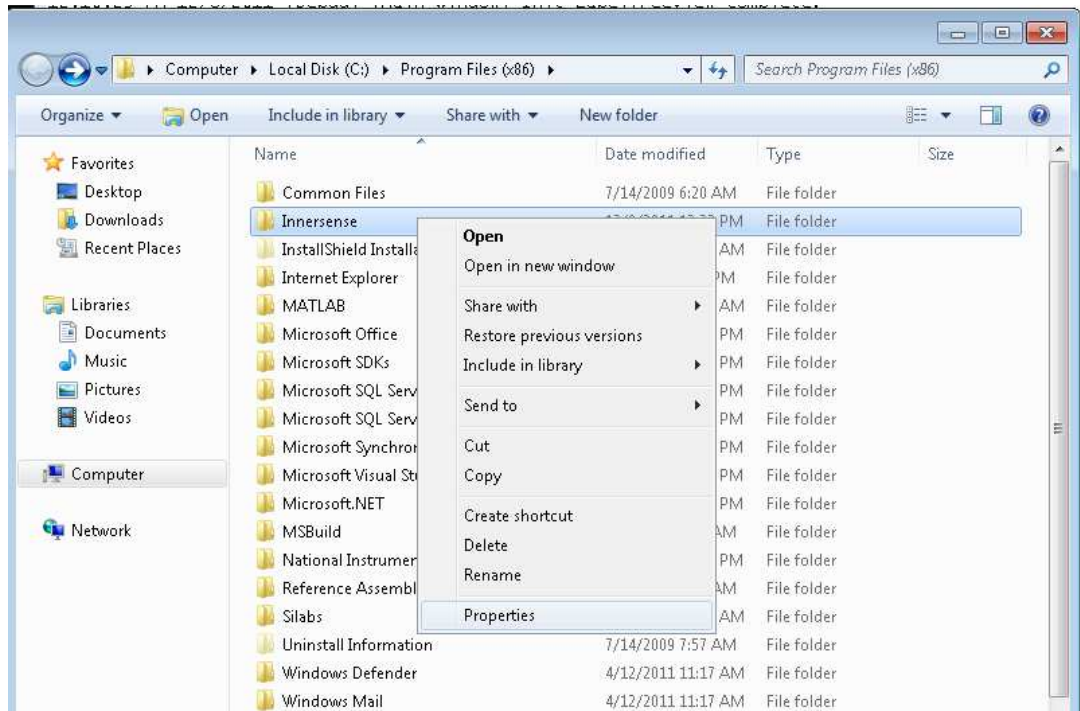
4. In the window that opened, select the "Security Tab".
5. Click on "Edit".

6. In the window that opens, under "Groups or user names", locate your user / group and select its record.
7. In the "Permissions for Users" box, click on the "Allow full control" text box.
8. Confirm.

e. When Installing SMW2 Getting an error message of: "There is a problem with this Windows Installer package. A program run as part of the setup did not finish as expected. Contact your support personnel or package vendor"

Please verify that the correct version of .Net 4.5 is installed (view the "2**Verify .Net 4.5 is installed** (For windows 7 / Vista):"section).
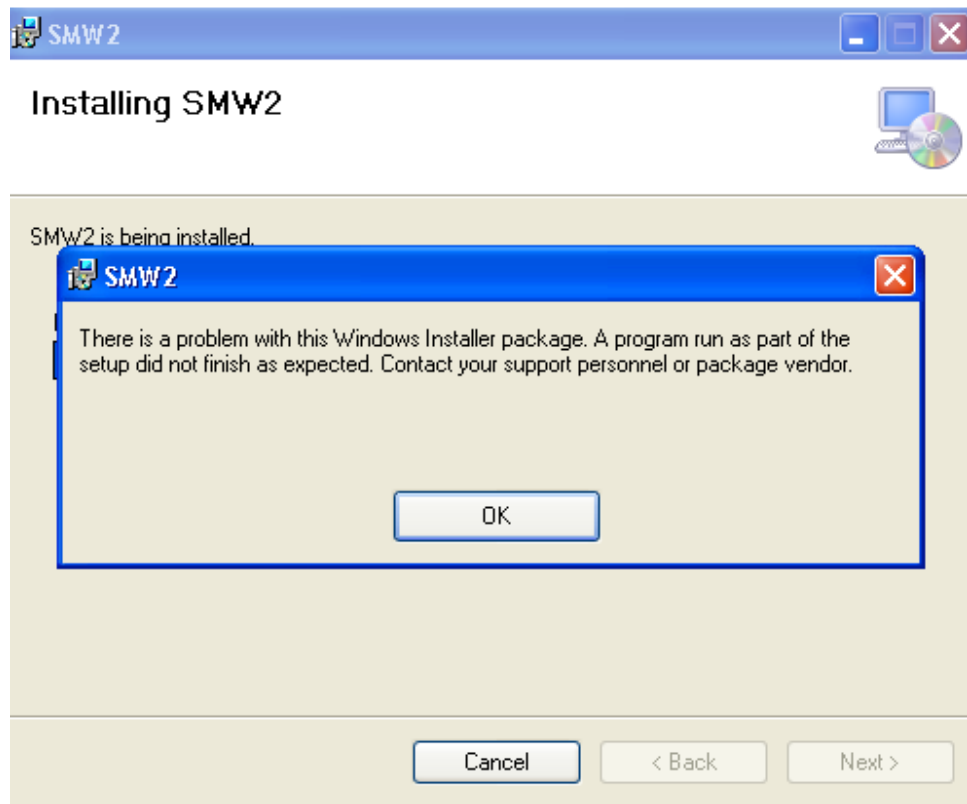

f. When starting application getting 'Cannot connect to Database' error

This is most likely was caused because the Antivirus was not disable during installation. In order to solve this issue, please do as follows:

I. Disable antivirus (for further details please refer to the "Disabling the antivirus." section)
II. Install Innersense (full installation package)
III. Reboot (Usually antivirus will restart itself after the reboot)

5. Update DB installation files

a. Open the update menu from **Admin** > **Update DB installation files** menu

b. In the update screen you can see there are 2 rows, one for the Analysis installation file, and one for the VIB installation file.
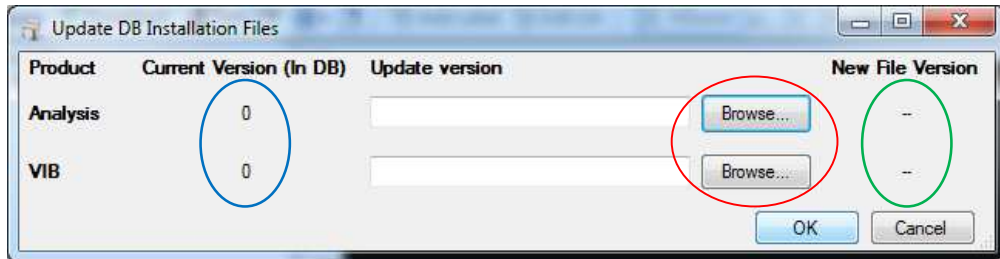
c. The number under **Current version (in DB)** (in the blue circle) is an indication for the version of the installation file that is currently in the DB

d. In order to update this file, click on the **Browse** button (red circle) and locate the installation file

e. Once you have selected an installation file, the text under **New File Version** (green circle) will change and will indicate what is the version of the installation file you have selected

f. Once you click OK, the files in the database will be updated

g. After updating Analysis installation files, the next time a user will log into the Analysis software, He will be prompted to perform an update

h. After updating VIB installation files, the installation will be available to all users in the DB, but will not be installed automatically.
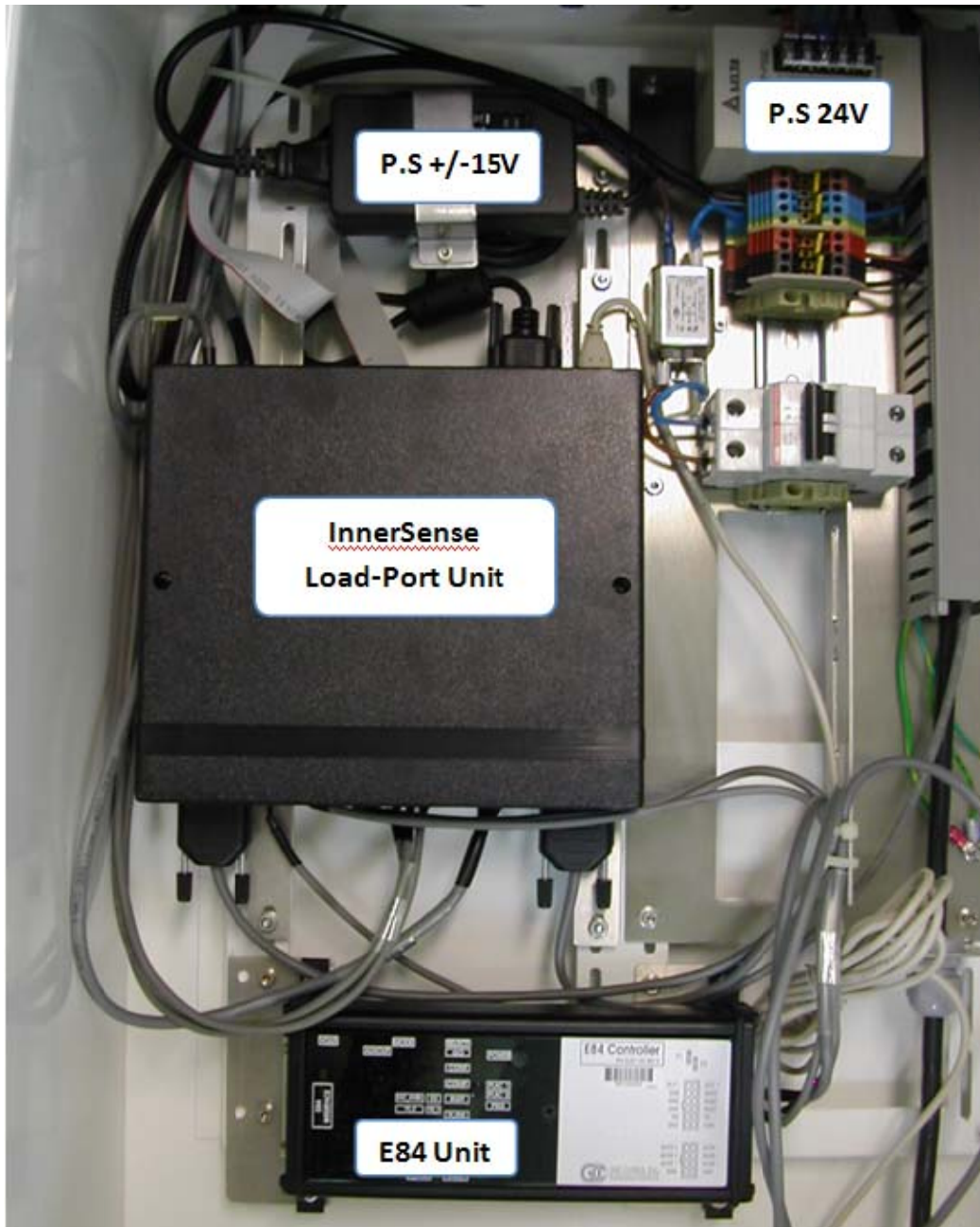
13

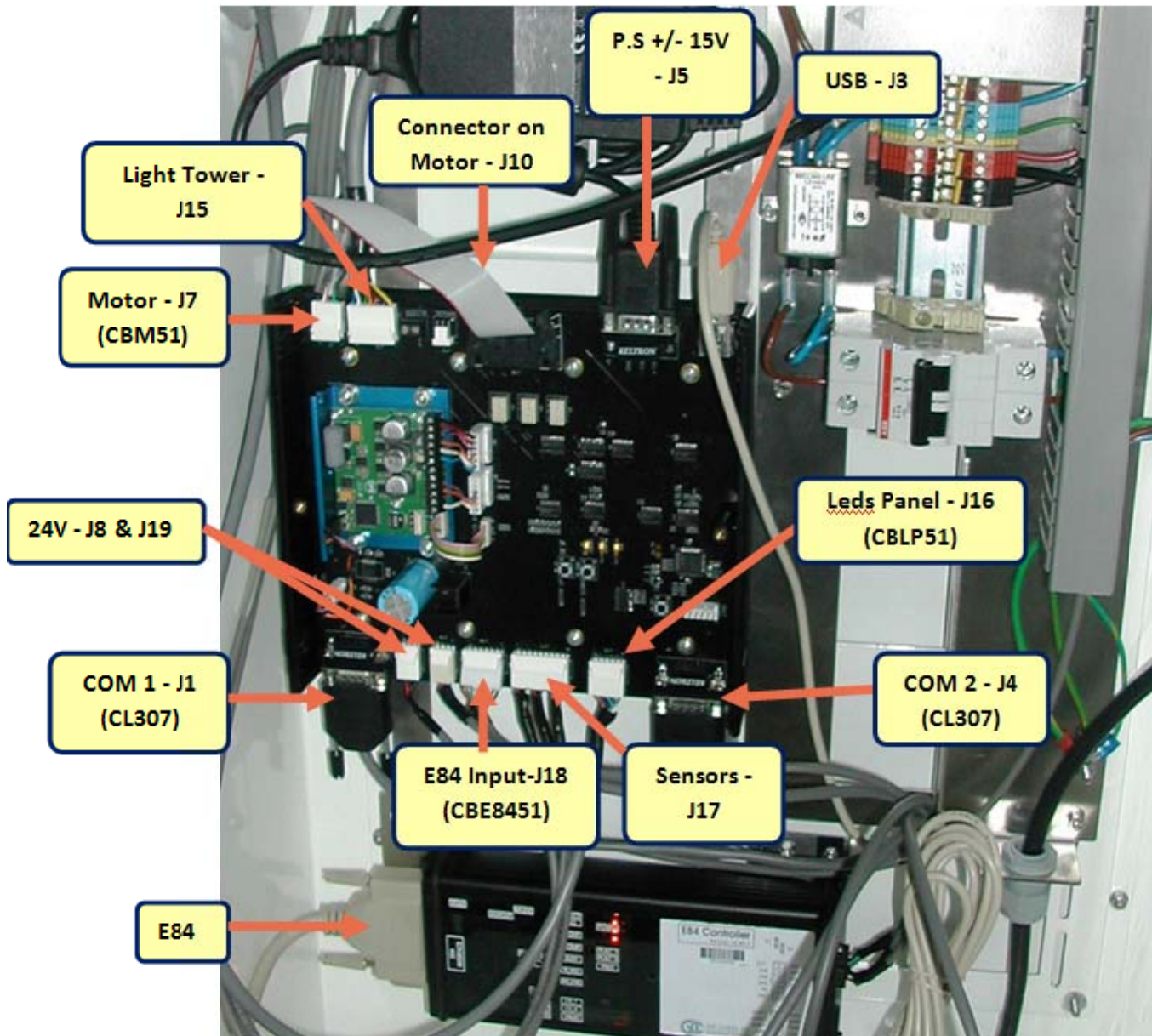# InnerSense Load Port

Technical manual

The purpose of this manual is to help you to identify & replace the various parts of the InnerSense Load-Port, and how to level it.

Inside the Load-Port you will find the following components (open the door using the door's key):

Pic. 1

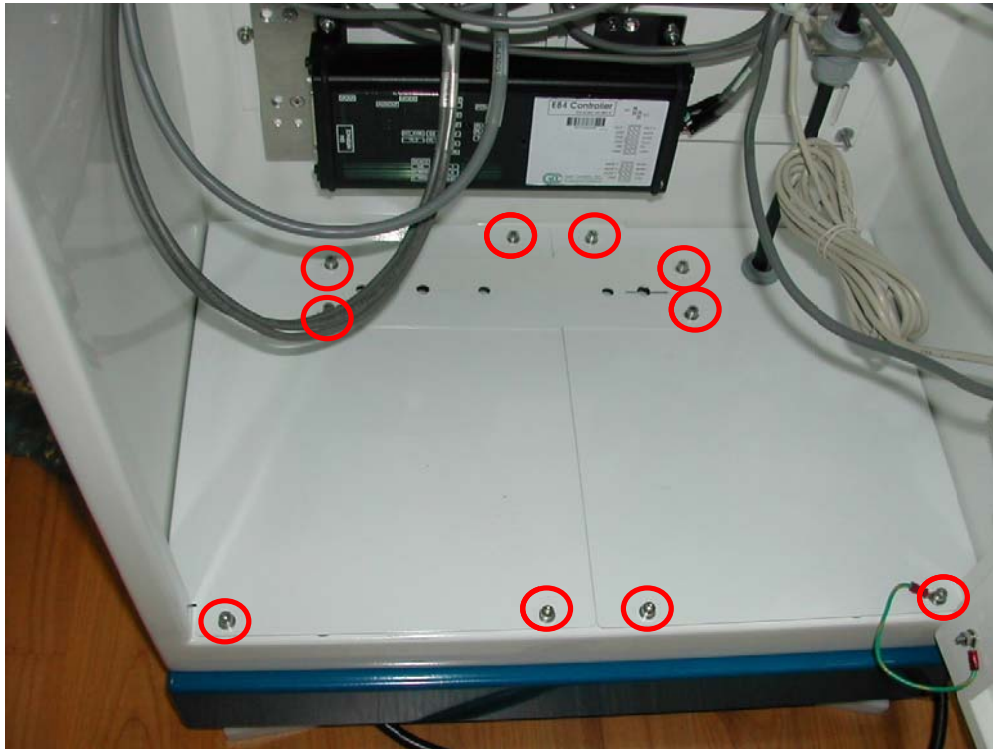Pic. 2 display the inner connectors of the Load-Port with their name (in parentheses - the cables names).

Pic. 2

Leveling

To access the Load Port leveling nuts, you need first to lift the Load port bottom panels.

That is done by removing the 10 screws at the Load-Port bottom:

Pic. 3

Now lift the covers:

Pic. 4

 To level the load-port, release the upper nut, adjust the Load-Port height at this point by turning the lower nut, then tighten back the upper nut:

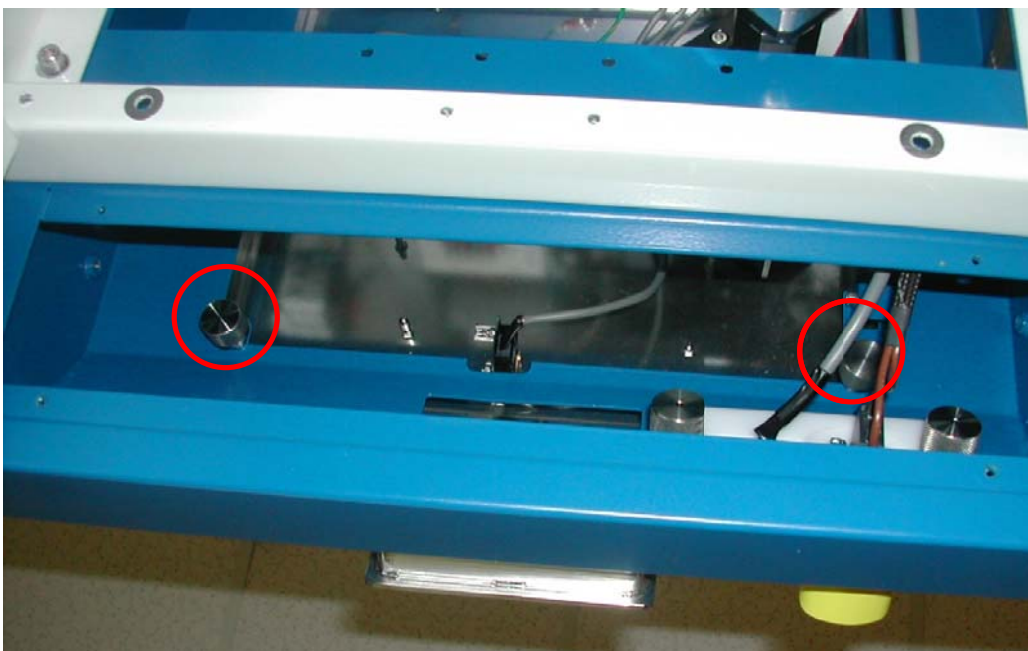
Pic. 5

The Load-Port Cover

To open the top cover of the Load-Port, follow the following steps:

Pic. 6

Release the 4 screws which connect the Load-Port cover.

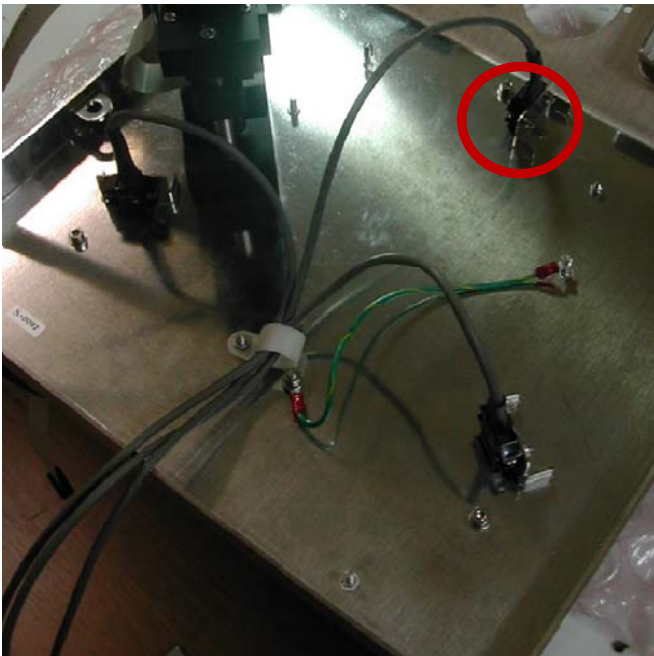Release the 2 big screws from the inside of the Load-Port:

Pic. 7

Sensors

3 presence sensors are mounted beneath the top cover of the Load-Port and connect to the ISLP51 board via cable cable CBSE51 to the ISLP51 board. CBSE51 cable ends with a 10 pin connector ("molex").

The sensor marked with a red circle (see Pic. 8) is connected to pins 1-3. The 2 other sensors are connected to pins 4-9.
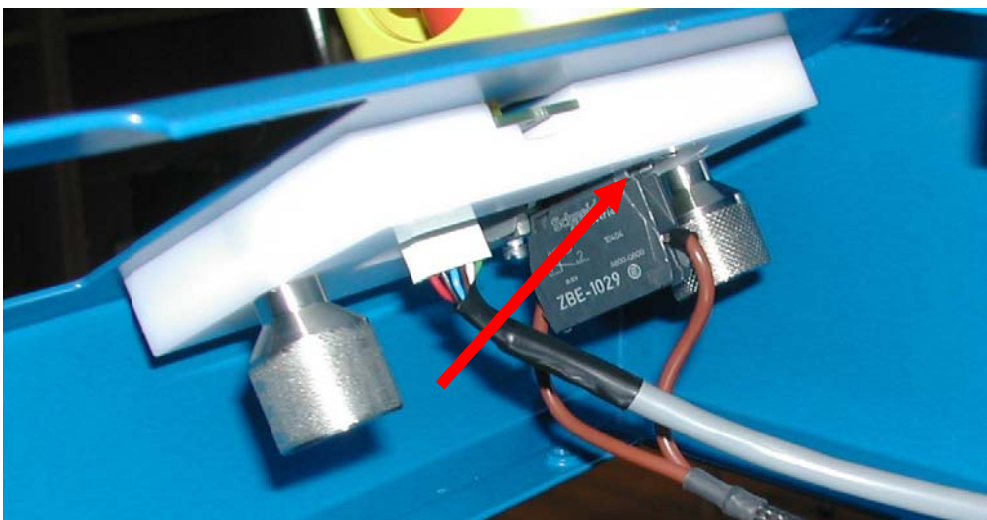

Pic. 8

Leds Panel

To release the Leds Panel, you have to release the 2 big screws which attach the white plastic panel to the inner side of the Load-Port:
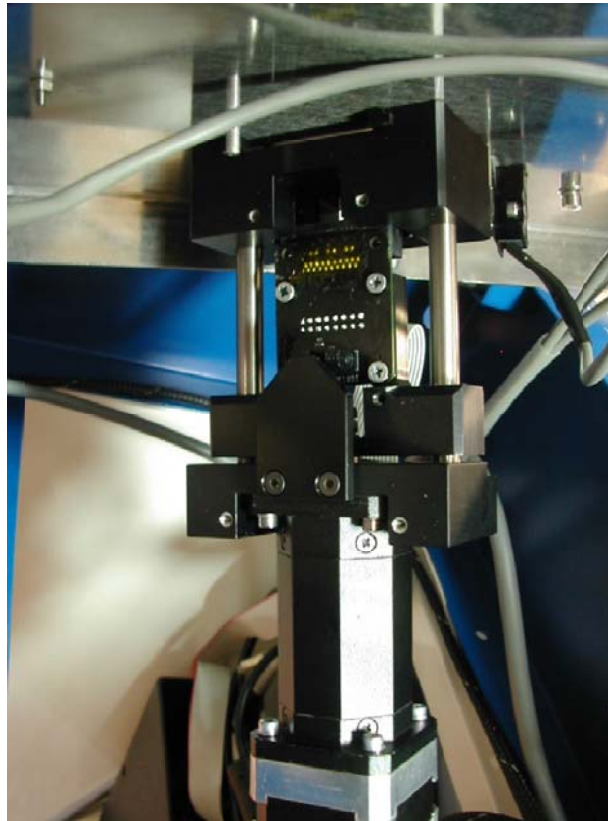

Pic. 9

Now you have to release the EMO connector. That is done by pushing the connector clip upward:
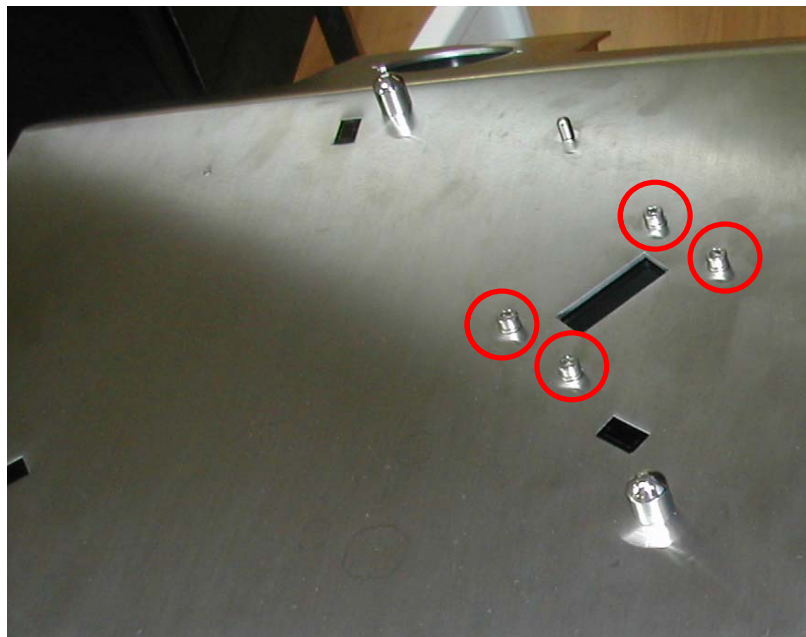

Pic. 10

The Motor

The motor is attached to the Load-Port top cover, as can be seen in picture 11.

Pic. 11

To disconnect the motor, release the 4 screws on the upper side of

the cover.

Pic. 12

<u>InnerSense Smart Wafer 2 Specifications</u>

Dimensions	Wafer: standard silicon 200/300mm diameter wafer, 0.7mm thick. Electronic enclosure: 85 mm diameter x 2.5mm thick
Weight	70/140gr (wafer 55/125 gr, electronics 15 gr)
Materials	Circuitry: mounted on silicon wafer, conformally coated with silicon adhesive and Torr Seal epoxy. Electronic circuit covered with PEEK-1000 enclosure
Sensitivity	~1 mg (where g is the acceleration due to gravity)
Range	$\pm$ 2 g
Frequency response	Vibrations: 500 Hz to 6 kHz Accelerations: 0 to 15Hz
Max rotation speed to stay within the sensor range	360 rpm
Leveling accuracy & range	Accuracy: $\pm 0.015^0$, Repeatability: $\pm 0.01^0$ relative to a reference plane, within 0^0-5^0 relative to horizontal, at room temperature only
Temperature rating	80^0 c for 15 min 60^0 c with no time limit
Recording autonomy	3 hours with internal rechargeable battery
Vacuum compatibility	10 E-9 Torr
Stand-by autonomy	3 months after normal charge and turn-off
Recharge time	60 minutes (typical) - 120 minutes(complete)
Typical Data Download	1.5 minute for typical 15 minutes recording
Smart Wafer life time	Standard:100-150 hours of recording

Silicon wafer
(0.7mm ~55gr/124gr)

Sensor electronics
(2.5mm ~15 gr)

83 mm

200mm/300mm