
CS9000 SYSTEM

CSM WDI

Operation guide



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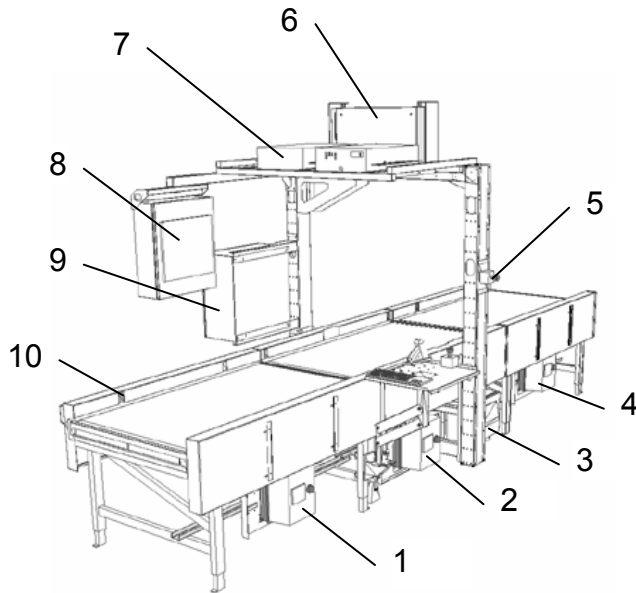
CS9000 WDI SOLUTION

The CS9000 WDI (Weight Dim ID) Solution consists of Cargoscan/Mettler-Toledo's CS9000 Unit with CSM WDI application software:

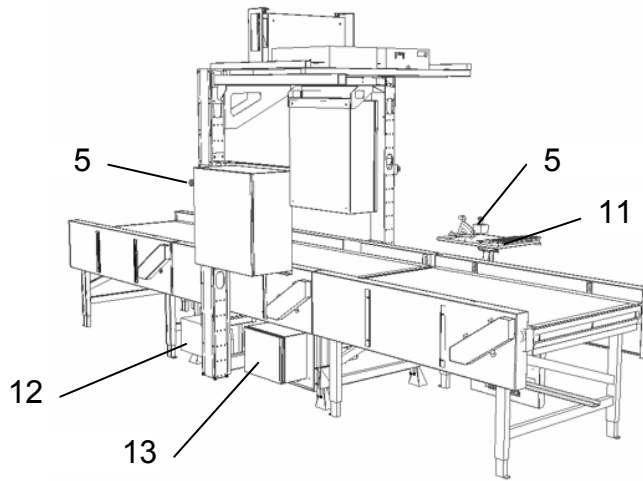
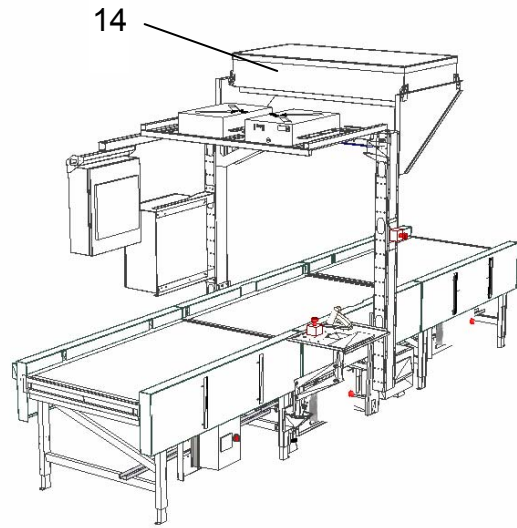
- ❑ CS900 Fan Scanner or CS5200 Beam Scanner
- ❑ DX8200 overhead bar code reader
- ❑ JagX express weigher
- ❑ PLC controller unit
- ❑ PC with display and keyboard
- ❑ 1 in feed conveyor for separation
- ❑ 1 out feed conveyor
- ❑ CSM WDI user interface software
- ❑ AMS2 WDI measurement software (with alibi storage)

A drawing of the overall system is presented on next page. The actual unit may be slightly different from this drawing. The system is configured, calibrated and controlled through the display and keyboard.

System with CS900 Dimensioner



System with CS5200 Dimensioner



Pos	Description	Pos	Description
1	BPU +1 (Belt Power Unit)	8	MPS Main PC Cabinet
2	BPU 0 (Belt Power Unit)	9	PLC Controller Cabinet
3	Scale controller	10	Photo Eye
4	BPU -1 (Belt Power Unit)	11	Workstation
5	Emergency stop switch (3x)	12	UPS (Power Backup Unit)
6	CS900 Dimensioner	13	Power Cabinet
7	Overhead Bar Code Reader	14	CS5200 Dimensioner

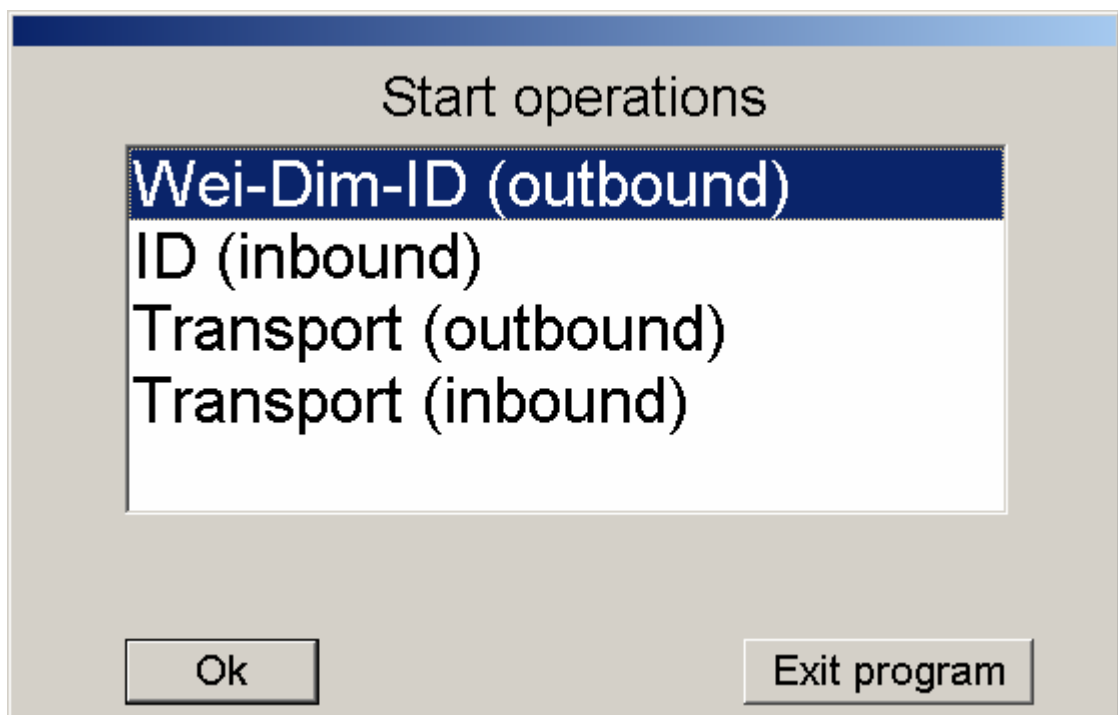
WORKING WITH CSM WDI

2.1 STARTING UP APPLICATION

The CSM WDI Application will be started automatically after the PC boot process and Windows start-up is finished. Then the following will or must happen:

1. CSM WDI starts communication with all devices (does not start conveyors).
2. Operator has to select mode of operation. CSM WDI can be configured to have several modes. Normally there is registration of weight, dimensions and identity for outbound packages, also probably registration or weight, dimensions and identity or tracking of identity for inbound packages and transport modes with no registration for outbound and inbound operations.
3. Operator must feed packages onto conveyors and CSM WDI will for all modes except **Transport** collect and store package information for transfer to customers host system. Additionally the alibi system can also be configured to store all measurement information.
4. The host communication module will try to connect to customers host system and send collected data.

2.2 START OPERATION



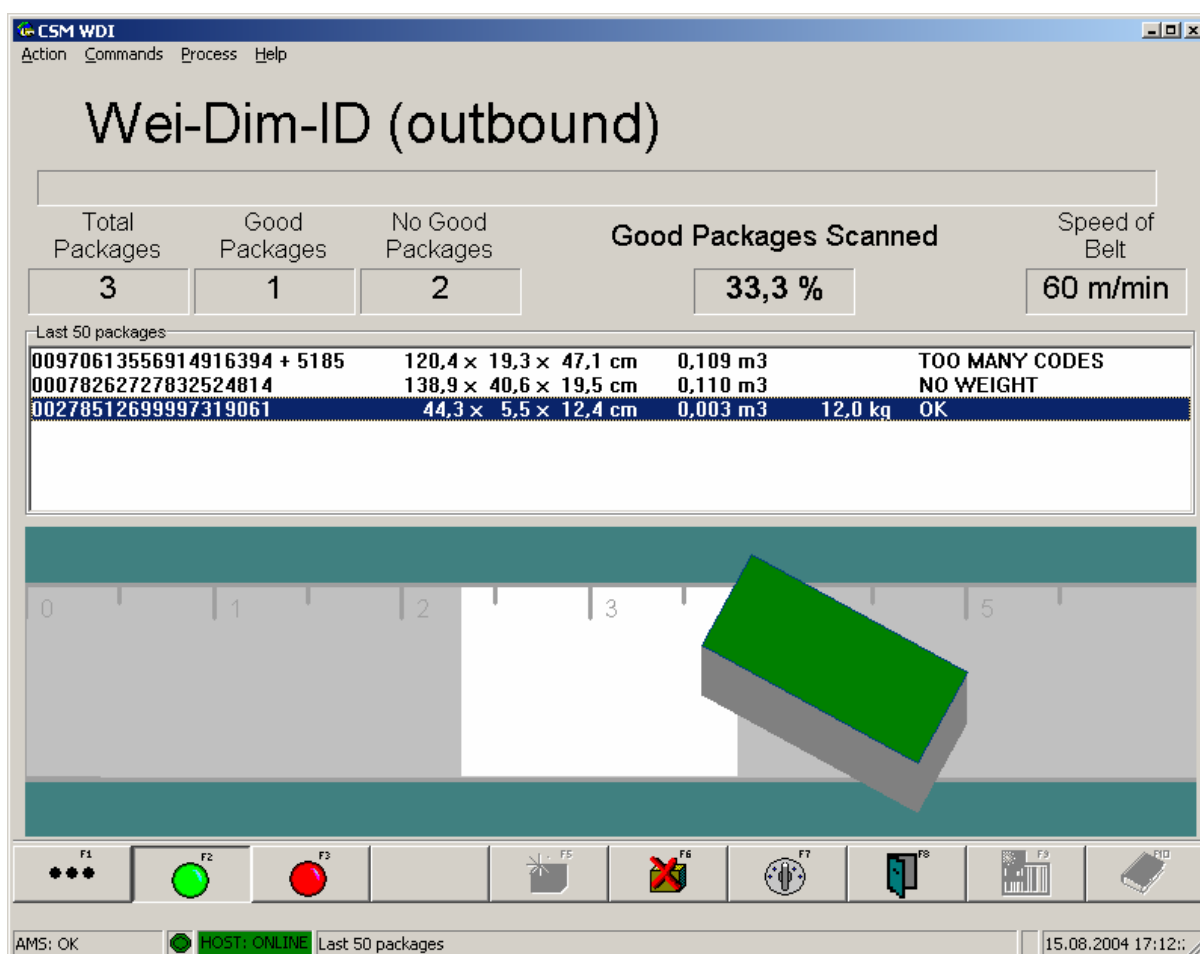
Start operations dialog will appear automatically when application is started. Select the mode of operation and then press **Ok**. Press **Exit operation** if CSM WDI should be closed down.

The displayed modes are:

- **Wei-Dim-ID (outbound):** Registration of weight+dimensions+identity for outbound processing (evening sort)
- **ID (inbound):** Registration of identity for inbound processing (night or morning sort)
- **Transport (outbound):** No registration.
- **Transport (inbound):** No registration.

However, other modes can be configured.

2.3 MAIN SCREEN



CS9000 Unit with CSM WDI application software:

- **Statistics:** Shows statistical records for measured packages

- ❑ Last 50 packages: A list of last 50 measured packages
- ❑ Animation/cartoon: Shows package movement and placement on conveyors

2.3.1 Statistics

The statistics section shows statistical counters and values. The values are stored in a file. If the statistics are zeroed, the file is closed with the old statistics and a new file is made starting with new statistics.

Value	Description
Total Packages	Total number of packages registered (seen).
Good Packages	Number of packages having valid weight, dimensions and identity.
No Good Package	Number of packages without dimensions, weight or identity or combinations thereof. Calculated as Total Packages – Good Packages.
Good Packages Scanned	% of number of packages having valid weight, dimensions and identity versus total number of packages registered. Calculated as: (Good parcels / Total Parcels) x 100%
Speed of belt	The current conveyor belt speed

2.3.2 Last 50 packages

The last 50 packages section shows measurement results and identities of the last 50 packages. Only the last 6-7 are visible on the screen, but the rest can be seen when scrolling the list up and down using keyboard or mouse.

The list of packages includes:

- ❑ Identity number: Identity or shipment number from barcode on the package
- ❑ Dimensions: Length x width x height in cm.
- ❑ Weight: Weight in kg.
- ❑ Status: Status for measurements and identification.

2.3.3 Status texts in last 50 packages

The following status texts can be shown on the last 50 packages

Status texts	Explanation
OK	Weight, dimensions and identity is OK
OVERLOAD	Scale has too much load to weigh
WEIGHT UNDER MINIMUM	Package is less than 250 grams
NO ANSWER FROM SCALE	Scale did not give any value during weighing. If problem is repeated, contact supervisor
TOO SHORT WEIGHING TIME	Package was too short time on scale to be weighted properly.
MULTIPLE PACKAGES ON SCALE	Two or more packages on the scale at the same time during weighing
DIM. UNDER MINIMUM	Package under minimum for dimensioning
PACKAGE IS NOT CUBOIDAL	Package has a non-cuboidal shape, but dimensions is calculated.
REFLECTION PROBLEMS	Package has a surface that gives reflection problems, either too high or too low
PACKAGE IS TOO COMPLEX	Package has a surface that makes dimensioning impossible
OUTSIDE MEASUREMENT AREA	A part of the package is outside measurement area. If only one corner is outside, then dimensions are calculated by extended vision
PACKAGE TOO SMALL	Package too small to be measured
PACKAGE TOO LONG	Package too long to be measured (3 meter)
PACKAGE TOO HIGH	Package too high to be measured
MERGING ERROR	When CS9000 measures and reads barcodes, the information is merged together. Some times the information is not merged properly to the package due to wrong package movement. This can be caused by package rolling sideways or bouncing back and forth or tumbling over.







2.3.4 Animation/cartoon

During the operation the animation/cartoon section will show moving packages on the conveyor belts. Different colours are used to indicate status for the packages:









- Red: Package without dimension data, but detected by photocells
- White/Gray: Package with dimension data, but no barcode(s) yet or package does not have any valid barcode(s)
- Pink: Package with valid data but there is a status for measurements
- Green: Package with valid data.
- Yellow: Package stopped for verification by operator (if verification is enabled for registration operation).

2.3.5 Functions

The function keys allow the operator to give commands to the system. The operator can use the function keys directly or alternatively press Alt+Underscored character. For systems with handheld barcode reader the functions can also be given with barcodes.

Icon	Text	Function key	Explanation
	<u>I</u> nformation	1	Enables a new set of function keys
	<u>S</u> tart	2	Start conveyor belts
	<u>S</u> top	3	Stop conveyor belts
	Alarm off	4	Turn off sound alarm
	<u>Z</u> ero screen/ Remove package	6	Zero registration fields on screen (verification mode only). Package before operator will be started.
	<u>E</u> xit	8	Exits current operation and returns to selection of operations.

Function keys when F1: Information is pressed (second row of function keys):

Icon	Text	Function key	Explanation
	Messages and buffers	1	Shows messages and buffers for devices and operations
	General configuration	2	Start general configuration (subset of full configuration)
	Synchronize	3	Restarts CS900 and re-synchronizes devices for correct tracking/merging
	Close	4	Close this second function key row
	Zero statistics	5	Zero statistical records
	Configure	6	Start full configuration
	About	7	Shows about box for CSM WDI
	Show AMS window	8	Displays AMS main application window. Use to access alibi database

2.4 REGISTRATION MODE

Package identity, weight and dimensions are registered and stored.

Sequence of operation:

1. Place the packages single file (never beside each other) on the belts
2. Place the packages with a separation of at least 10 cm back to front
3. Place the packages with the most stable side to the belt.
4. Package dimensions are measured by the CS900 Fan scanner
5. Package barcodes are scanned by the DX8200 barcode reader
6. Package weight is weighed by JagX express weigher.
7. As the packages are moving the screen might look like this:

The screenshot displays the CSM WDI application window titled "Wei-Dim-ID (outbound)". The interface includes a menu bar (Action, Commands, Process, Help) and a main display area. At the top, it shows summary statistics for package processing:

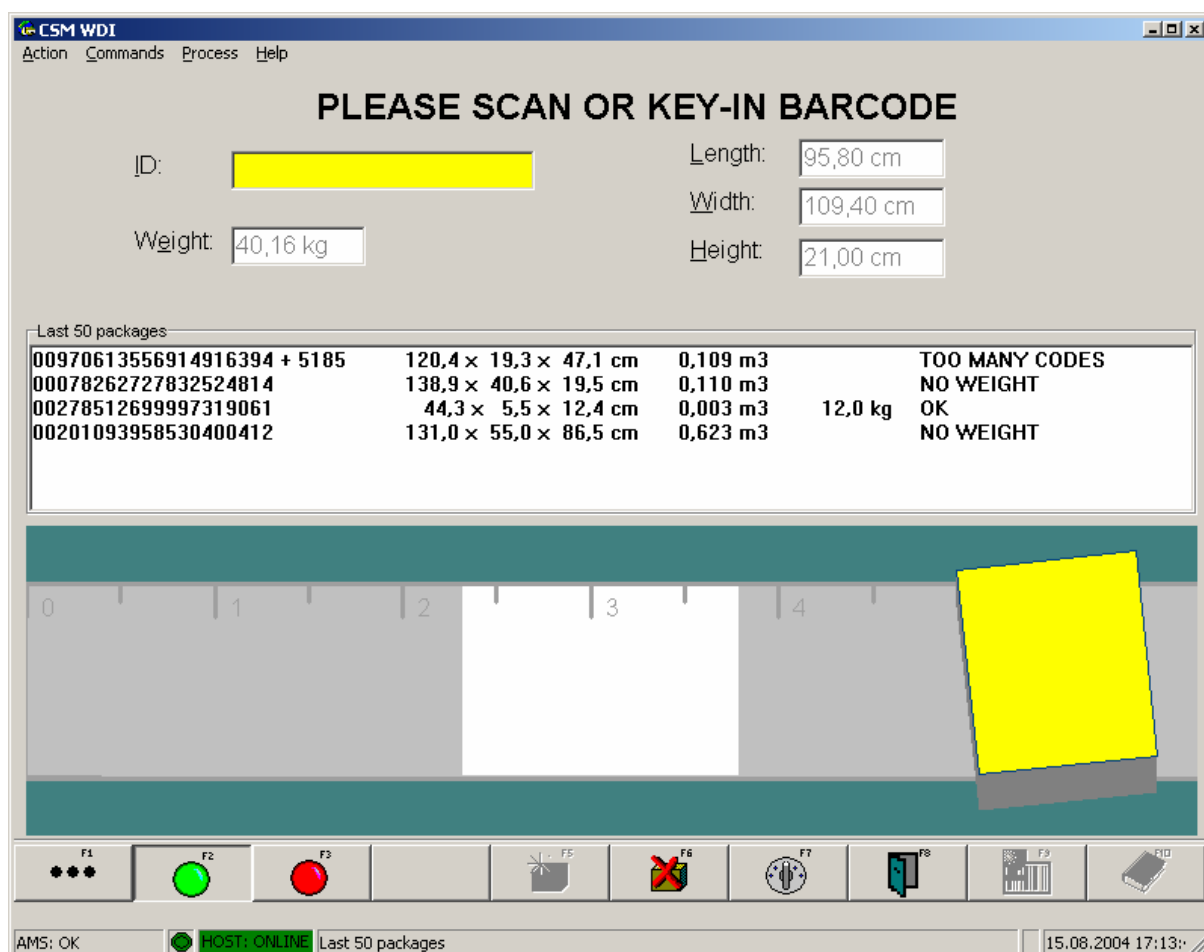
Total Packages	Good Packages	No Good Packages	Good Packages Scanned	Speed of Belt
3	1	2	33,3 %	60 m/min

Below this, a table lists the "Last 50 packages" with columns for barcode, dimensions, volume, weight, and status:

Barcode	Dimensions (cm)	Volume (m3)	Weight (kg)	Status
00970613556914916394 + 5185	120,4 × 19,3 × 47,1	0,109		TOO MANY CODES
00078262727832524814	138,9 × 40,6 × 19,5	0,110		NO WEIGHT
00278512699997319061	44,3 × 5,5 × 12,4	0,003	12,0	OK

The lower portion of the screen features a 3D perspective view of a green rectangular package on a conveyor belt, with a scale from 0 to 5. A bottom toolbar contains function keys F1 through F10, and a status bar at the very bottom shows "AMS: OK", "HOST: ONLINE", and the timestamp "15.08.2004 17:12:11".

8. If CSM WDI application is configured to verify that all packages do have a valid identity, then packages without valid identities will stop before the operator. The operator should manually scan the barcode marked as yellow on the screen, as indicated below:



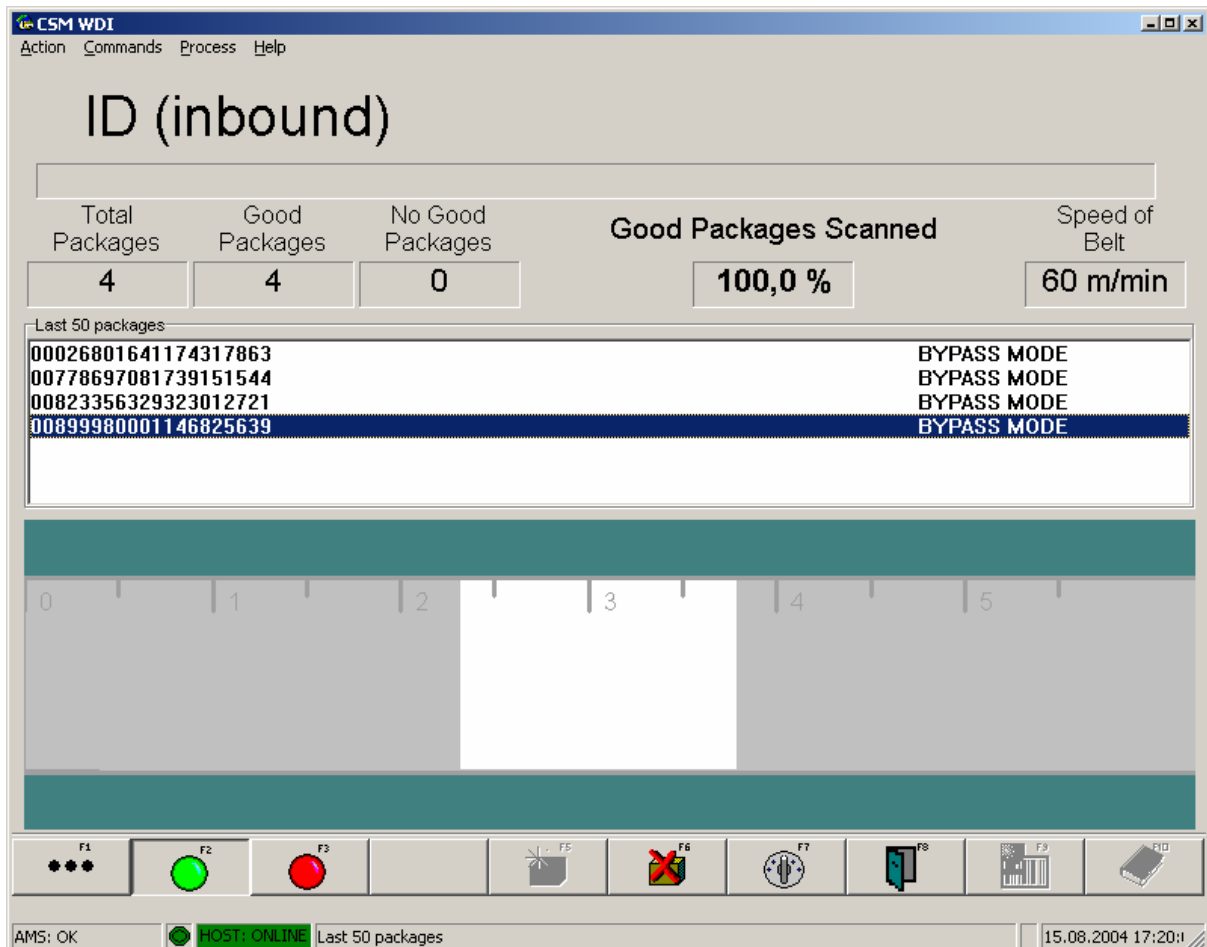
9. When the operator has scanned the identity for the yellow barcode, the package turns into green and will continue (belt is started).
10. Package information is stored and presented on the list of 50 packages.
11. At a given interval the stored information is transferred to the customer host.

2.5 TRACKING MODE

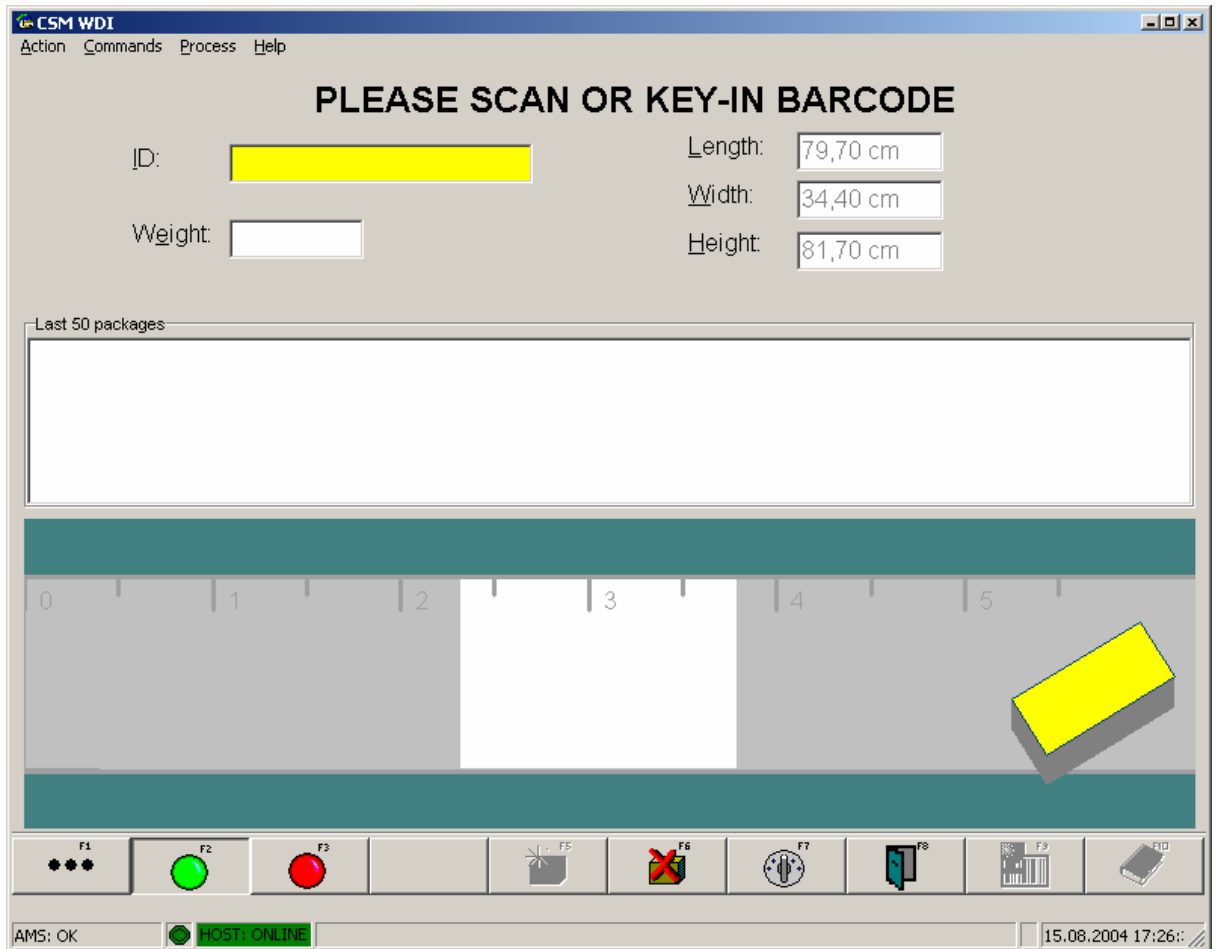
Only package identity is registered and stored.

Sequence of operation:

- 1 Place the packages with the most stable side to the belt.
- 2 Package barcodes are scanned by the DX8200 barcode reader
- 3 As the packages are moving the screen might look like this:



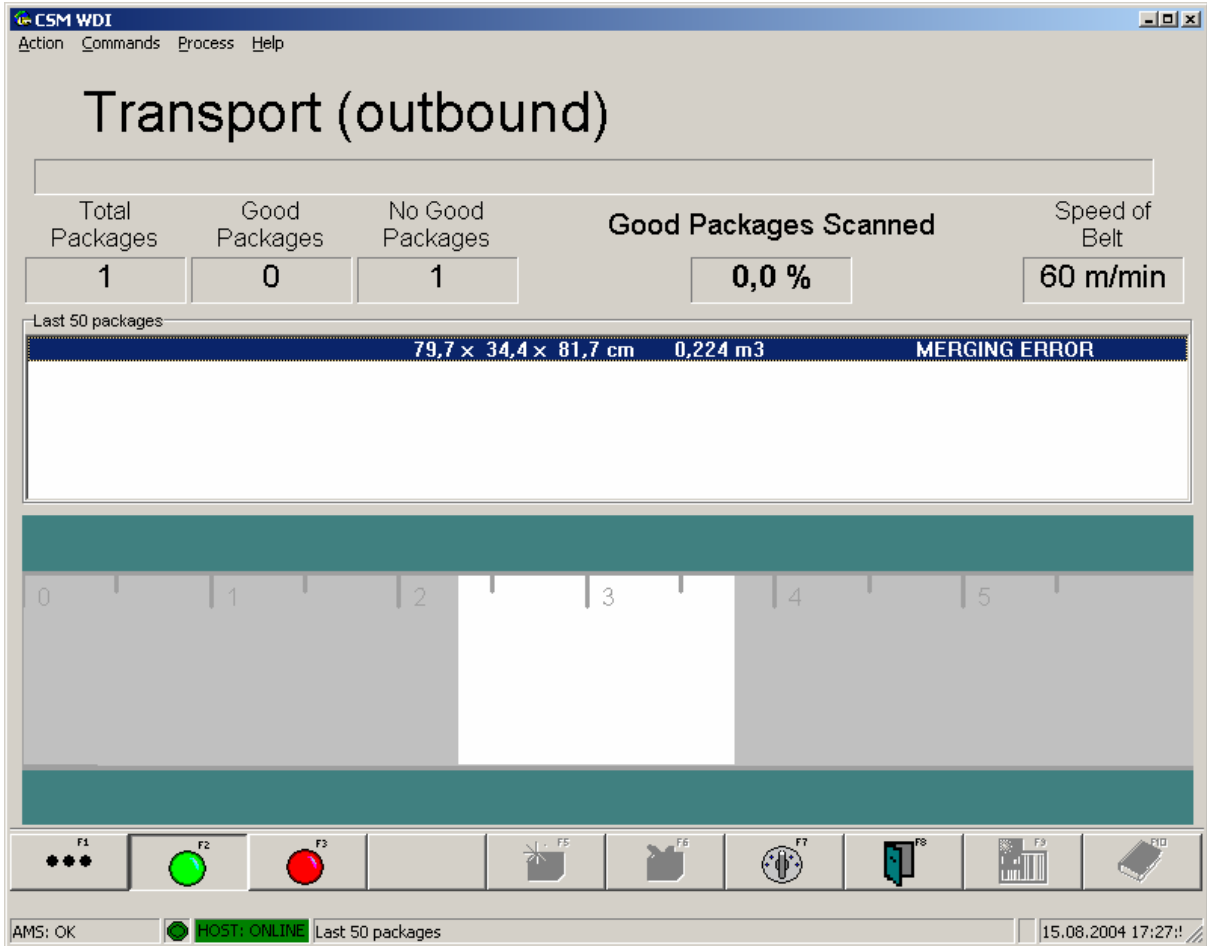
- 4 If CSM WDI application is configured to verify that all packages do have a valid identity, then packages without valid identities will stop before the operator. It is important to notice that this will only happen if we have a Dim-ID mode and not if we have an ID mode only. ID mode is just collecting information. The operator should manually scan the barcode marked as yellow on the screen, as indicated below:



- 5 When the operator has scanned the identity for the yellow barcode, the package turns into green and will continue (belt is started).
- 6 Package information is stored and presented on the list of 50 packages.
- 7 At a given interval the stored information is transferred to the customer host.

2.6 TRANSPORT MODE

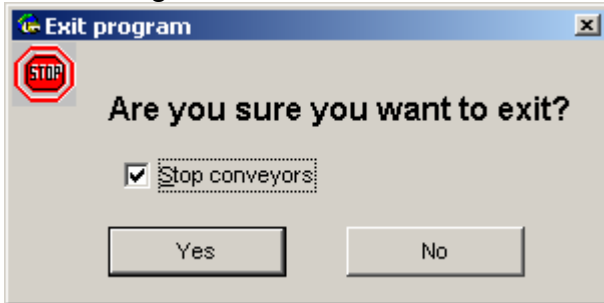
Packages are only transported and there is no registration of any information. There are no requirements on how the packages are placed on the belts. During operation the following screen is shown.



2.7 CLOSING CSM WDI APPLICATION

The CSM WDI application is closed by pressing F8 function key, and then select the **Exit program** button.

The closing of CSM WDI needs acknowledge from operator.



Press [Enter] key or **Yes** button to close CSMWDI.
Press **No** button to return to the application.

3. SYSTEM MESSAGES

System error messages can appear at the top part of the application screen, near to statistic counters. Error message are usually appearing as: (Date/Time) (Module name) (Error Message). The most common error messages are shown below.

3.1. ERROR MESSAGES FROM DIFFERENT DEVICE MODULES

Message: 'Dimensioner device communication problem'
'Scale device communication problem'
'Barcode reader device communication problems'

To do: If any of measurements is missing, try to restart system.

3.2. OPERATIONAL MESSAGES

Message: 'System is not initialized'
'Internal data buffer is full. Some package data is lost'
'Timed out without response from device'

To do: Restart CSM

Message: 'Fatal overhead scanner device error'

To do: Restart CSM.

If the message prevails: Restart Barcode Reader by switching the unit off and on with the main switch.



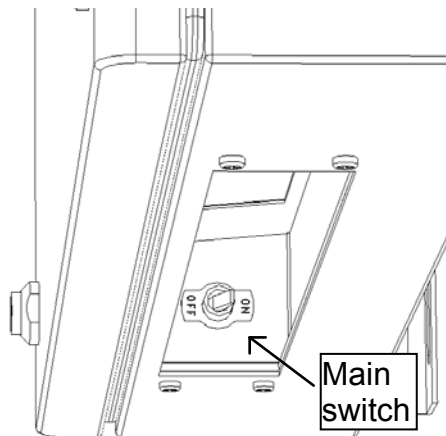
Overhead barcode reader DX8200

Message: 'Dimensioning device is not initialized'
'Fatal dimensioning device error. See PMWDI.LOG for more information'

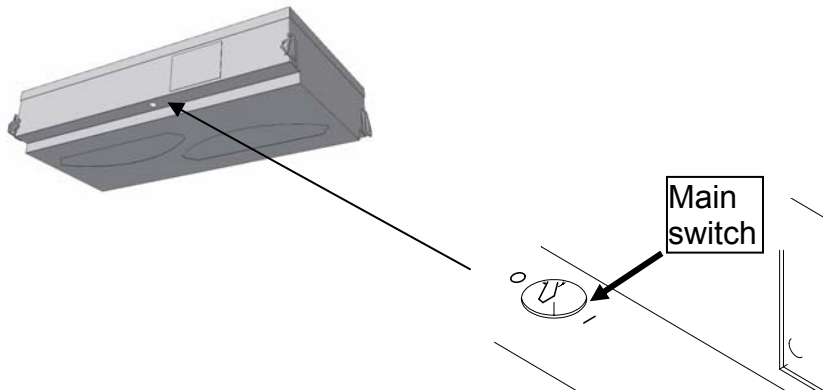
To do: Restart CSM

If the message prevails: Restart the dimensioner by switching the unit off and on with the main switch.

For CS900:



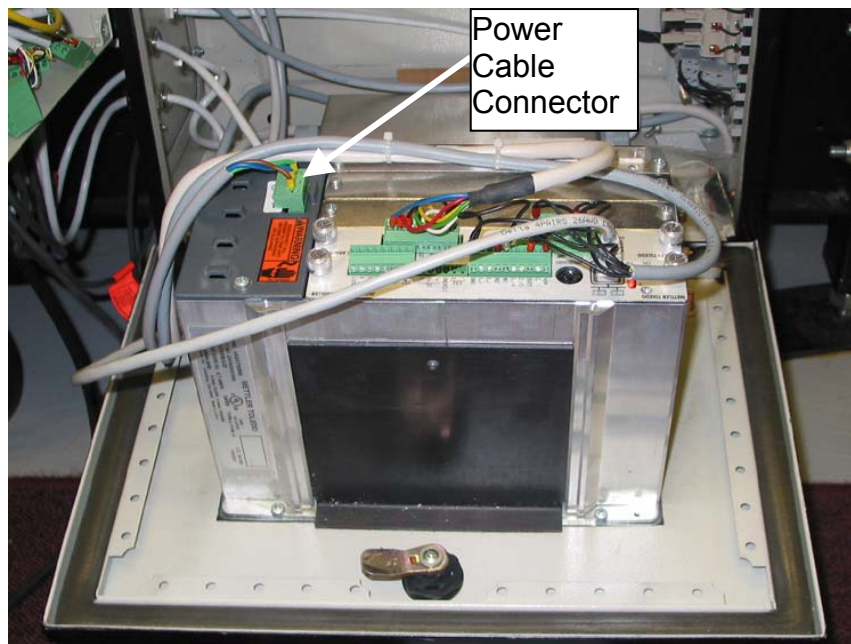
For CS5200:



Message: 'Scale module is not initialized'
'Fatal scale error. See PMWDI.LOG for more information''

To do: Restart CSM

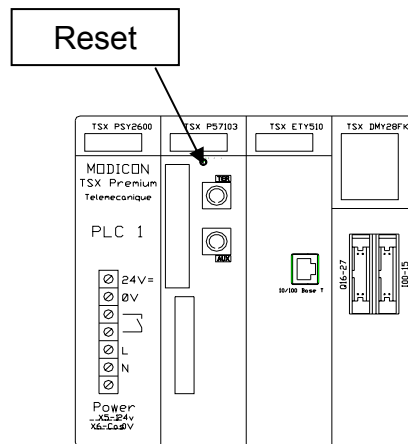
If the message prevails: Restart the scale: Open the front cover of the scale controller. Pull out the Power Cable Connector and insert it again.



Message: 'PLC device is not initialized'
'Fatal PLC error. See PMWDI.LOG for more information''

To do: Restart CSM.

If the message prevails: Shutdown the CSMWDI PC. On the operator keyboard, push Windows key, (Start Menu) – shutdown - shutdown. Switch off power to the PC by switch on left side of display cabinet. Inside the Cargoscan controller cabinet reset the PLC.



Message: 'Synchronization failed'

To do: Press F1 and F5.

If the message prevails: Restart CSM, Barcode Reader and Dimensioner. See previous instructions for restarting each unit.

Message: 'Inverter reset'

To do: Check the BPU switch. The switch shall be set in 'ON-position' as figure. The display will be showing 'rUn' when the switch is set right.
Press F2 and F3 to start the conveyors again.



If the message prevails:

Restart CSM, Barcode Reader and Dimensioner. See previous instructions for restarting each unit.

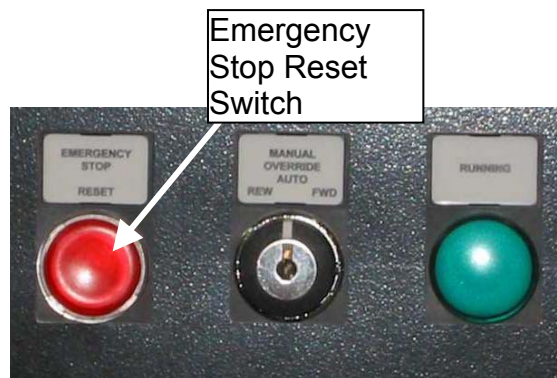
3.3. INFORMATIONAL MESSAGES

Message: 'Emergency stop released'

To do: Press F3 and F2.

Message: 'Emergency stop pushed'

To do: First release Emergency Stop Button and then press the Emergency Stop Reset Switch on the PLC Cabinet.



Message: 'Sorter running'

To do: Press F3 to stop the conveyors if necessary.

Message: 'Sorter not running'

To do: Reason for this message varies depending on sorter system. Check for possible errors.

Message: 'Sorter running in wrong direction'

To do: The sorter or the CSM is running in wrong mode. Log on to correct operating mode.

3.4. OTHER MESSAGES

To do: Contact your supervisor or call service.

4. TEST PROCEDURES

Test procedure is used to verify that the system is measuring packages properly.

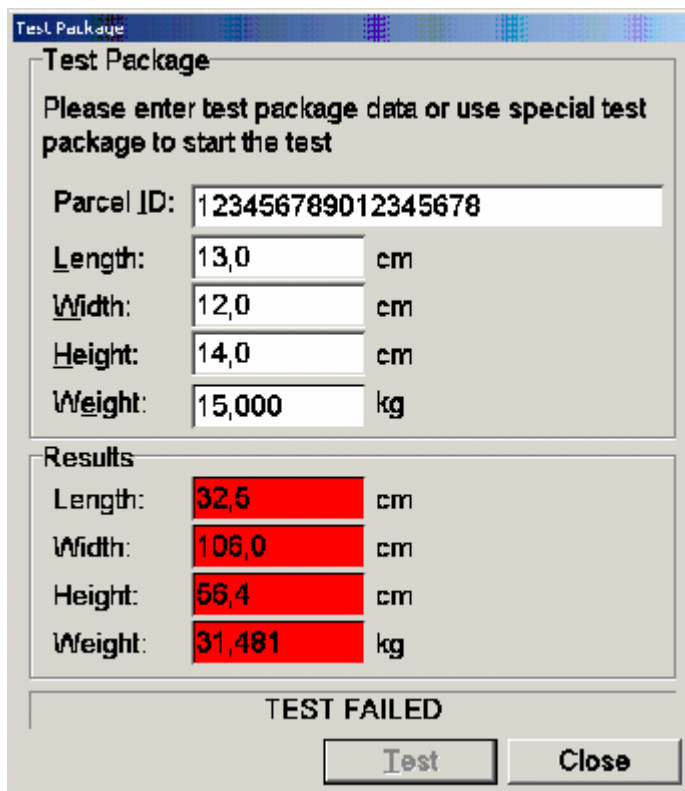
4.1. NORMAL TEST PROCEDURE

Normal test procedure can be used to check the system using any real production parcel. Data will be sent to host as usually.

1. Press <F1>-<F10> to open the test package window.

The screenshot shows a 'Test Package' dialog box. It has a title bar with the text 'Test Package'. The main area is divided into two sections. The top section is titled 'Test Package' and contains the text 'Please enter test package data or use special test package to start the test'. Below this text are five input fields: 'Parcel ID:' (a wide text box), 'Length: cm' (a text box with 'cm' to its right), 'Width: cm' (a text box with 'cm' to its right), 'Height: cm' (a text box with 'cm' to its right), and 'Weight: kg' (a text box with 'kg' to its right). The bottom section is titled 'Results' and contains four output fields: 'Length: cm', 'Width: cm', 'Height: cm', and 'Weight: kg'. At the bottom of the dialog box are two buttons: 'Test' and 'Close'.

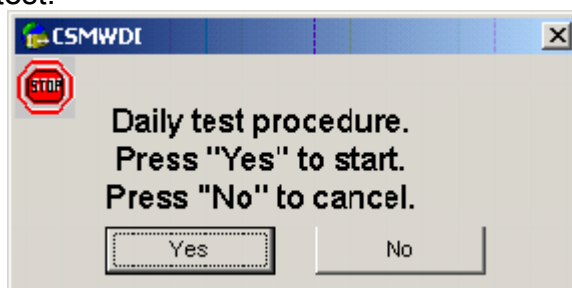
2. Key in the barcode label on the package that you are using for the test.
3. Measure the test package manually and enter the results. Length must be measured as the longest side on the conveyor belt.
4. Place the test package on the conveyor belt and measure it with CS5200/CS900.
5. Once the results are received, CSMWDI shows the results and a text – “TEST PASSED” or “TEST FAILED”.



6. A measurement result in the red color indicates that the value was not within the limits. Test packages are reported to the host like any other packages.
7. The Test Package window will be closed automatically after 5 minutes of inactivity in case of using normal parcel or after 30 seconds in case of using special test parcel.

4.2. PRE-ENTERED TEST PACKAGES

Pre-entered test packages functionality can be used in addition to normal test procedure. Test can be configured to start automatically once a day. Confirmation/notification box will be displayed at pre-determined time of day. Test can be activated by pressing “Yes” (or “ENTER” key). ESCAPE key or “No” button will cancel test.



The test itself follows the same procedure as described above when using normal test procedure.

5. RETRIEVING ALIBI MEMORY RECORDS

The AMS main window is used to retrieve Alibi Memory records. By default, the “View Alibi” window shows the records for the current day, but can be used to retrieve any set of records for a specific date and/or index. The “View Alibi” window is part of the protected software.

The following drawing shows a sample output of the alibi memory:

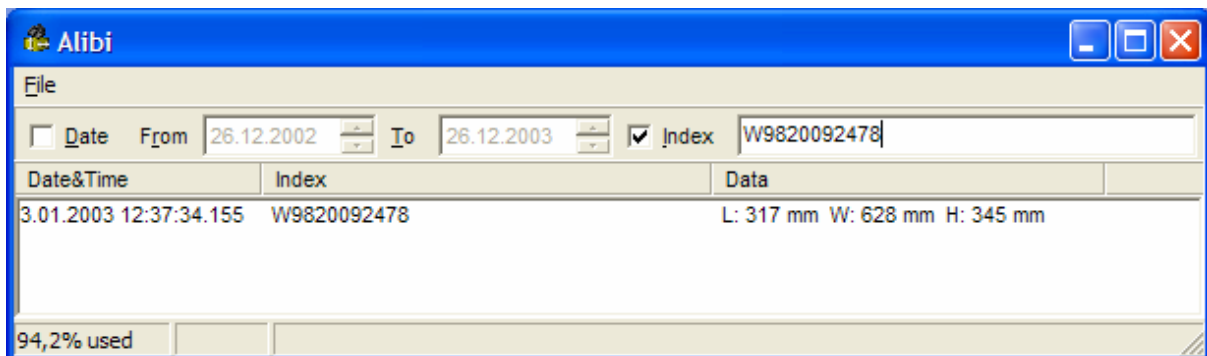


Figure 1

The checksum value is validated every time the data record is shown on the screen. If the stored checksum value does not match with the calculated checksum value, AMS shows an error message in the place of the legally relevant data field.

It is possible to search measurement results with the filter function “Date” or “Index”. When the filter function is activated a new alibi memory window is shown.

INSTRUCTION:

- Press F1 Opens second row of function keys (of CSM screen)
- Press F8 Shows CargoAMS main window (for searching alibi records)
- Select “View” Show alibi records.
- If filter function is not activated select “Filter” in menu “File”.