Operating instructions

METTLER TOLEDO MultiRange
Application software IND690-FormXP

METTLER TOLEDO

35.8517 kg

IND690

35.8517 kg

IND690
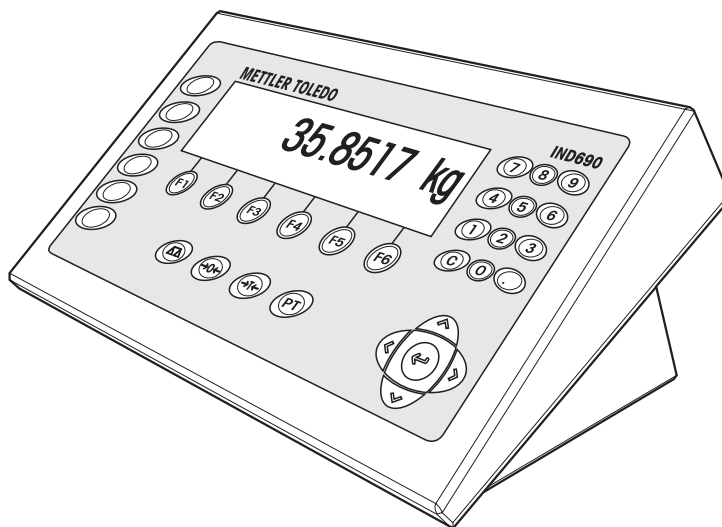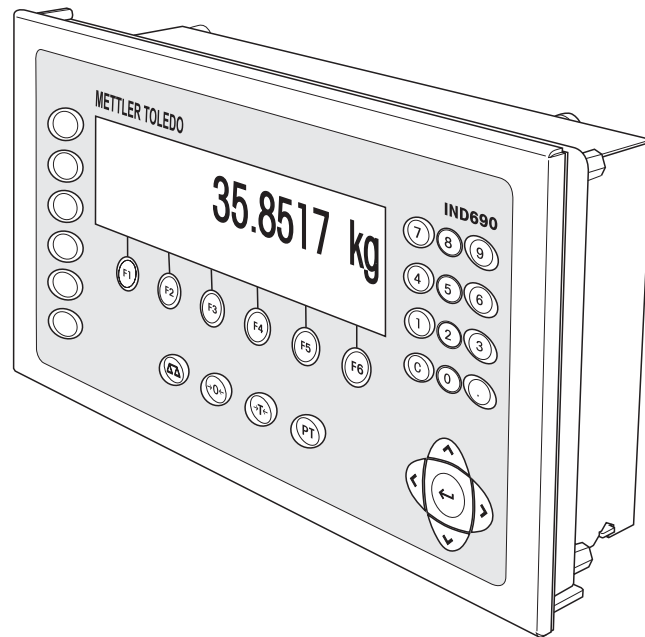
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1   Formulation functions

1.1   Documentation

The weighing terminal IND690-… comes supplied with a CD containing all the documentation on the weighing system IND690.

These operating instructions describe the operation and configuration of the application software IND690-FormXP.

The basic information for working with the weighing terminal IND690-… can be found in the operating instructions IND690-Base.

1.2   STORED FORMULATION application
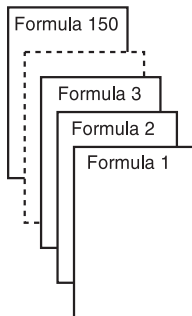
In this application you can call up the stored formulas and use them as the basis for the new formulation. A maximum of 150 formulas can be stored.

Note

With the FormTool-XP software provided you can operate or monitor all applications from a PC, see section 6.2.

Depending on the settings in the master mode,

- you can fill the components into one container consecutively (section 1.2.1) or fill each component of a formulation into a separate container (section 1.2.2) or work through the formulation in the batch mode (section 1.2.3),

- the target weight of the stored formula is adopted or you are asked to enter a target weight,

- an automatic rescaling is offered for a component that was filled outside the tolerance (section 1.2.4),

- you can monitor the adherence of the tolerances with the DELTATRAC when weighing in to a target weight,

- the IND690-FormXP provides you with support for warehouse management.

Function keys   With the STORED FORMULATION application the function keys have the following assignment at the start:

START STORED FORMULATION
Starts the application

➜ Press any function key to start the application.

If the function keys have a different assignment

➜ Press the cursor keys < or > repeatedly until the function key assignment shown above appears.

Assignment of the function keys when working through stored formulas
The assignment of the function keys adjusts to the operating sequence.

Selecting formula

← F	F →	SELECT	COMPO	SUM	STOP
View formulas: Descending	View formulas: Ascending	Select formula	View components of the formula	Call up accumulated sum of the formula	Cancel application

Selecting component

← C	C →	SELECT	INVENT	–	STOP
View components: Descending	View components: Ascending	Select component	Information on stock level and consumption of raw material	–	Park formula, cancel application

Weighing in component

–	–	PLUS	MANUAL	–	STOP
–	–	Add component to formula	Enter weight values manually	–	Return to "Select component"

Information after completing formula

FORMU	← C	C →	–	–	STOP
Call up the actual value for the formula and the deviation from the target weight	View dispensed components: Descending	View dispensed components: Ascending	–	–	Return to "Select formula"

Information after completing batch mode

–	← B	B →	–	–	STOP
–	View dispensed batches: Descending	View dispensed batches: Ascending	–	–	Return to "Select formula"

Messages   Depending on the setting in the master mode, messages appear in the display during formulation.

→ Carry out request and confirm the message with the ENTER key if necessary to continue formulation.

1.2.1 Filling all components into a common container

Prerequisite

VERTICAL FILLING is set in the master mode.

Selecting formula

1. Start the application with the START STORED FORMULATION key.

2. If PASSWORD ON is selected in the master mode, enter your user name and password and confirm with ENTER.

3. Place container on weighing platform.
   The container is automatically tared when WORKING SEQUENCE ON is selected in the master mode.

4. Select formula with <-F and F-> keys and confirm with SELECT.
   – or –
   Select formula with <-R and R-> keys and confirm with the barcode.
   – or –
   Enter the number of the stored formula (1 … 150) with the number block and confirm with SELECT or <-F or F->.
   – or –
   Press Code A key, enter formula name and confirm with ENTER.
   – or –
   Press Code A key, enter formula identification and confirm with ENTER.

5. When TARGET WEIGHING ON is set in the master mode, enter the target weight of the formula and confirm with the ENTER key.

The target value and the name of the formula are printed.

Selecting and dispensing component

1. Select component with <-C and C-> keys and confirm with SELECT.
   – or –
   Select component with <-C and C-> keys and confirm with the barcode.
   – or –
   Enter number of component with the number block and confirm with SELECT or <-C or C->.
   – or –
   Press Code B key, enter component name and confirm with ENTER.
   – or –
   Press Code B key, enter component identification and confirm with ENTER.

2. Fill component.

3. Press PLUS key.
   Target value, tolerance and actual value of the component are printed.

4. To fill the remaining components into the container, repeat steps 1 to 3.

Notes

- If the weight of a component lies within the tolerance, the value for the deviation is shown in brackets < ... >.
- Components with the unit Pcs. do not contribute to the weight sum of the formula.
- If ORDER OF COMPONENTS FIXED is selected in the master mode, components cannot be selected, but instead must be worked through in the specified order.
- If SELECT BARCODE ON is selected in the master mode, each component must be confirmed with a barcode.
- Prints can be configured in the INTERFACE master mode block.
- When the component is confirmed via barcode, a digital signal WRONG COMP checks the agreement.
  In case of agreement the LOW signal remains.
  If the component and the barcode do not agree, the HIGH signal is switched. This allows, for example, a container protective cover can be activated.
  The signal remains HIGH until the process is aborted or until, after a password has been entered, the component is processed nevertheless.

Finishing formula

Information on formula just dispensed

1. When the message CLEAR SCALE appears, remove weighing sample from the weighing platform.
   The name, actual weight and deviation from the target weight for the formula are printed.
   The actual weight and the difference to the target weight for the formula just dispensed appear in the display.

2. Display the actual weight and difference to the target weight for the components with the <-C and C-> keys.

Closing formula

3. Close formulation with the STOP key.
   The formula selection appears again.

1.2.2   Filling each component into separate container

Prerequisite

BATCH FILLING is selected in the master mode.

Selecting formula

1. Start the application with the START STORED FORMULATION key.

2. If PASSWORD ON is selected in the master mode, enter your user name and password and confirm with ENTER.

3. Select formula with <-F and F-> keys and confirm with SELECT.
    – or –
    Enter the number of the stored formula (1 … 150) with the number block and confirm with SELECT or <-F or F->.
    – or –
    Press Code A key, enter formula name and confirm with ENTER.
    – or –
    Press Code A key, enter formula identification and confirm with ENTER.

4. When TARGET WEIGHING ON is set in the master mode, enter the target weight of the formula and confirm with the ENTER key.

The target value and the name of the formula are printed.

Selecting and dispensing component

1. Select component with <-C and C-> keys and confirm with SELECT.
    – or –
    Enter number of component with the number block and confirm with SELECT or <-C or C->.
    – or –
    Press Code B key, enter component name and confirm with ENTER.
    – or –
    Press Code B key, enter component identification and confirm with ENTER.

2. Place container on weighing platform.
    The container is automatically tared when WORKING SEQUENCE ON is selected in the master mode.

3. Fill component.

4. Press PLUS key.
    Target value, tolerance and actual value of the component are printed.

5. Remove container from weighing platform.

6. To fill the remaining components, repeat steps 1 to 5.

Notes

- If the weight of a component lies within the tolerance, the value for the deviation is shown in brackets < ... >.
- If ORDER OF COMPONENTS FIXED is selected in the master mode, components cannot be selected, but instead must be worked through in the order entered.
- Components with the unit Pcs. do not contribute to the weight sum of the formula.
- If SELECT BARCODE ON is selected in the master mode, each component must be confirmed with a barcode.
- Prints can be configured in the INTERFACE master mode block.

Finishing formula

Information on formula just dispensed

1. When the message CLEAR SCALE appears, remove weighing sample from the weighing platform. The name, actual weight and deviation from the target weight for the formula are printed.
   The actual weight and the difference to the target weight for the formula just dispensed appear in the display.

2. Display the actual weight and difference to the target weight for the components with the <-C and C-> keys.

Closing formula

3. Close formulation with the STOP key.
   The formula selection appears again.

1.2.3   Batch mode

Prerequisite

BATCH MODE is selected in the master mode.

Selecting formula

1. Start the application with the START STORED FORMULATION key.

2. If PASSWORD ON is selected in the master mode, enter your user name and password and confirm with ENTER.

3. Select formula with <-F and F-> keys and confirm with SELECT.
   – or –
   Enter the number of the stored formula (1 ... 150) with the number block and confirm with SELECT or <-F or F->.
   – or –
   Press Code A key, enter formula name and confirm with ENTER.
   – or –
   Press Code A key, enter formula identification and confirm with ENTER.

4. Enter number of batches and confirm with ENTER key.

5. When TARGET WEIGHING ON is set in the master mode, enter the target weight of the formula and confirm with the ENTER key.

The target value and the name of the formula are printed.

Selecting and dispensing component

1. Select component with <-C and C-> keys and confirm with SELECT.
   – or –
   Enter number of component with the number block and confirm with SELECT or <-C or C->.
   – or –
   Press Code B key, enter component name and confirm with ENTER.
   – or –
   Press Code B key, enter component identification and confirm with ENTER.
   Then the following display appears for information: ITERATION 1/n.

2. Enter batch ID and confirm with ENTER.

3. Place container on weighing platform.
   The container is automatically tared when WORKING SEQUENCE ON is selected in the master mode.

4. Fill component.

5. Press PLUS key.
   Target value, tolerance and actual value of the component are printed.

6. Remove container from weighing platform.

7. To fill the remaining batches, repeat steps 2 to 6.
   The ITERATION display is counted up until the last batch n/n.
   When the component for all batches is filled, the message ITERATION COMPLETE appears.

8. To fill the remaining components, repeat steps 1 to 7. The batch ID need not be entered again.

Notes

- If the weight of a component lies within the tolerance, the value for the deviation is shown in brackets < ... >.
- Components with the unit Pcs. do not contribute to the weight sum of the formula.
- If ORDER OF COMPONENTS FIXED is selected in the master mode, components cannot be selected, but instead must be worked through in the order entered.
- If SELECT BARCODE ON is selected in the master mode, each component must be confirmed with a barcode.
- Prints can be configured in the INTERFACE master mode block.

Completing batch

Information on batch just dispensed

1. When all batches have been filled, the name, actual weight and difference to the target weight are printed.
   The batch ID, actual weight and tare for a batch of the formula just dispensed appear in the display.

2. Display the actual weight and tare for the remaining batches with the <-B and B-> key.

Closing batch   3. Close formulation with the STOP key.
The formula selection appears again.

1.2.4   Correcting target value

When a component has been filled above tolerance, all remaining components of the formula can be adjusted accordingly with the rescaling.

Prerequisite

RESCALING ON is selected in the master mode and the dispensed component has exceeded the upper tolerance by a maximum of 50 %.

➔   When the message RESCALING ? appears, press the ENTER key. Target values of the remaining components are automatically adjusted.

Notes

• If the actual values of components already worked through lie outside the new tolerance, you will be requested to redispense or reenter these components manually.

• A rescaling is only possible once during a formulation process.

• If after rescaling the newly rounded target value for a component with the unit Pcs lies outside the tolerance, this will result in cancelling.

• With a component that has to be redispensed, a lower and upper limit will be displayed and printed in place of the tolerance.

1.2.5   Accepting known weight value for the formula

1. Press MANUAL key.

2. Enter weight value and confirm with ENTER.
The weight value is stored in the formula memory and the component counter is increased by 1.

Note

The weight unit for entering known weight values can be selected with the cursor keys < or >.

1.2.6   Displaying, saving or deleting accumulated sum for current formula

Manual   If CLEAR SUM MANUALLY is set in the master mode, the sum can be displayed or deleted at any time in the formulation mode.

1. Press the SUM key in the "Select formula" input mask.
The sum appears above the selected formula in the display.

2. To save the sum and return to the formula, press the SAVE function key.
– or –
To clear the accumulated sum and return to the formula, press the CLEAR function key.

Automatic   If   CLEAR SUM AUTOMATICALLY is set in the master mode, the sum can only be displayed in the formulation mode.

→   Press the SUM key in the "Select formula" input mask.
The sum appears for 5 seconds above the selected formula in the display.

1.2.7   Working with lot and batch numbers

Lot number   When   ENTRY LOT NUMBER ON is selected in the master mode, a request that the lot number for the formula be entered appears when the formula is started.

Batch number   When   ENTRY BATCH NUMBER ON is selected in the master mode, a request that the batch number be entered appears each time a component is called.

Note
The designations LOT NUMBER and BATCH NUMBER can be changed in the master mode.

1.2.8   Filling components in several steps
If in the VERTICAL FILLING operating mode, INPUT BATCH NUMBER ON, MULTIPLE is selected in the master mode, a component can be dispensed in up to 6 steps. A maximum of 200 steps are possible per formula.

1.   Select component and enter batch number.

2.   Partially fill component and press PLUS key.
The component still appears in the component selection, however now with a reduced target weight.

3.   Select next component and enter batch number.

4.   Partially or completely fill component and press PLUS key.

5.   Call the component already partially dispensed again and apply the displayed batch number or enter a new batch number.

6.   Fill another part of the component or finish dispensing the component and press the PLUS key.

7.   Continue until all components are dispensed up to the target weight.

1.2.9   Parking formulas
If a formula cannot be completely dispensed, because, for example, a raw material must first be refilled, this formula can be "parked" and completely dispensed at a later time.

Parking formula   1.   Press the CANCEL key in the component selection.
The question PARK FORMULA? appears.

2.   Answer the question with YES.
The formula selection appears in the display. A new formula can be dispensed.

Finishing dispensing parked formula

1. Call the parked formula again with the formula ID.
   In the component selection now only the components not yet dispensed appear.

2. Fill missing components and end formula.

Note
Only one formula can be parked. If an additional formula is to be parked, then the first parked formula is deleted.

1.2.10 Inventory management with IND690-FormXP

If the inventory level has been entered when stocking the raw materials, then the inventory level can be displayed when dispensing this raw material.

➔ Press the INVENTORY key during component selection.
   The inventory level and the consumption since the last inventory receipt are displayed consecutively.

1.2.11 Formulation of STORED FORMULATION on multiple weighing platforms

Up to 4 weighing platforms can be connected to the IND690-FormXP, see chapter "Basic functions" of the operating instructions for the weighing terminal IND690-…

Note for formulation of stored formulation on multiple weighing platforms

➔ Use a separate container on each weighing platform.

1.2.12   **Printout example**

Date	02/02/02		--	
Time	15:16:17		Component	Sugar
Formula No.	1		Batch number	ME3612/23.01.02
Formula ID	52		Raw material No.	623
Lot number	#1234		1st formulated weight	0.500 kg
Formula name	Cream toffee		2nd formulated weight	0.500 kg
Component counter	5			
Target	1.620 kg		--	
Tolerance	0.160 kg		Component	Cream
Previous message	1		Batch number	ME3784/18.01.02
Previous message	3		Raw material No.	15
Previous message	5		1st formulated weight	0.100 kg
Next message	6		2nd formulated weight	0.100 kg
Next message	8			
Target value correction	0		--	
--			Component	Milk
			Batch number	ME3234/31.01.02
--			Raw material No.	69
Component	Baking powder		1st formulated weight	0.520 kg
Batch number	ME5461/01.02.02		2nd formulated weight	0.500 kg
Raw material No.	713			
1st formulated weight	0.020 kg		--	
2nd formulated weight	0.020 kg		Batch ID	B40
			Batch net	1.640 kg
--			Gross	1.900 kg
Component	Flour		Tare	0.260 kg
Batch number	ME1667/20.01.02		Batch ID	B41
Raw material No.	52		Batch net	1.600 kg
1st formulated weight	0.500 kg		Gross	1.860 kg
2nd formulated weight	0.480 kg		Tare	0.260 kg
			=============================	

2   Settings in the master mode

Note
With the FormTool-XP software provided you can operate or monitor all applications from a PC, see section 6.2.

2.1   Settings in the APPLICATION master mode block

APPLICATION	Selecting application
STORED FORMULATION	Store formulas and use as basis for the new formulation. A maximum of 150 formulas with a maximum of 100 components each can be stored. A maximum of 2,000 components are possible for all formulas together.
RAW MATERIAL	Create/edit raw materials database. A maximum of 500 raw materials can be stored. • EDIT RAW MATERIAL, see section 2.1.1. • PRINT RAW MATERIAL • CLEAR ALL RAW MATERIAL
MESSAGES	Up to 5 messages can be assigned to each formula - two to each component. A total of 200 messages with a maximum of 24 characters can be stored. Create/edit message database, see section 2.1.2. • EDIT MESSAGES, see section 2.1.2. • PRINT MESSAGES • MESSAGES ON/OFF – When MESSAGES OFF is selected, no messages are displayed during formulation, even if the formula or the component is provided with messages. • CLEAR ALL MESSAGES
FORMULA	Create/edit formula database. • EDIT FORMULA, see section 2.1.3. • PRINT FORMULA • CLEAR ALL FORMULAE
FILLING TYPE	Dispensing of the components in a common or a separate container: • VERTICAL FILLING – Fill all components into a common container; factory setting • HORIZONTAL FILLING – Fill each component into a separate container • BATCH FILLING – The same formula can be dispensed simultaneously up to 100 times, i.e. each component is filled a corresponding number of times.

APPLICATION	Selecting application
OPERATION SEQUENCE	When OPERATION SEQUENCE ON is selected (factory setting), the prompt LOAD CONTAINER appears at the start of formulation and the container is automatically tared.
TARGET WEIGHING	Adjust formula target weight: • ON – The formula target weight can be adjusted before each new formulation process • OFF – The stored formula target weight is accepted as the formula target weight; factory setting
RESCALING	Correct component target value following incorrect dispensing: • ON – If the actual value exceeds the upper tolerance by less than 50 %, the operator can carry out a rescaling. Target values and tolerances of the other components are then corrected by the same percentage. If the actual value of components already filled lies outside their new tolerance limits, the operator will be asked to redispense these components. Factory setting. • OFF – The actual value is only accepted when it lies within the tolerance.
DELTATRAC	• ON – During weighing in the adherence to the tolerances is monitored. • OFF – Only the weight value is shown in the display; factory setting.
LOT NUMBER	Each formula can be marked with a lot number. • LOT NUMBER ENTRY – When ENTER LOT NUMBER ON is selected, the entry of the lot number is requested at the start of the formula. • PROMPT LOT NUMBER – Change the text "LOT NUMBER".

CHARGE NUMBER	Each component can be marked with a batch number.
	 • CHARGE NUMBER ENTRY – When CHARGE NUMBER ENTRY ON is selected, the entry of the batch number is requested for each component.
	 Additional settings:
	   – ON Entry of the batch number is requested for each component.
	             SINGLE The component must be filled at one time.
	             MULTIPLE The component can be filled in several steps.
	   – ON+ The last batch number entered is displayed each time the component is called up. The batch number can be accepted or a new batch number can be entered.
	             SINGLE The component must be filled at one time.
	             MULTIPLE The component can be filled in several steps.
	   – OFF The batch number is not requested.
	 • PROMT CHARGE NO. – Change the text "CHARGE NUMBER".

SUM CLEAR TYPE	• AUTOMATIC – Sums are automatically cleared daily at the entered time. • MANUAL – Sums must be cleared manually; factory setting.

APPLICATION	Selecting application
BARCODE	• BARCODE SELECTION – Select formulas and components via barcode. • BARCODE CONFIRM – Each component has to be confirmed with the barcode during formulation.
PRE FORMULA REPORT	When PRE FORMULA REPORT ON is selected, the selected formula is printed out before starting on the GA46 printer.
MANUAL ENTRY	• MANUAL ENTRY ON: Manual entry is active during dispensing. Additional settings: • MANUAL ENTRY OFF: Manual entry is de-activated during dispensing.
UNIT MAN. INPUT	Selection of the unit for manual entry Possible units: g, kg, lb, ozt, dwt, oz, Stk, Pcs
COMPOUND DISPENSE ORDER	• FIXED – The components must be dispensed in the specified order. • VARIABLE – The components can be dispensed in any desired order; factory setting.
POST FORMULA REPORT	When POST FORMULA REPORT ON is selected, the dispensed formula is printed out on the GA46 printer after completion. Not possible in the batch mode.
PASSWORD	When PASSWORD ON is selected, the application STORED FORMULATION can only be run after entering a password.
USER LIST	Entry of USER NAMES and related PASSWORDS.
SUBTRACTIVE WEIGHING	If SUBTRACTIVE WEIGHING ON is selected, totalising can also occur with subtractive weighing. Factory setting: SUBTRACTIVE WEIGHING OFF
MONITORING	If Monitoring ON is selected, START STORED FORMULATION can only be activated, if a PC with FormTool is connected and running. Factory setting: MONITORING OFF
TOL.ADJUSTMENT	If TOL.ADJUSTMENT ON is selected, the tolerances change automatically when the target value is changed.
FORMULA COMPLETION	Configuration of the digital output signal END FORM. • TRACKING – Activate/deactivate signal • ACTIVE – HIGH or LOW active. • OUTPUT TYPE – Level or pulse signal. • TIME – Duration of the signal TIME 0: Signal on until the next recipe is started.

RESET PAC	Resetting all functions to the factory settings	
	APPLICATION	Stored formulation
	FILLING TYPE	Vertical filling
	OPERATION SEQUENCE	On
	TARGET WEIGHING	Off
	RESCALING	On
	DELTATRAC	Off
	LOT NUMBER	Off
	CHARGE NUMBER	Off
	SUM CLEAR TYPE	Manual
	BARCODE	Off
	PRE FORMULA REPORT	Off
	MANUAL ENTRY	On
	COMPOUND DISPENSE ORDER	Variable
	POST FORMULA REPORT	Off
	PASSWORD	Off
	UNIT MANUAL INPUT	kg
	SUBTRACTIVE WEIGHING	Off
	MONITORING	Off
	TOL.ADJUSTMENT	On

2.1.1   Editing raw materials

Input mask   The following input masks appear for editing the raw materials database
(Example):

ID 001	: H2O
NAME	: WATER
STOCK	: 25.0 kg
WARNING	: NO INVENTORY MANAGEMENT

MES. ID.	: 123
CONSUMED	: 2.0 kg
STOCK TIME	: 02.02.02 07.15.01
USE COUNT	: 3

Legend

ID nnn	Identification of raw material, alphanumeric, max. 20 characters
NAME	Name of raw material, alphanumeric, max. 30 characters
STOCK	Quantity of raw material stocked. The inventory quantity is updated with each dispensing
WARNING	Warning message for inventory management,

The following settings are possible:

NO WARNING	No warning
STOCK 0 OR BELOW	Warning when inventory is 0 or below
STOCK BELOW REQUIREMENT	Warning when the quantity for the currently required component is not long in stock
STOCK BELOW 10 %	Warning when inventory is below 10 % of the original value
MES ID.	Message to be displayed when this raw material is dispensed.
CONSUMED *	Display of the raw material consumed up to this point. This value is updated with each dispensing.
STOCK TIME *	Display of when the inventory was last added to.
USE COUNT *	Display of the number of formulas the raw material is used in.
*	These values are only displayed, and cannot be edited.

Function keys   The function keys are assigned as follows:

↓↑	<	>	F▶	EDIT	↑
Select parameters	Scroll back in raw materials and warnings	Scroll forward in raw materials and warnings	Select function of function key F5	EDIT DELET FIND GOTO SAVE	End raw material, with prompt regarding changes

Example 1   **Creating new raw material with the ID 005**

1. Select ID 005 in the raw material input mask with the keys < , >.

2. Press the F5 EDIT key and enter the raw material ID, e.g. RS 005.
   Confirm the entry with the ENTER key.

3. Select the next parameter NAME with the ↓↑ key.

4. Press the F5 EDIT key and enter the raw material name, e.g. Water.
   Confirm the entry with the ENTER key.

5. Select the next parameter STOCK with the ↓↑ key.

6. Press the F5 EDIT key and enter the stocked quantity, e.g. 25.0 (kg).
   Confirm the entry with the ENTER key.

7. Select the next parameter WARNING with the ↓↑ key.

8. Select the type of warning for inventory management with the keys < , >.

9. Select the next parameter MES. ID. on the second page of the input mask with the ↓↑ key.

10. Press the F5 EDIT key and enter the message number, e.g. 123.
    Confirm the entry with the ENTER key.

11. End Raw Material with the ↑ key. The question SAVE ? appears.

12. If the new raw material is to be stored in the database, then press the YES key and otherwise the NO key.

Example 2   **Updating inventory of raw material SUGAR**

1. Select the parameter NAME in the raw material input mask with the ↓↑ key.

2. Select the function FIND for the F5 key with the key F▶.

3. Press the key F5 FIND and enter the raw material name SUGAR.
   Confirm the entry with the ENTER key; the raw material SUGAR is displayed.

4. Select the parameter STOCK with the ↓↑ key.

5. Press the key F5 EDIT and enter the new inventory quantity (remaining quantity + received).
   Confirm the entry with the ENTER key.
   The CONSUMED parameter is reset to 0, and the STOCK TIME parameter shows the date and time of the input just made.

6. End raw material with the ↑ key. The question SAVE ? appears.

7. If the new raw material is to be stored in the database, then press the YES key and otherwise the NO key.

2.1.2   Editing messages

The IND690-FormXP can store 200 messages of the message database, which can then be assigned to the formulas, components and raw materials.

The message database is divided into 3 areas:

1. Action messages, e.g. LOAD CONTAINER or ZERO-SET SCALE.
   As soon as the action is carried out, the IND690-FormXP switches to the next step.

2. Fixed messages, e.g. WEAR GOGGLES!
   Here the IND690-FormXP expects a confirmation with the ENTER or CLEAR key.

3. User messages. Only freely definable messages can be edited.

No.	Action messages	No.	Fixed messages
001	LOAD CONTAINER	021	HANDLE WITH CARE !
002	LOAD CONTAINER, <TARE>	022	WARNING - EXPLOSIVE !
003	CHANGE CONTAINER	023	WEAR GOGGLES !
004	UNLOAD SCALE	024	WARNING - FLAMMABLE !
005	CHANGE SCALE, <ENTER>	025	FRAGILE !
006	PRE TARE	026	WEAR GLOVES !
007	ZERO SCALE	027	CORROSIVE !
008	LOT NUMBER	028	WEAR MASK !
009	CHARGE NUMBER	029	WARNING - TOXIC !
010	CONFIRM RAW MATERIAL ID	030	WARNING - IRRITATING !
011	<ENTER>		**User messages**
012	ENTER FORMULA	031	
013	ENTER COMPOUND	032	
014	ENTER CUSTOMER	033	
015	ORDER NUMBER	034	
016	SELECT SCALE 1	035	
017	SELECT SCALE 2	036	
018	SELECT SCALE 3	…	
019	SELECT SCALE 4	…	
020	CHANGE CONTAINER, <TARE>	200	

Message input mask   The following input mask appears for editing the messages (example):

MESSAGE   : 035/200   USER MESSAGE

     CONTAINER RED

1st line   Number of message (035) and type of message
4th line   Contents of the message (maximum of 24 characters)

Function keys   The function keys are assigned as follows:

<	>	–	F▶	EDIT	↑
Scroll back in messages	Scroll forward in messages	–	Select function of function key F5: EDIT, DEL etc.	EDIT CLEAR GOTO FIND	End message; settings are accepted as displayed

Example   **Creating message 036 "CONTAINER GREEN"**

1. Select the function GOTO for the F5 key with the key F▶.

2. Press the key F5 GOTO and enter the message number 36.
   Confirm the entry with the ENTER key.
   The message number and the message type (free message) are displayed in the 1st line.
   If the message already exists, the current function appears in the 4th line.

3. Select the function EDIT for the F5 key with the key F▶.

4. Press the key F5 EDIT and enter the message text.
   Confirm the entry with the ENTER key.

5. End message with the ↑ key.

2.1.3   Editing formulas

Input mask formula header   The following input mask appears for editing the general formula data (example):

F 001	: AX0815B	(10.5 kg)
NAME	: COLA	
MSG	: 100 123 150 – 099 101	
COMP	: 001/003 (005)	

Function keys   The function keys are assigned as follows:

↓↑	<	>	F▶	EDIT	↑
Select parameters	Scroll back in formulas	Scroll forward in formulas	Select function of function key F5	EDIT DELET FIND GOTO	End formula, changes are applied.

Legend

F nnn   Identification of formula,
              alphanumeric, max. 20 characters
NAME   Name of formula,
              alphanumeric, max. 30 characters
MSG   Message numbers for 3 messages at the start of the formula and
              2 messages after working through the formula.
              000 means that no message is output.
COMP   Running component in the formula/number of components in the
              formula
              (raw material ID of running component)

Input mask for component   The following input mask appears for editing the individual formula components (example):

F 001	: FORMULA 001	
C 001	: RS 001	
	: WATER	
MSG	: 002 – 003	(1/2)

F 001	: FORMULA 001	
C 001	: RS 001	
WEIGHT	: 9 kg	
TOLERANCE	: 0.5 kg	(2/2)

Function keys The function keys are assigned as follows:

↓↑	<	>	F▶	ADD	↑
Select parameters	Scroll back in components	Scroll forward in compo-nents	Select function of function key F5	ADD EDIT DELET GOTO FIND SAVE	End component, with prompt regarding changes

Legend

F nnn	Identification of formula
C nnn	Raw material ID, Raw material name
MSG	Number of messages that are displayed before the start of the component and after dispensing of the component.
WEIGHT	Target weight of the component. With the change function key you can change the unit during the entry. The tolerance unit adjusts automatically.
TOLERANCE	Tolerance of the component

Example 1 **Creating new formula with F 005**

Formula header

1. Select F 005 in the formula input mask with the keys < , >.

2. Press the F5 EDIT key and enter the formula ID, e.g. FORMULA 005.
   Confirm the entry with the ENTER key.

3. Select the next parameter NAME with the ↓↑ key.

4. Press the F5 EDIT key and enter the formula name, e.g. FANTA.
   Confirm the entry with the ENTER key.

5. Select the next parameter MSG with the ↓↑ key.

6. Press the key F5 EDIT and enter the number of the first message to be displayed
   at the start of the formula, e.g. 001.
   If no message is to be displayed, enter the number 000.
   Confirm the entry with the ENTER key.

7. Select the next message with the ↓↑ key and proceed as for the first message.
   A total of 3 messages can be selected for the start of the formula and
   2 messages for after the end of the formula.

Adding components

1. Select the parameter COMP. in the Formula input mask with the ↓↑ key.

2. Press the key F5 ADD.
   The display changes to the input mask for the component.

3. Select the desired raw material in the raw materials database with the keys < , >.

4. Select the parameter MSG with the ↓↑ key.

5. Press the key F5 EDIT and enter the number of the message to be displayed at the start of the component, e.g. 001.
    If no message is to be displayed, enter the number 000.
    Confirm the entry with the ENTER key.

6. Select the 2nd message to be displayed after dispensing the component with the ⇅ key.

7. Press the key F5 EDIT and enter the message number.
    Confirm the entry with the ENTER key.

8. Switch to the 2nd page of the input mask for the components with the ⇅ key; the WEIGHT parameter is selected.

9. Press the key F5 EDIT and enter the target weight of the component.
    Confirm the entry with the ENTER key.

10. Select the next parameter TOLERANCE with the ⇅ key.

11. Press the key F5 EDIT and enter the tolerance of the component.
    Confirm the entry with the ENTER key.

12. End Component with the ↑ key.
    The question SAVE ? appears.

13. If the new component is to be stored in the formula database, then press the YES key and otherwise the NO key.

14. Create further components in the same way.

Example 2 **Changing existing component C 003**

1. Select the parameter COMP. in the formula input mask with the ⇅ key.

2. Select the function GOTO for the F5 key with the key F▶.

3. Press the key F5 GOTO and enter the component number 3.
    Confirm the entry with the ENTER key; the component C 003 is displayed.

4. Select the parameter to be changed with the ⇅ key.

5. Press the key F5 EDIT and enter the new target weight of the component.
    Confirm the entry with the ENTER key.

6. If additional parameters are to be changed, proceed in the same manner.

7. End component with the ↑ key.
    The question SAVE ? appears.

8. If the change component is to be stored in the formula database, then press the YES key and otherwise the NO key.

3   Application blocks

In the following description, the application blocks are shown in the syntax for the MMR command set. When used with the SICS command set, please observe the SICS conventions, see Operating instructions for IND690-Base weighing terminal.

No.	Content	Format		
301	Pac version	Response:	`A,B,_` `IND690-FormXP_V1.00_`	
302	Program number	Response:	`A,B,_` `IP6A-0-0xxx_`	
316	Unit manual entry	Response: Write:	`A,B,_` `Unit` `A,W,3,1,6,_` `Unit`	

318_001
…
318_006
	Identification data
	Code A … Code F
		Response:
		Write:
		Comment:
			`A,B,_` `Name (Text_20)` `_,_` `Identification (Text_20)`
			`A,W,3,x,x,_` `Name (Text_20)` `$,$` `Identification (Text_20)`
			xx = 18_001 …18_006;
			corresponds to the application blocks 094 … 099	

318 … 321	Identification data Code A … Code D	Response: Write: Comment:	equal to 318_001 equal to 318_001 xx = 18 … 21 corresponds to the application blocks 094 … 097	
341	Conversion factor for the neutral unit with manual entry	Response: Write:	`A,B,_` `Weight value` `_` `Unit` `A,W,3,4,1,_` `Weight value` `_` `Unit`	

344_001
…
344_500
	Messages,
	write protection
		Response:
		Write:
		
		Note:
			`A,B,_` `Contents (Text_24)` `_` `Write protection (Number_1)`
			`A,W,3,4,4,_,x,x,x,_` `Contents (Text_24)` `$,$`
			`Write protection (Number_1)`
			0: Unlock, no write protection (factory setting)
			1: Lock, with write protection
			xxx = 001 … 500	

No.	Content	Format
345	Current formula	**Response:** `A B _` Formula No. (No_3) `_ _` Formula ID (Text_30) `_ _` Lot No. (Text_20) `_ _` Formula name (Text_30) `_ _` Number of components (Number_3) `_ _` Target weight (weight value) `_` Unit `_ _` Tolerance (weight value) `_` Unit `_ _` Msg. before 1 (No_3) `_ _` Msg. before 2 (No_3) `_ _` Msg. after 1 (No_3) `_ _` Msg. after 2 (No_3) `_ _` Msg. after 3 (No_3) `_ _` Flag (Number_1) **Write:** `A W 3 4 5 _` Formula No. (Number_3) `$ $` Lot No. (Text_20) `$ $` Target weight (weight value) `_` Unit `$ $` Number of batches (Number_3) **Comment:** The target weight can be changed by the operator when TARGET WEIGHING ON is selected in the master mode. The target weight can only be described while the formula is available for selection. Formula No.: 001 … 150 No. of components: 001 … 100 Message No.: 000 … 200 000: no message Flag: 0: Target values as stored 1: Rescaled
346	Actual values, current component	**Response:** `A B _` Comp. No. (No_3) `_ _` Batch No. (No_3) `_ _` Raw mat. ID (T_30) `_ _` Raw mat. name (T_30) `_ _` Formula weight (weight value) `_` Unit `_ _` Difference (weight value) `_` Unit `_ _` Tolerance 2 (weight value) `_` Unit `_ _` Msg. before (No._3) `_ _` Msg. after (No._3) `_ _` Flag (Number_1) `_ _` Manual entry (Number_1) Target weight (weight value) `_` Unit `_ _` Tolerance 1 (weight value) `_` Unit `_ _` **Write:** `A W 3 4 6 _` Component No. (Number_3) `$ $` Batch No. (Text_20) **Comment:** Tolerance 2 is not determined until after rescaling. The target weight can only be described while the component is available for selection. Component No.: 001 … 100 Message No.: 000 … 200 000: no message Flag: 0: Target value as stored 1: Rescaled Manual entry: 0: Component weighed 1: Manual entry

No.	Content	Format	
347	Inventory, current component	Response:	`A B` _ `Inventory (weight value)` _ `Unit` _ _ `Inventory receipt (Date_Time)` _ _ `Consumed (weight value)` _ `Unit`

348_001 … 348_100	Current target values, Components 1…100, current formula	Response:	`A B` _ `Batch No. (No_3)` _ _
			`Raw mat. ID (T_30)` _ _ `Raw mat. name (T_30)` _ _
			`Target weight (weight value)` _ `Unit` _ _
			`Tolerance 1 (weight value)` _ `Unit` _ _
			`Tolerance 2 (weight value)` _ `Unit`
			`Msg. before (No_3)` _ _ `Msg. after (No_3)` _ _
			`Flag (Number_1)`

		Comment:	Batch No.: 001 … 100 Tolerance 1: Tolerance of stored formula Tolerance 2: Tolerance of stored formula Message No.: 001 … 200
349	Tare current container	Response:	`A B` _ `Tare (weight value)` _ `Unit`
350	Batch	Response:	`A B` _ `Number of batches (Number_3)` _ _ `Current batch (Number_3)` _ _ `Component name (Text_30)`
351	Last batch weight	Response:	`A B` _ `Batch (weight value)` _ `Unit`
352_001 … 352_100	Batch details	Response:	`A B` _ `Batch ID (Text_20)` _ _ `Net (weight value)` _ `Unit` _ _ `Gross weight (weight value)` _ `Unit` _ _ `Tare (weight value)` _ `Unit`
353	Total weight of current formula	Response:	`A B` _ `Formula net weight (weight value)` _ `Unit` _ _ `Formula gross weight (weight value)` _ `Unit` _ _ `Deviation (weight value)` _ `Unit`
355_001 … 355_100	Partial weights of component	Response:	`A B` _ `Batch 1 (Text_20)` _ _ `Partial weight 1 (weight value)` _ `Unit` _ _ `Batch 2 (Text_20)` _ _ `Partial weight 2 (weight value)` _ `Unit` _ _ … `Batch 6 (Text_20)` _ _ `Partial weight 6 (weight value)` _ `Unit`
		Comment:	only possible in the operating modes VERTICAL FILLING or BATCH FILLING with the setting BATCH NO. ONE, MULTIPLE

361_001 … 361_200	Messages	Response:
		Write:
		Comment:
			`A B` _ `Message (Text_24)`
			`A W 3 6 1` _ `n n n` _ `Message (Text_24)`
			nnn = 001 … 200

No.	Content	Format

362_001
...
362_500
	Raw materials	Response: `A┊B┊_` `Raw material ID (Text_20)` `_┊_`
		`Raw material name (Text_30)` `_┊_`
		`Inventory (weight value)` `_` `Unit` `_┊_`
		`Message (No_3)` `_┊_` `Warning (No_1)` `_┊_`
		`Inventory receipt (Date_Time)` `_┊_`
		`Consumed (weight value)` `_` `Unit` `_┊_`
		`Number of dispensing (No_4)`
		
		Write: `A┊W┊3┊6┊2┊_┊n┊n┊n┊_` `Raw material ID (Text_20)` `$┊$`
		`Raw material name (Text_30)` `$┊$`
		`Inventory (weight value)` `_` `Unit` `$┊$`
		`Message (No_3)` `$┊$` `Warning (No_1)`
		
		Comment: nnn = 001 ... 500
		Warning 0: no inventory management
		Warning 1: Warning if negative inventory
		Warning 2: Warning if the inventory for the selected
		                   component is not reached
		Warning 3: Warning if < 10 % of original inventory

363_001 ... 363_150	Formula mode	Response: `A┊B` Write: `A┊W┊3┊6┊3┊_┊n┊n┊n┊_` `Mode (Number_1)` Comment: nnn = 001 ... 100 Mode = 1: read Mode = 2: write Mode = 3: complete

No.	Content	Format	
364	Formula header	Response:	`A,B _ Formula ID (Text_10) _,_`
			`Formula name (Text_30 _,_`
			`Target weight (weight value) _ Unit _,_`
			`Tolerance (weight value) _ Unit _,_`
			`Number of components (Number_3) _,_`
			`Msg. before 1 (No_3) _,_ Msg. before 2 (No_3) _,_`
			`Msg. after 1 (No_3) _,_ Msg. after 2 (No_3) _,_`
			`Msg. after 3 (No_3) _,_`
			`Formula weight (weight value) _ Unit _,_`
			`Clear sum (Date_Time) _ Unit _,_`
			`Status (Number_1)`
		Write:	`A,W,3,6,4 _ Formula ID (Text_10) $,$`
			`Formula name (Text_30) $,$`
			`Message before 1 (No_3) $,$`
			`Message before 2 (No_3) $,$`
			`Message after 1 (No_3) $,$`
			`Message after 2 (No_3) $,$`
			`Message after 3 (No_3)`
		Comment:	Writing is only possible when a formula is loaded via AB 363 in the Edit mode
365_001 ... 365_100	Components of current formula	Response:	`A,B _ Raw mat. ID (T_20) _,_ Raw mat.l name (T_30) _,_`
			`Target weight (weight value) _ Unit _,_`
			`Tolerance (weight value) _ Unit _,_`
			`Message before (No_3) _,_ Message after (No_3)`
		Write:	`A,W,3,6,5 _ n,n,n Raw material ID (T_30) $,$`
			`Target weight (weight value) _ Unit $,$`
			`Tolerance (weight value) _ Unit $,$`
			`Msg. before (No_3) $,$ Msg. after (No_3)`
		Comment:	nnn = 001 ... 100
			Messages: 000 ... 200
			000 = no message
			Writing only possible if a formula is loaded via AB 363 in the Edit mode and not until the header is written via AB 364
366	Formula status	Response:	`A,B _ Formula No. (No_3) _,_ Mode (No_1)`
		Comment:	Mode = 1: read
			Mode = 2: write
398	Report No.	Response:	`A,B _ Serial number (Number_6)`

4 What to do if …?

Error / Display	Possible causes	Remedy
OVERFLOW SUM GROSS OVERFLOW SUM NET	• Capacity of buffer for gross sum or for net sum exceeded	➜ Delete sum and form sub-sum
OVERFLOW CONTAINER	• Capacity of buffer for container counter exceeded	➜ Reset counter by deleting sum ➜ Suitably divide sum or recipe
OVERFLOW ITEMCOUNTER	• Item counter or component counter has reached stop value	➜ Reset counter by deleting sum ➜ Select suitable start and stop value
OVERFLOW MAN. INPUT	• Manual entry would exceed capacity of sum buffer	➜ Check value of manual entry ➜ Check value of FACTOR FOR NEUTRAL UNIT
WEIGHT TOO LOW	• Totalizing or formulation with weight which is too low	➜ Place item on platform or fill component; watch 10 d weight threshold.
NEGATIVE COMPONENT	• Current component negative	➜ Place component removed last on scale again until second display is positive
NO VALUE	• Manual entry: No value or zero entered	➜ Enter permissible value
CONT. NOT FINISHED	• Sum key pressed without having formed container sum for all scales used beforehand	➜ Form all container sums
CLEAR SUM	• Sum not cleared	➜ Clear sum

5   Technical data

Formulation functions	
Formula database	max. 150 formulas with a maximum of 100 components, max. 2000 components over all formulas
Raw material database	max. 500 raw materials
Message database	max. 200 messages, which can be assigned to raw materials, components and formulas. Thereof 20 action messages and 10 fixed messages, which cannot be changed
Batch operation	max. 100 batches
Partially filling	A component can be dispensed in up to 6 steps. A maximum of 200 steps are possible per formula
Target weighing	The stored formula target value can be adjusted before the start of formulation
Rescaling	If a component has been dispensed over tolerance, the remaining components can be recalculated for the higher formula weight

6   Appendix

6.1   IND690-FormXP with Interface 4 I/O-690 or Relay Box 8-690

The following input assignments apply when using the IND690-FormXP together with an Interface 4 I/O-690 or a Relay Box 8-690:

Input signals

Input	Key	Function in the application STORED FORMULATION
Input 1	Key F3	SELECT for selection of formula or component PLUS for formulation
Input 2	Key F6	STOP
Input 3	Tare weighing platform	
Input 4	ENTER key	

6.2   FormTool-XP

6.2.1   System requirements

- PC with one of the operating systems Windows 98, Windows 2000 or Windows XP
- IND690-FormXP with a PC connected via a serial interface or Ethernet

6.2.2   Installing and initialising FormTool-XP

Installing

1. Insert CD and run "formtool.exe".
2. Follow the instructions that appear on the screen in the further course of the installation.
3. Reboot the PC after completing the installation.

Initialising

1. Switch on IND690-FormXP.
2. Start FormTool-XP ("Start -> Programs -> Mettler-Toledo -> FormTool-XP").
3. Select the interface in the "Interface Settings" window and configure the interface parameters in accordance with the settings on the IND690-FormXP.

Then the FormTool-XP is ready for operation, the display of the IND690-FormXP is shown on the PC.

6.2.3   Operation with FormTool-XP

FormTool-XP is operated analogously to operation on the weighing terminal IND690-FormXP. In addition, FormTool-XP also offers extensive reporting functions for evaluating the formulas.

Additional information on FormTool-XP is contained in the online help.

Several examples of the operating interface are shown on the following pages.

Formulation   During formulation weighing and formula data are shown in real time.

Editing raw materials   Raw materials can easily be created or edited.
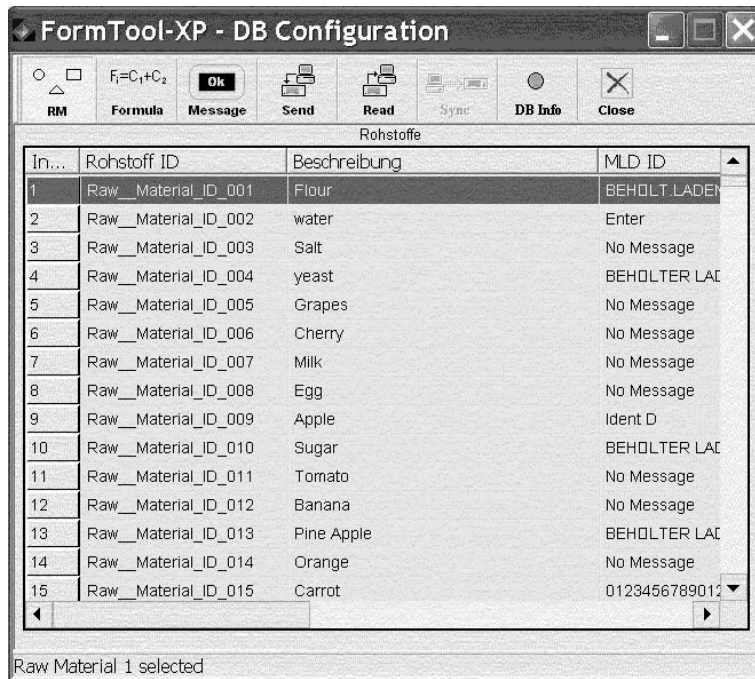
Editing formulas   Formulas can easily be created or edited.
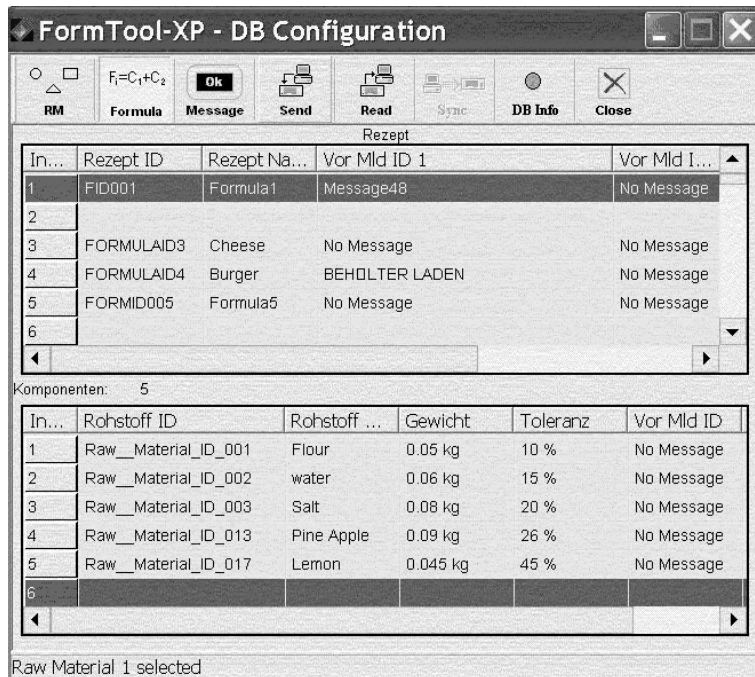
Reporting   Extensive reporting functions are available for evaluating the formulas.

7 Index

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Ζύγιση
Σήμανση
Συμμόρφωση

Νεύτων Τεχνολογίες ΑΒΕΕ
Γέρακα 113,Τ.Θ. 67934
15344 Γέρακας
Τηλ: 210 6654544
Fax: 210 6654545
marketing@nefton.gr
www.nefton.gr

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Mettler-Toledo (Albstadt) GmbH
D-72458 Albstadt
Tel. ++49-7431-14 0, Fax ++49-7431-14 232
Internet: http://www.mt.com