BAYKON

LM 3

FILLING CONTROLLER
OPERATION MANUEL

09/2007

CONTENTS

ATTENTION

- Check power supply voltage and ground connection before power on.
- Do not power up the unit without load cell connector is plugged.
- During operation do not disconnect load cell and serial port connectors.
- For stable working condition and safety, operate unit with proper grounding conditions.
- Do not open the the terminal box while it is powered on.

1. GENERAL FEATURES

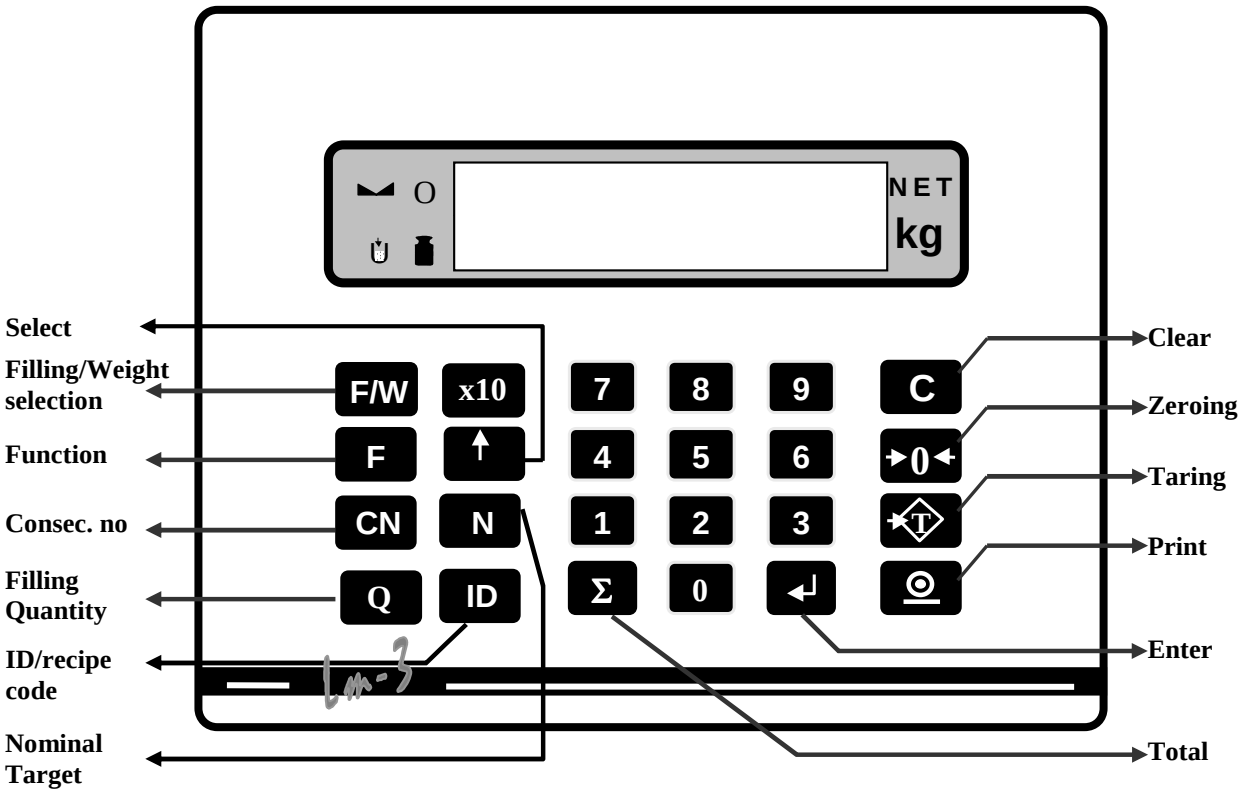
- Five different filling modes for various filling applications.

Mode	Description	Application
Mode 0	Filling in a drum, tins, etc.	Standard filling directly into drum, tin, etc.
Mode 1	Weighing into a bunker, tank, etc. and emptying	Packaging machines for bag, bigbag, tin, etc.
Mode 2	Charging/discharging into/from a tank, bunker, etc.	Dozing into/ from a tank, bunker, reactor, etc.
Mode 3	Mode 1, if the target value is bigger then scale capacity	Bag, big bag filling
Mode 4	Weigh-in weigh-out	For sticky and difficult materials, accurate weighing during discharging.

- High conversion rate provides accurate filling.
- Target weight and group of filling parameters for different material or capacities can be saved as recipe. Nine different recipes can be stored in LM 3.
- Adjustable anti-vibration filter provides the fast and accurate filling.
- All control inputs and outputs are opto-isolated.
- The total filled quantity can be displayed during filling operation.
- Recipe totals can be displayed and printed.
- Key lock function against unauthorised people intervention.
- Manuel filling option in weighing mode.
- Zero, net weight, stability, total and other information are displayed .
- Real time clock.
- User defined header for the printout can be loaded via computer.
- RS-232C serial output is standard.

2. FRONT PANEL AND KEYPAD

The front panel of LM 3:



The symbols on the display:

NET — **Net indication :** This symbol is illuminated when the scale is in net mode. It disappears in Gross mode.

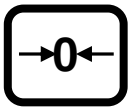
→0← — **Zero indication :** Zero indicator illuminates when scale is within +/- 0.25 increments of the centre zero.

Stability indication : Indicates that the weight is stable. Zero, tare and print functions are inhibited while the scale is not stable.

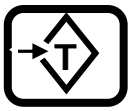
Filling mode : It indicates that LM 3 is in filling mode.

Weighing mode : It indicates that LM 3 is in weighing mode as a scale indicator.

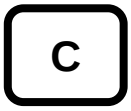
The keys on LM 3:



Zero : Provides scale zeroing. Zero key is effective in 2% of the total scale capacity if it is enabled in programming.

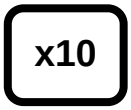


Tare : Automatically tares the weight of the subject on the scale. Effective only if the gross weight is positive.



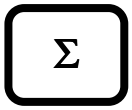
Clear : Clears the tare value and puts the scale into gross mode. Also clears the value on the display.

Print : The weight data is sent to a printer or host via PRINT key. The accumulated recipe totals and the general total also get printed by this key.



High resolution : In weighing mode, pressing this key provides readability in x10 higher resolution for a limited period. Display automatically returns to normal resolution at the end of this period.

Go forward/ Chance : It provides to go forward to next step in programming, calibration. It also changes the selected parameters.



Total : The general total of filled material is displayed by pressing this key. During the total weight is displayed, total weight is get printed by [⊙] key or cleared by pressing [C] and [↵] keys consecutively. [Σ] is pressed to return to filling mode.

Filling quantity: LM 3 can control the number of drum, tin, etc. to be filled if the filling parameter [F.QtY x] is set to 1. You can enter the number of drums, tins to be filled via this key. Please press this key and enter the number and press [↵] key. This value is decreased automatically by 1 after each filling cycle. A warning message appears on the display when this value becomes zero.

Recipe number : For recipe selection, press this key and enter receipt number or select the recipe by [↑] key. Press this key again to return to the filling mode.

N

Nominal Target Weight : You can chance the target value by this key. Please select the recipe first and press this key, enter the new target value and press ↵ key to save or press the C key to clear it.

CN

Consecutive number : To recall the consecutive number , press this key. To clear the number press C key or press this key again to return to the filling mode.

F/W

Filling/Weighing mode: This key switches the operation mode from/to filling to/from weighing mode. LM 3 is goes into filling mode after power on. In the filling mode Zero, Tare and Print keys do not function. In the weighing mode LM 3 is a simple weighing indicator and those keys are active. This mode is useful for standard weighing or manual filling.

F

4

Displaying Date & Time : Please press the keys on the left consecutively. Time will appear on the display in [**t hh.mm**] format. ↑ key is pressed to go forward Date in [**d dd.mm.yy**] format.
F key is pressed to return to filling mode.

F

2

Displaying recipe totals : Please press the keys on the left consecutively. The display will show the accumulated total weight of the last entered recipe ID. By using ↑ key, you can reach other recipe totals. ⎙ is pressed to print the list of all recipe totals. F key is pressed to return to filling mode.

3. CHANGING PASSWORD

Please press F 0 keys consecutively. Please type the password and press ↵ key. The message **[PASSEnt]** will appear on the display. Please type your new password and press ↵ key. The message **[PASSEn2]** appears on the display. Please type your new password once more and press ↵ key. The message **[okEy]** comes and LM 3 returns to filling mode in a short time. If the new password is written wrongly after **[PASSEn2]** message, LM 3 gives **[err]** message and return to filling mode.
Factory default password is **" 1"**. You can enter your new password after start up your scale.

4. CHANGING DATE & TIME

Please press [F] [7] keys consecutively. Please type the password and press [↵] key. Time will appear on the display in [t hh.mm] format. . You can select date by [↑] key in [d dd.mm.yy] format. You can type the time and date and accept by [↵] key. Please press [F] key to return to filling mode.

5. CLEARING RECIPE TOTALS AND GENERAL WEIGHT TOTAL

Please press [F] [2] keys consecutively . Accumulated weight total for the last Recipe ID will be displayed. You can select other Recipes by [↑] key. To clear the selected Recipe total, press [C] key and enter password. After entering password, the message **(CLr I/O)** is displayed. [0] key is used to clear the selected recipe total and [1] key clears the totals of all recipes. Please press [F] key to cancel or to return to filling mode.
Important: If you clear the total of any recipes, the general total will be affected and becomes wrong. If the general total is important for you, do not clear one of recipe total.

6. HEADER DEFINITION

You can define your own header on your ticket. Please connect your LM 3 to a PC via serial port. Press [F] [3] keys consecutively and enter your password and press [↵] key. The message **[hEAdEr]** will appear on the display.
Please run the program called **"LM2 BASLIK"** and the program will inform you about the successful connection by the message **"connected"**. Please fill the 4 lines each with maximum 20 characters on your PC. Select the cell **" PC>>LM"** by your mouse. You will get the message informing the storage of your headline and select the cell **"okey"** by your mouse to terminate the program. LM 3 will automatically return to filling mode.

7. KEY LOCK FUNCTION :

This feature locks LM 3 against unauthorized usage. For locking or unlocking the keys, press [F] [5] keys consequently, enter password and wait for **[kYb 0/1]** prompt. Press [0] key to lock the keys or press [1] key to cancel the key lock. In locked key operation, the keys except function key do not function.

8. RECIPE SELECTION:

Recipe is the group of parameters for different applications or target weights. 9 different recipe can be saved into the memory. You can select the recipe with keypads or via parallel I/O port by "Reset/Select" input.
Recipe selection via keypad: Before starting the filling, press [ID] key. Enter recipe number or select the desired recipe number with [↑] key. Then press [ID] key to return the filling mode.
Recipe selection with remote input: Before starting the filling, apply voltage to "Reset/Select" input in parallel port. After each pulse, the recipe number will increase. When you reach the desired recipe number, apply start input for filling.

9. FILLING MODES

LM 3 has five different filling modes for various filling applications. The user should select the convenient mode for his own application. Please look at the timer parameters in the programming parameters in chapter 10 to understand the filling modes easily.

9.1 FILLING MODE 0: CONTAINER FILLING

This mode is being used for filling the materials into a tin, drum, container or any packages.

Initial Conditions:

1) The sum of the target weight and maximum tare value must be smaller than the maximum capacity.
2) Tare must be in the tolerance ranges.
3) The weight must not exceed the maximum safety limit that is defined in the filling parameters 1.

Operation :

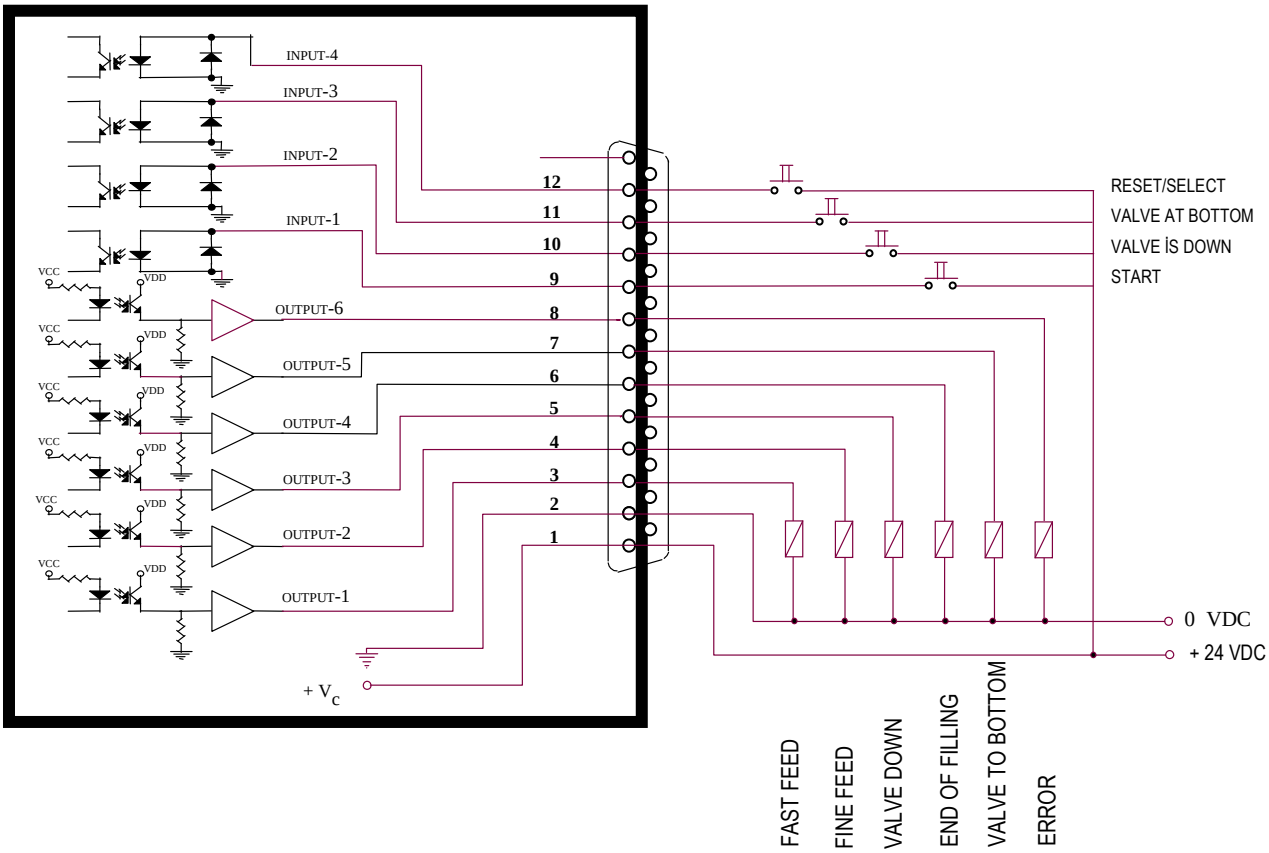
1) The device will be prepared for filling after defining the whole parameters carefully in the recipe.
2) Place the empty container on the scale and after providing initial conditions apply Start input.
3) If the filling will be done in NET mode , the scale will be automatically tared.
4) The control of valve will be made by LM 3 automatically. After waiting during starting delay the **[Vnt dwn]** message will be given and the valve is activated and stay active during filling process. The "Valve is at the botom" signal will be waited during the Valve/klape position delay time. If the signal won't come during this time LM 3 will give **[E vLv]** message and produce error signal. The "Valve is at the botom" signal will be waited to start filling in the filling machines.
5) The valve will wait at the bottom during filling process for the filling machines, those perform filling from bottom. Then rises until the "Valve is at the middle" signal comes. The valve will be stayed away from the material by adjusting the rising speed pinomatically.
6) After valve's position being ready for filling the coarse and fine filling signals produced. The weight won't be checked during the "coarse feed control delay"
7) After reaching the fine feed value the coarse feed signal will be terminated and the weight won't be checked during "Fine feed control delay"
8) After reaching the preact value the fine feed signal will be terminated and material feeding will be stopped.
9) The weight will be checked to decide if it is in the defined tolerance range after waiting the stability delay time.
10) In case of under filling the fine feed signal will be activated during additional feeding time. Then the weight will be checked again to provide the weight's getting in the tolerance range.
11) After filling process ended the valve deactivated and LM 3 will wait the termination of the "valve inside the drum" signal during the valve/klape position delay time. Otherwise an error signal produced.
12) Lifting of the drum will be asked by activating the "End of Filling " signal.
13) The display get back to the initial condition and LM 3 will begin to wait new start signal.

INPUTS AND OUTPUTS (MODE 0) :

All control inputs and outputs are opto-isolated. The total outputs' current is limited up to 300 mA.

	Name	No	Description
Inputs	Start	9	Starts filling process.
	Valve is down	11	The input indicates if the valve is in the container or not. The feeding stops automatically, when this input is passive.
	Valve is at the bottom	10	This input required for below surface filling and indicates that the filling valve is at the bottom.
	Reset / Recipe selection	12	This input is used for recipe selection before start input ; and used for resetting the filling process.
Outputs	Coarse feed	3	This output becomes active during fast feeding.
	Fine feed	4	Becomes active during fine feeding.
	Valve down	5	Moves the valve down into the container.
	EOF (End of filling)	6	Indicates that the filling process is ended and the container can be removed.
	Valve to the bottom	7	Moves the valve to the bottom for below surface filling. Becomes passive after "Column lifting delay timer".
	Error	8	Specifies error

INPUT / OUTPUT CONNECTION DIAGRAM :



9.2 FILLING MODE 1: HOPPER, TANK FILLING AND EMPTYING

This mode is used to fill a material accurately in a tank/hopper and emptying it. This mode is particularly convenient for packaging machines, bag-filling applications etc.

Initial Conditions:

1) Target weight must be smaller than the maximum capacity.
2) The weight value must be inside the zero range to start the feeding.
3) The discharging klape must be closed.

Operation:

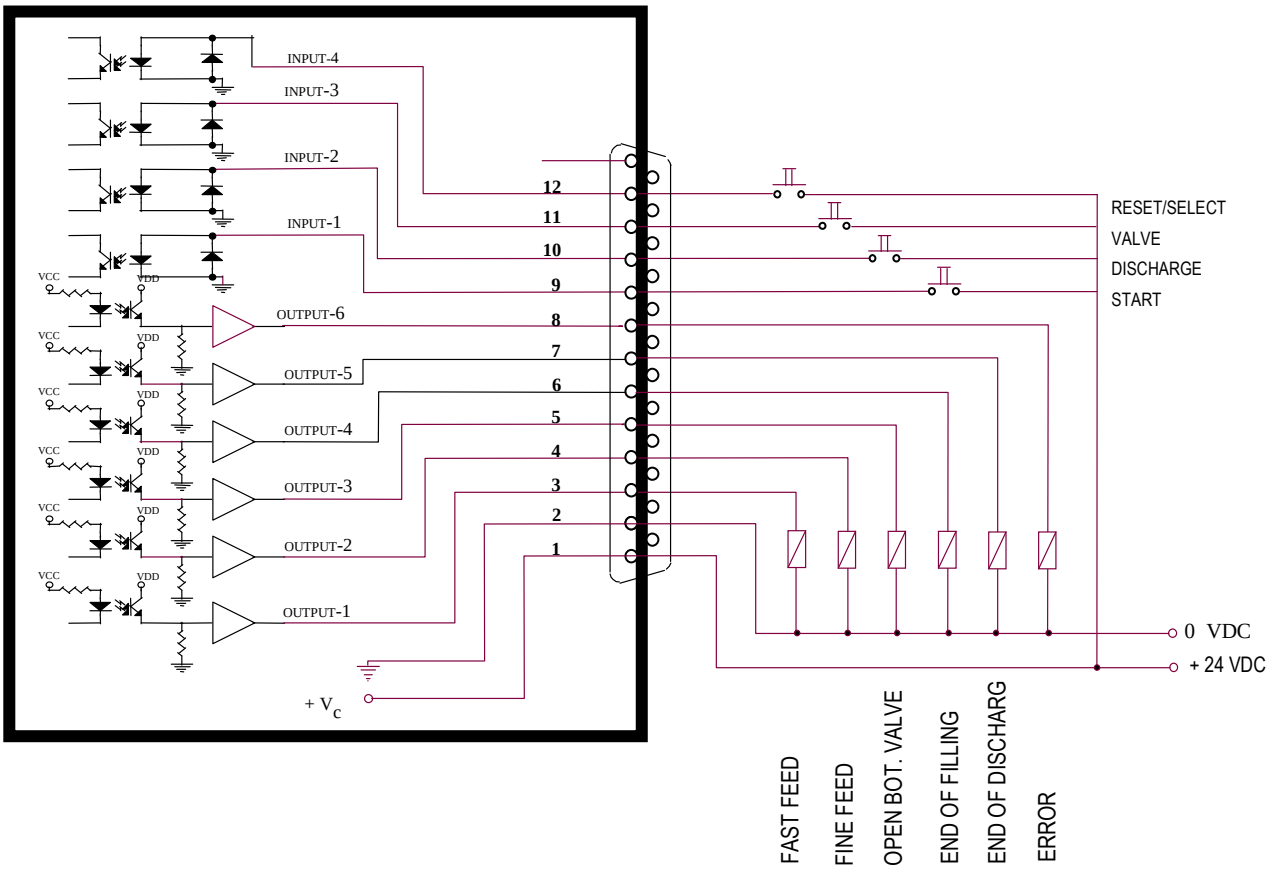
1) The filling process starts with the “Start input”. If need be, “ Start Delay Timer- [F.Str x] “ can be used at this stage.
2) LM 3 controls the bottom valve /flap position. If it is open it waits during the position delay time and if it is still open “ Error output” becomes active and [E Gate] prompt appears on display.
3) The scale is zeroed automatically. If the weight of empty container is out of zero range, error message [E Zero] appears on the display and LM 3 waits for the weight of the tank/hopper goes into the zero range. If the weight is being taken into zero range, the operator can start filling by pressing the start input again.
4) The coarse and fine outputs produced, and the weight will not be controlled during the coarse feed control delay time.
5) The coarse output is deactivated when the weight reaches the difference of target and dribble, and the weight will not be controlled during the fine feed control delay time.
6) When the weight reaches the difference of target and preact , the fine feed output becomes passive and the feeding stops.
7) Tolerance control will be made after stabilization time.
8) If additional feeding will be made, the fine feed output will be activated during additional feeding time.
9) After finishing the feeding procedure the required corrections will be made automatically.
10) The filling competed output becomes active, **[A XXXXX]** promt appears on the display and discharge signal will be waited.
11) If the filling is out of the tolerances, error output becomes active.
12) After receiving the discharge signal, the klape control output will be produced at the end of the discharging delay time. LM 3 waits deactivation of the klape control signal during Valve/klape position delay time. If the klape is not opened means valve closed signal is n ot deactivated et the end of this time an error output will be produced with the **[E Gate]** promt.
13) If the weight will be observed during discharging process, LM 3 waits until the weight get inside of the zero range.
14) After weight’s getting inside the zero range LM 3 waits during the discharging end delay time.
15) The klape will be closed, discharging ended signal produced and the next start signal will be waited for filling.

INPUTS AND OUTPUTS (MODE 1) :

All control inputs and outputs are opto-isolated. The total current of outputs is limited up to 300 mA.

	Name	No	Description
Inputs	Start	9	Starts filling process.
	Discharge	10	Starts emptying process.
	Bottom Valve/flap is closed	11	Active if discharge valve/flap is closed.
	Reset / Recipe selection	12	This input is used for recipe selection before start input ; and used for resetting the filling process during filling.
Outputs	Coarse feed	3	This output becomes active during fast feeding.
	Fine feed	4	This output becomes active during fine feeding.
	Open Valve/flap	5	Opens the bottom valve/flap for discharge.
	EOF (End of filling)	6	Indicates that the material is filled and LM 3 is ready for discharge
	EOD (End Of Discharge)	7	Indicates the discharge was done and the system is ready for next filling process.
	Error	8	Specifies error

INPUT / OUTPUT CONNECTION DIAGRAM :



9.3 FILLING MODE 2: CHARGING OR DISCHARGING TANK / HOPPER

This mode is being used for precise filling or discharging a tank or hopper. You don't need to perform the filling and discharging operations sequentially.

INITIAL CONDITIONS:

For charging, the discharging valve must be closed, and the sum of the target weight and the weight of the material in the hopper must be smaller than the maximum capacity.
For discharging, the weight of the material in the hopper must be greater than the sum of the weight that will be discharged and the zero range to begin the discharging; and no filling operation should be performed at that time.

OPERATION :

Charging into a tank/hopper:

1) The filling process begins with the " Start charging" input.
2) Klape is controlled. If it is open LM 3 waits during valve /klape position delay time and at the end of this time if the klape is still open **[E Gate]** warning will appear on the display and an error signal will be produced.
3) After waiting during filling starting delay time, the fine and coarse feeding outputs will be activated. The weight will not be observed during coarse feed control delay time.
4) When the weight reaches the fine feeding value, the coarse feed output will be deactivated. The weight won't be observed during fine feed control delay time.
5) When the weight reaches the preact value, the fine feed output will be deactivated.
6) The tolerance control and the needed corrections on the preact value will be made at the end of the stability time. EOF output will be activated.
7) If the filling value less than the target value and it is out of the tolerances the lack value will be completed with the additional feeding. If the additional feeding was not selected or the weight value is over the tolerances an error output becomes active. Then the filling value will be displayed with **[A XXXXX]** promt and the filling will over and LM 3 get to the ready position.

Discharging from a tank/hopper:

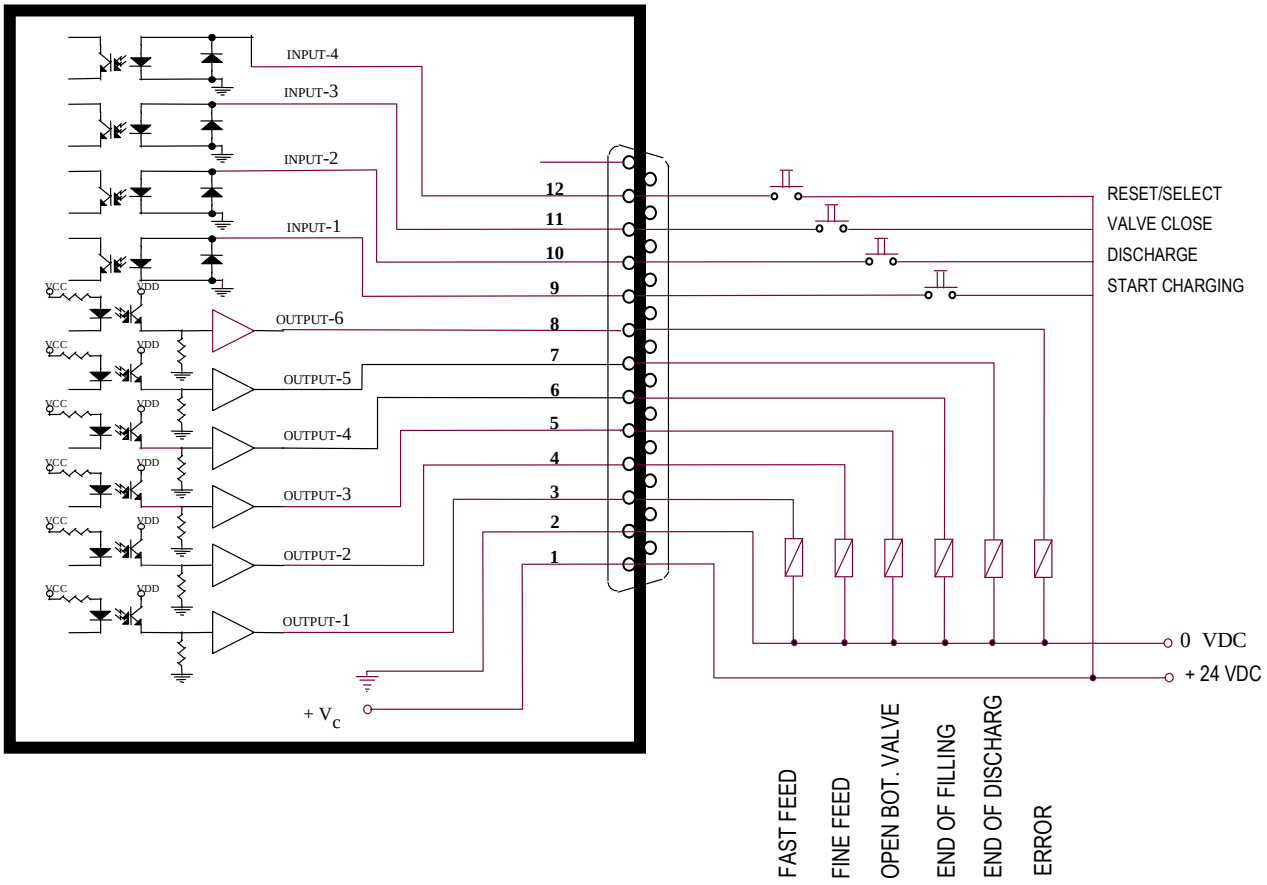
1) The discharging process will start by the Discharge input.
2) The klape control signal will be produced at the end of the discharging delay time to open it. The deactivation of the klape closed signal will be waited during the valve/klape control delay time. If the klape closed signal won't be deactivated at the end of this time error output will be activated with the **[E GAtE]** promt.
3) The fine and coarse outputs will be activated at the end of the discharge starting delay time. The weight won't be observed during coarse feed control delay time.
4) When the weight reaches the fine discharging value, the coarse output will be deactivated. The weight won't be observed during fine feed control delay time.
5) When the weight reaches the preact value, the fine feed output will be deactivated.
6) The tolerance control and the needed corrections on the preact value will be made at the end of the stability time.
7) The actual value appears on the display as **[A XXXXXX]** format. If the discharged weight is out of tolerance the error output becomes active. If the result is okay, "End of Discharge output- EOD " becomes active which means discharging is ended.

INPUTS AND OUTPUTS (MODE 2) :

All control inputs and outputs are opto-isolated. The total current of outputs is limited for 300 mA.

	Name	No	Description
Inputs	Start Charging	9	Starts filling process.
	Discharge	10	Starts discharge process.
	Valve/flap is closed	11	Active if discharge valve/flap is open for charging or close for discharging.
	Reset / Recipe selection	12	This input is used for recipe selection before start input; and used for resetting the filling process during filling.
Outputs	Coarse feed	3	This output becomes active during fast feed.
	Fine feed	4	This output becomes active during fast feed.
	Open Valve/flap	5	Opens the valve/flap for discharge.
	EOF (End of charging)	6	Indicates that the charging is ended.
	EOD (End Of Discharge)	7	Indicates that the discharge is ended.
	Error	8	Specifies error

INPUT / OUTPUT CONNECTION DIAGRAM :



9.4 FILLING MODE 3: MODE 1 IF THE TARGET WEIGHT IS BIGGER THAN THE SCALE CAPACITY.

This mode is convenient for Mode 1 type filling processes if the target weight is larger then scale weighing capacity. The requested quantity will be filled to the package by performing several filling and discharging cycles into/from the tank or hopper.

OPERATION :

1) Same as Mode 1.
2) The target value for the previous filling cycles is done up to maximum value and the target value for the last filling cycle is the reminder.

INPUT AND OUTPUTS AND CONNECTION DIAGRAM are the same as MODE 1.

9.5 FILLING MODE 4: WEIGH-IN /WEIGH-OUT

This mode is particularly convenient for weighing sticky materials like honey or glucose. The material is over filled up to maximum capacity and it is discharged accurately as target value. If there is enough material for several filling in the tank or hopper, several discharging process' is possible.

INITIAL CONDITIONS FOR FILLING:
The valve's being closed is the only condition to start filling process.

INITIAL CONDITIONS FOR DISCHARGING:
The weight of the material in the hopper must be greater than the sum of the discharging value and zero range; and no filling process must be running at the time.

OPERATION :

WEIGH-IN CYCLE
1) The filling procedure will begin with the start signal
2) If the klape is closed filling is possible. If the klape is open when the start signal comes, LM 3 will wait during valve/klape delay time. At the end of this time if the klape is still open error signal will be produced and **[E Gate]** promt will appear on the display.
3) At the end of the filling start delay time filling output will produced and the filling process will be performed with single speed in gross mode. When the weight reaches the maximum capacity, the filling output will be deactivated.
4) At the end of the stability time **[A XXXXX]** promt will appear on the display and filling is over output will be activated.

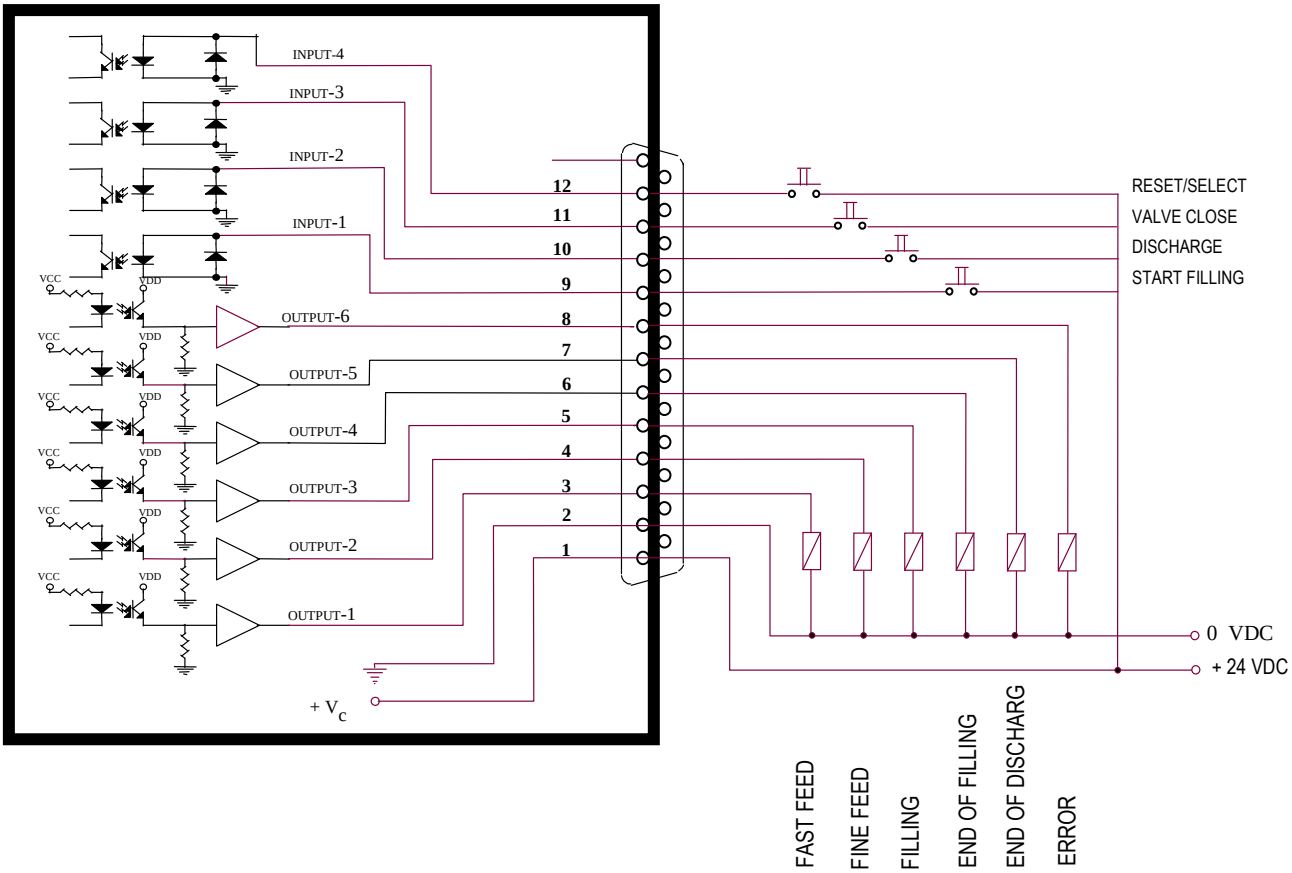
WEIGH-OUT CYCLE
1) After the discharge start input comes, the scale tared and coarse and fine outputs are activated at the end of the discharging delay time. The weight won't be observed during coarse feed control delay time.
2) When the weight reaches the fine feed value, the coarse feed output becomes passive. The weight won't be observed during fine feed control delay time.
3) The fine feed output will be deactivated when the weight reaches preact value.
4) The tolerance control and the needed corrections on the preact value will be performed at the end of the stability time.
5) The end of discharge output will be activated and the actual value will be displayed as **[A XXXXX]**. And LM 3 will become ready for the next operation.

INPUTS AND OUTPUTS (MOD 4) :

All control inputs and outputs are opto-isolated. The total current of outputs is limited for 300 mA.

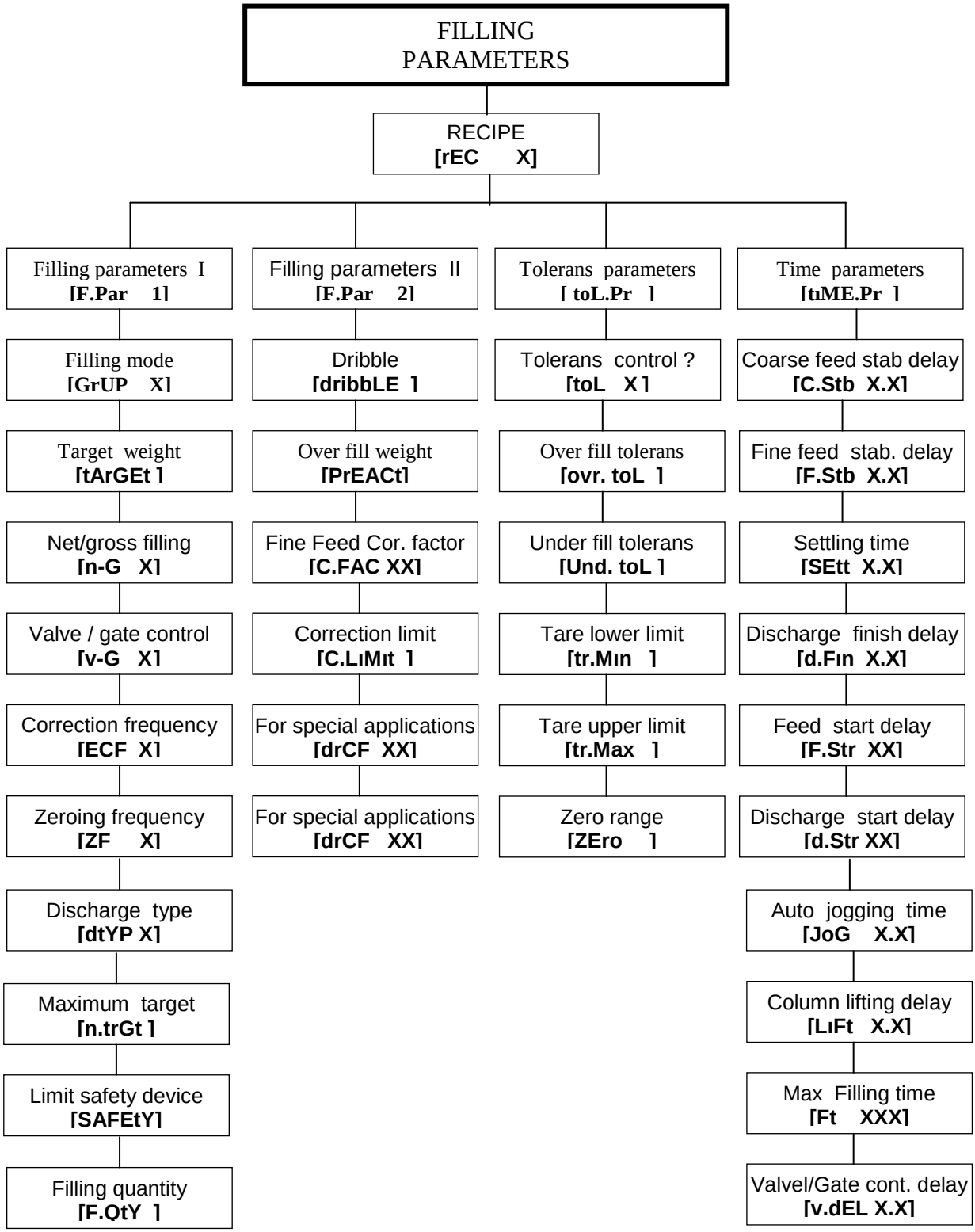
	Name	No	Description
Inputs	Start Weigh-in	9	Starts filling process.
	Discharge	10	Start discharge process.
	Valve/flap is closed	11	Active if discharge valve/flap is closed.
	Reset / Recipe selection	12	This input is used for recipe selection before start input ; and used for resetting the filling process during filling.
Outputs	Coarse feed	3	This output becomes active during fast discharge
	Fine feed	4	This output becomes active during fine discharge
	Filling	5	Active during weigh-in process.
	EOF (End of Filling)	6	Indicates that the filling is ended and the batch is ready for discharge.
	EOD (End Of Discharge)	7	Indicates that discharge is ended and the system is ready for next filling.
	Error	8	Specifies error

INPUT / OUTPUT CONNECTION DIAGRAM :



10. CONFIGURATION OF FILLING PARAMETERS

Filling parameters block is the section of setup that allows you to select the filling mode and to configure the filling parameters. Nine different recipe (group of parameters) can be saved in the memory of LM 3 . In the operation , operator can select one of the recipe and starts to filling. To configure the filling parameters, recipe number is written first and then the parameters of this recipe is entered according to application.



Please press [F] and [1] keys in sequence, enter password and press [↵] key. **[rEC X]** prompt appears which means that you are in filling parameters configuration. You can select the recipe with [↑] key or enter the recipe number by numeric keys and press [↵] key. **[F.Par I]** means Filling parameters group-I.
As you see on the block diagram above, there are 4 main sub blocks. [↑] key is pressed to select the desired block and [↵] key is pressed to go into this block. [↑] key is used to reach the parameters in each block.
The unused parameters depending on the selected filling mode are not visible.
To come out from the filling parameters press [F] key consecutively until the **[SavE 1**] message. Press [1] key to save or press [F] key to exit.

10.1 [rEC X] RECIPE OPERATIONS :

A set of filling parameters group is called recipe and 9 different recipes can be stored in LM 3. Filling parameters for each recipe is entered step by step. The easiest way is to copy of the first entered recipe to another and then make the necessary corrections on the copied recipe.
For copying recipe ; Select the recipe to be copied by using [↑] key and press the [C] key. The prompt **[CoPY X]** will appear . Enter new recipe number by numeric keys and press [↵] key. Copy is completed. You can change the requested parameters of the new recipe.
To delete the recipe, select the recipe by using [↑] key or numeric keys and press [→0←] key to display. The message **[dEL rEC]** appears. Press [1] key to delete.

10.2 [F.PAr 1] FILLING PARAMETERS 1:

[GrUP X] Filling Mode :

LM 3 has 5 different filling modes:

X = 0 : Filling mod 0 (Standard Net/Gross filling in a tin or drum)
X = 1 : Filling mod 1 (Filling into a tank / hopper and emptying)
X = 2 : Filling mod 2 (Multiple filling and/or discharging pf a tank/bin)
X = 3 : Filling mod 3 (Mode 1, if the target weight is bigger then scale capacity)
X = 4 : Filling mod 4 (Weigh in / weigh out accurately)

Enter the filling mode via numerical keys . Press [↵] key to continue to the next parameter.

[tArGEt] Target weight :

The filling / discharging weight of the material is written here by numerical keys. This value can also be entered by " Nominal Target " key in the filling mode.
Press [↵] key to advance to the next parameter.

[n – G X] Net / Gross :

This parameter specifies if the filling will be done as net or gross weight.

X=0 : Net weight filling
X=1 : Gross weight filling
Press [0] or [1] keys to change the value.
Press [↵] key to advance to the next parameter.

[v – G X] Valve / Flap Position Control :

This parameter specifies if the valve / flap position control is done or not.
For below surface filling application, this parameter is entered as 2.

X=0 : No control valve / flap position.
X=1 : Control valve/ flap position.
X=2 : Below surface filling control

Press [0] , [1] or [2] keys to change the value.
Press [↵] key to advance to the next parameter.

[ECF X] Preact Correction Frequency :

LM 3 can adjusts the preact value according to filling error of previous filling cycle. The preact adjustment is applied after every number of filling cycles which is entered in this parameter (0-9). The new preact value is calculated according to entered rate in the parameter **[C.FAC xx].**
For example, if the value of this parameter is 3, preact correction is being done after every 3 filling cycles.

Press numerical keys to change the value
Press [↵] key to advance to the next parameter.

[ZF X] Zeroing frequency :

Automatic zero is applied after every number of filling cycles entered in this parameter. This parameter can be given as from 0 to 9. If this value is zero, LM 3 does not make automatic zeroing. Zeroing can be done only if the weight is in the zero range of LM 3. If zeroing error occurs , please check the scale. The scale may need zero calibration.

Press numerical keys to change the value.
Press [↵] key to advance to the next parameter.

[dtYP X] Discharge method :

This parameter specifies the discharge method. This parameter specifies how “Discharge Delay Timer” functions during discharging. If this parameter is 0, this timer starts together with discharge input and discharging ends at the end of this timer. If this parameter is 1, during discharge this timer when the weight goes into the zero range and discharging ends at the end of this timer.

X=0 : Discharge delay timer starts by discharge command
X=1 : Discharge delay timer starts when the weight goes zero range.

Press [0] or [1] keys to change the value.
Press [↵] key to advance to the next parameter.

[N.trGt] Maximum Target :

The maximum target weight is defined by this parameter.
In filling mode 4 , this parameter specifies the weigh-in value.

Press [↵] key and enter the value by numerical keys after **[xxxxxx Kg]** prompt appears
Press [↵] key to advance to the next parameter.

[SAFEtY] Limit Safety Device :

This parameter is required only container fillings in Mode 0. If the filling valve couldn't go down through the hole , it strikes the tin/drum and causes a force. The value of this parameter specifies the maximum limit of this force. If the force is more than this value, the filling process stops and the valve goes up automatically.

Press [↵] key and enter the value by numerical keys after **[xxxxxx Kg]** prompt is seen on the display..
Press [↵] key to advance to the next parameter.

[F.Qty X] Filling quantity :

This parameter specifies if filling cycles will be counted or not. This parameter is used for modes 0,1 and 3

X=0 : No control of the number of filled drums/tins.
X=1 : Enable to control of the number of filled drums/tins.

Press [0] or [1] keys to change the value.
Press [↵] key to advance to the next parameter.

10.2 [F.Par 2] FILLING PARAMETERS 2:

[DrıbbLE] Dribble :

This parameter specifies the end of coarse feeding cycle. If the difference between the weight and the target is less than the dribble value, fast feed stops and fine feed cycle starts. For example, let the target value is 15.000 kg and the dribble value is 500 g. The coarse feeding ends when the weight is bigger then 14.500 kg.

Press [↵] key and enter the value by numerical keys after **[xxxxxx Kg]** prompt appears
Press [↵] key to advance to the next parameter.

[PrEACt] Preact :

This parameter specifies the end of fine feed cycle. If the difference between the weight and the target is less than the preact value, fine feed stops . For example, let the target value is 15.000 kg and the preact value is 100 g. The filling stops when the weight is bigger then 14.900 kg.

Press [↵] key and enter the value by numerical keys after **[xxxxxx Kg]** prompt appears
Press [↵] key to advance to the next parameter.

[C.FAC XX] Fine Feed Correction Factor :

The material flow may change because of temperature, viscosity, the height of the material changes, etc. This causes the filling errors and the preact value is needed to be changed accordingly. LM 3 follows the filling errors and adjusts the new preact value for the next filling cycle if the filling error is smaller than the value entered in parameter **[C.LıMıt]** . The adjustment rate is defined by this parameter. The new preact value is calculated by the formula below:

New preact = Preact + (Actual – Target) * Fine Feed Correction Factor/100

Press [↵] key and enter the value by numerical keys after **[xxxxxx Kg]** prompt appears
Press [↵] key to advance to the next parameter.

[C.LıMıt] Preact Correction Limit :

This parameter puts limit for preact correction. If the filling error is larger than this parameters value , the preact correction is not applied.

Press [↵] key and enter the value by numerical keys after **[xxxxxx Kg]** prompt appears
Press [↵] key to advance to the next parameter.

[drCF X]

This parameter was allocated for special cases. Not functioning on standard units.

Press [↵] key to advance to the next parameter.

[drCF X]

This parameter was allocated for special cases. Not functioning on standard units.
Press [↵] key to advance to the next parameter.

10.3 [toL.Pr] TOLERANCE PARAMETERS :

[toL X] Tolerance Control :

This parameter specifies if the tolerance control will be done after filling cycle or not.

X=0 : without tolerance control .
X=1 : with tolerance control

Press [0] or [1] keys to change the value.
Press [↵] key to advance to the next parameter.

[ovr.toL] Over Fill Tolerance :

If the over filled value is out of this tolerance value , an error is given on the display and error output becomes active.

Press [↵] key and enter the value by numerical keys after **[xxxxxx Kg]** prompt appears
Press [↵] key to advance to the next parameter.

[Und.toL] Under Fill Tolerance :

If the filled value lower than the this tolerance value, an error is given on the display and error output becomes active.

Press [↵] key and enter the value by numerical keys after **[xxxxxx Kg]** prompt appears
Press [↵] key to advance to the next parameter.

[tr.Mın] Minimum Tare :

This parameter specifies the lower limit of tare value. If the tare is less than this value, the filling cycle doesn't start. An error message is given on the display and the error output becomes active.

Press ↵ key and enter the value by numerical keys after **[xxxxxx Kg]** prompt appears.
Press ↵ key to advance to the next parameter.

[tr.MAX] Maximum Tare :

This parameter specifies the upper limit of tare value. If the tare is more than this value, the filling doesn't start. An error message is given on the display and error output becomes active.

Press ↵ key and enter the value by numerical keys after **[xxxxxx Kg]** prompt appears
Press ↵ key to advance to the next parameter.

[ZEro] Zero Range :

For the weight value in this range, the scale is considered empty.

Press ↵ key and enter the value by numerical keys after **[xxxxxx Kg]** prompt appears
Press ↵ key to advance to the next parameter.

10.4 [tıME.Pr] TIME PARAMETERS :

[C.Stb X.X] Coarse Feed Stabilisation Delay :

This timer starts at the beginning of the fast feed and prevents fast feed cut off until it has time out. It is helpful if the weight exceeds the fast feed cut off value because of material strike or any other reason. The maximum value of this parameter is 9.9 seconds.

Enter the time with numerical keys.
Press ↵ key to advance to the next parameter.

[F.Stb X.X] Fine Feed Stabilisation Delay :

The timer starts at the beginning of the fine feed and prevents final feed cut off until it has time out . The maximum value of this parameter is 9.9 seconds.

Enter the time with numerical keys.
Press ↵ key to advance to the next parameter.

[SEtt X.X] Settling time :

This parameter is specified stabilisation period of the scale at the end of filling. This time delay is used for to make an accurate tolerance control and preact adjustment. The maximum value of this parameter is 9.9 seconds.

Enter the time with numerical keys.
Press ↵ key to advance to the next parameter.

[d.Fın X.X] Discharge finish delay :

The discharge cycle always ends at the end of this timer. The maximum value of this parameter is 9.9 seconds. Please refer **[dtYP x]** parameter how this timer starts.

Enter the time with numerical keys.
Press ↵ key to advance to the next parameter.

[F.Str XX] Start Delay :

This parameter used to delay starting the process for zeroing of dead load after start input is applied . The maximum value of this parameter is 99 seconds.

Enter the time with numerical keys.
Press ↵ key to advance to the next parameter.

[d.Str XX] Discharge Start Delay :

This parameter used for delaying discharge after discharge input is applied. The maximum value of this parameter is 99 seconds.

Enter the time with numerical keys.
Press ↵ key to advance to the next parameter.

[JoG X.X] Jogging Time :

If the filled material is below the tolerance, the material is fed sequentially until it goes into tolerance. The feeding period is defined by this parameter.

Enter the time with numerical keys.
Press ↵ key to advance to the next parameter.

[LıFt X.X] Column Lifting Delay :

In the below surface filling applications , this parameter specifies the period for the valve movement from the lowest position to below bunghole position.

Enter the time with numerical keys.
Press ↵ key to advance to the next parameter.

[Ft XXX] Filling Time Limit :

If filling time exceeds filling time limit , error message displayed and filling process stops. Maximum value is 999 seconds.

Press ↵ key to advance to the next parameter.

[v.dEL X.X] Valve / Gate Control :

This parameter specifies the period for the valve /flap to take their position. For standard filling the valve goes into bunghole position until this timer out. For mode 1, the flap in front of the feeder has to be opened until this timer out.

Enter the time with numerical keys.
Press [↵] key to advance to the next parameter.

11. PROGRAMMING AND CALIBRATION

The following steps are taken to go into programming and calibration parameters:

- Disconnect the power, open the front panel and connect the calibration jumper as shown in Figure 1. Close the front panel by only one screw and power on the unit.

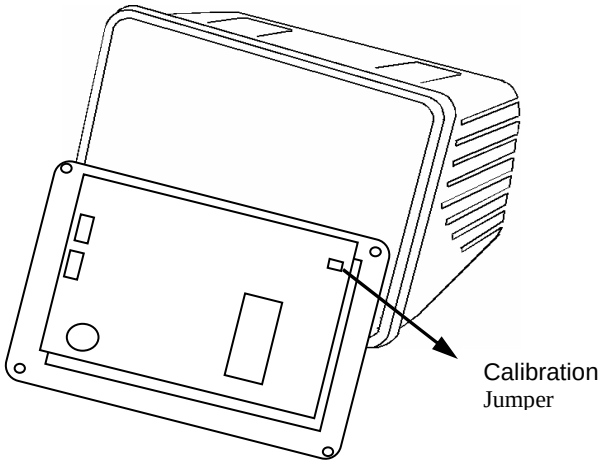


Figure 1 . Calibration jumper position of LM 3

Here is the meaning of the effective keys in the programming and calibration:

Function key is used to go out from programming and calibration.

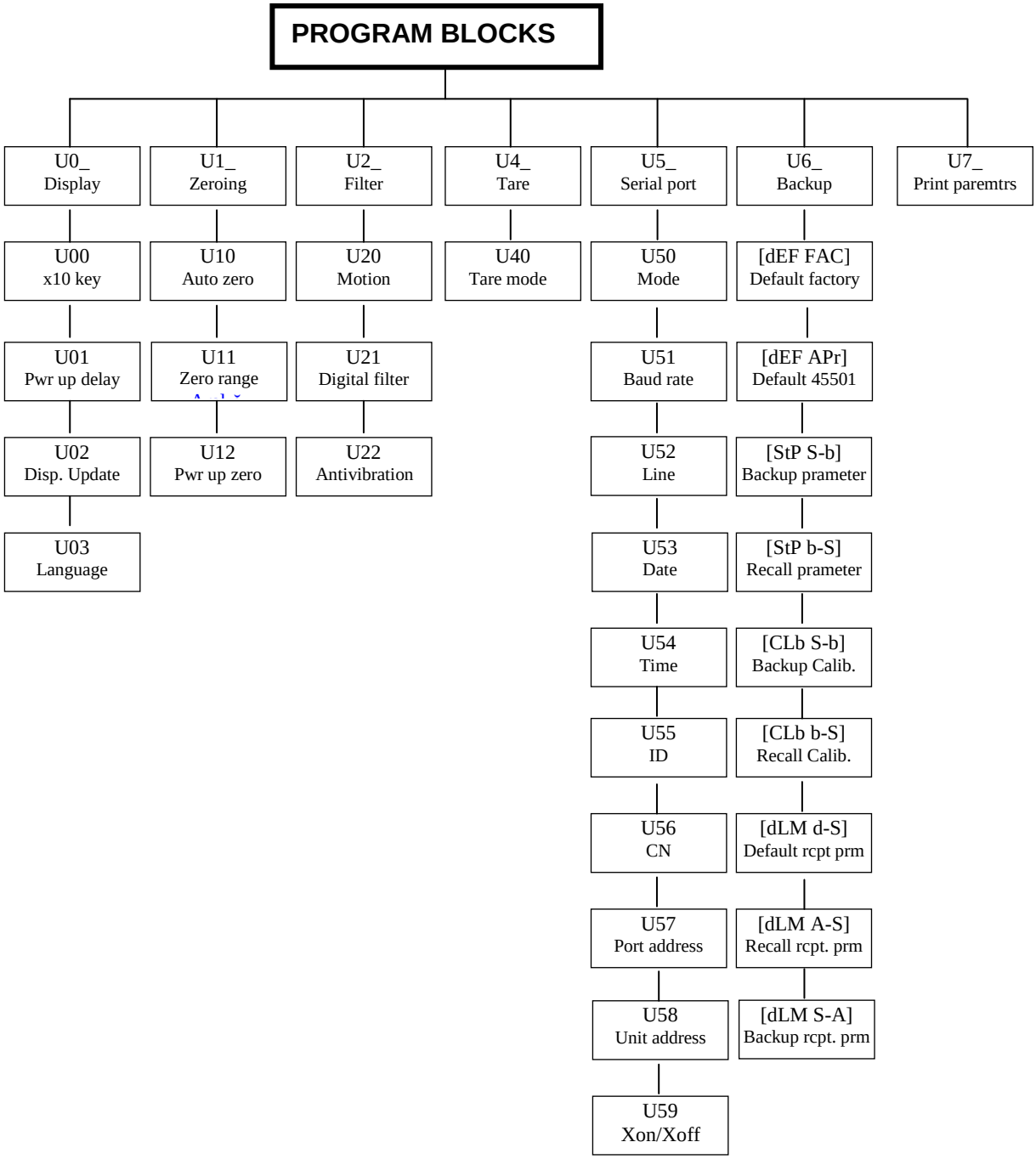
This key is used to select the sub blocks of the programming and calibration. It is also used to chance the value of the programming and calibration parameters.

This key is used to accept the value of the selected parameter and to go forward to the next parameter.

Terminating programming and calibration: To exit from programming and calibration, please press [F] key consecutively until [**save 1**] message appears on the display. You can save the entered values by [1] key. If you press [F] key, the entered values will be save until power off.

11.1. PROGRAMMING

Press [F] , [8] keys consecutively. Please enter your password and press [↵] key.
The message [U0-] will appear indicating that you are in programming mode.
As you will see in the following diagram, there exists 7 sub blocks in programming.



[U0] DISPLAY PARAMETERS

[U00 X] x 10 Expanded indication

X=0 Normal weight indication, x 10 key is disabled
X=1 Display shows normal weight data, x10 key enabled
X=2 Weight is displayed in x10 higher resolution

[↑] is pressed to select the requested value.
[↵] is pressed to go to next parameter.

[U01 X] Power up delay

X=0 Weight indication immediately after power-up.
X=1 Weight is indicated in 45 sec. after power-up.

[↑] is pressed to select the requested value.
[↵] is pressed to go to next parameter.

[U02 X] Display update rate

This parameter defines the display update rate which can be selected from 1 to 9 by [↑] key. This number is multiplied by 100 ms to find display changing speed. For example, for X= 3 , display update rate is 300 ms.

[↵] is pressed to go to next parameter.

[U03 X] Language

X=0 English
X=1 Turkish

[↑] is pressed to select the requested value.
[↵] is pressed to go to next parameter.

[U1] ZEROING PARAMETERS

[U10 X] Automatic zero :

Weight indication around centre zero within the selected values will automatically be compensated to zero.

X=0 Auto zero disabled.
X=1 +/- 0.5 increments.
X=2 +/- 1 increments.
X=3 +/- 2 increments.
X=4 +/- 3 increments.

[↑] is pressed to select the requested value.
[↵] is pressed to go to next parameter.

[U11 X] Zero range :

Zero button will be effective within the weight range below.

X=0 Zero button is not active.
X=1 %2 of scale capacity.

[↑] is pressed to select the requested value.
[↵] is pressed to go to next parameter.

[U12 X] Power-up zero :

When LM 3 is powered on, the weight indication within the selected weight limits will automatically be compensated to zero. If the weight value is bigger then the selected limits, **[E E E]** message is given. In this case, [↵] key is pressed to go into weighing mode.

X=0 Disables power-up zero.
X=1 +/- %2 of scale capacity.
X=2 +/- %10 of scale capacity.

[↑] is pressed to select the requested value.
[↵] is pressed to go to next parameter.

[U2] FILTER PARAMETERS BLOCK

[U20 X] In motion detector :

This parameter defines if the weighing is stable. It can be entered via numeric keys from 0,0 to 9,9. If the weight indication is within the entered value, then, the weighing considered as stable. Zero, Tare and Print keys are inhibited if the scale is in-motion. X=0.0 disables in motion detector.

[↵] is pressed to go to next parameter.

[U21 X] Normal filter :

This is standard digital filter against wind or other environmental affects.

X=0 No Filter
X=1 Low level
X=2 Medium level
X=3 High level
X=4 Very high level

[↑] is pressed to select the requested value.
[↵] is pressed to go to next parameter.

[U22 X] Anti-vibration filter :

This filter is particularly affective against vibration because of mixing, feeding.

X=0 No filter
X=1 Very low level
X=2 Low level
X=3 Medium level
X=4 High level

[↑] is pressed to select the requested value.
[↵] is pressed to go to next parameter.

[U4] TARE PARAMETERS BLOCK

[U40 X] Tare mode :

X=0 : Disable tare function.
X=1 : Tare can be taken by tare button and via parallel input and via serial port.

[↑] is pressed to select the requested value.
[↵] is pressed to go to next parameter.

[U5] SERIAL PORT PARAMETERS BLOCK

[U50 X] Serial data mode :

X=0 : No serial data.
X=1 : Test mode
X=2 : Standart-1 data format
X=3 : Standart-2 data format
X=4 : Continuous data format

[↑] is pressed to select the requested value.
[↵] is pressed to go to next parameter.

[U51 X] Baud rate :

X=0 : 1200 Baud
X=1 : 2400 Baud
X=2 : 4800 Baud
X=3 : 9600 Baud
X=4 : 19200 Baud

[↑] is pressed to select the requested value.
[↵] is pressed to go to next parameter.

[U52 X] Line feed :

This parameter defines the number of line feed at the end of ticket. Can be entered from 1 to 9 via numeric keys.

[↑] is pressed to select the requested value.
[↵] is pressed to go to next parameter.

[U53 X] Date :

X=0 : Date will not be printed.
X=1 : Date will be printed.

[↑] is pressed to select the requested value.
[↵] is pressed to go to next parameter.

[U54 X] Time :

X=0 : Time will not be printed.
X=1 : Time will be printed.

[↑] is pressed to select the requested value.
[↵] is pressed to go to next parameter.

[U55 X] Identification code (ID) :

X=0 : ID will not be printed.
X=1 : ID will be printed.

[↑] is pressed to select the requested value.
[↵] is pressed to go to next parameter.

[U56 X] Consecutive number (CN) :

X=0 : CN will not be printed.
X=1 : CN will be printed.

[↑] is pressed to select the requested value.
[↵] is pressed to go to next parameter.

[U58 X] Unit address :

LM 3 can be configured as a unit address by this parameter. This number can be given from 1 to 9. 0 means no address.

[↵] is pressed to go to next parameter.

[U59 X] Xon / Xoff :

X=0 : Xon / Xoff disable.
X=1 : Xon / Xoff enable.

[↑] is pressed to select the requested value.
[↵] is pressed to go to next parameter.

[U6] BACKUP PARAMETERS BLOCK

In this block, the backup operations are organised. Before going into parameter details, here is some details about various memory areas to keep parameters.
Default memory is the memory area to keep factory settings. You cannot change those values, but, you can only reload them. Approval memory is the area which contains the parameters required by usage for trade. Those parameters can only be reloaded. System memory is your operation memory which contains your actual programming, calibration and recipe parameters. Backup memory is the area which is used to save and reload operation parameters.

PLEASE BE VERY CAREFUL NOT TO DESTROY YOUR SETUP AND CALIBRATION VALUES IN THIS BLOCK.

[dEF FAC] Loading factory default parameters as programming parameters :

Please press 1 key to reload factory default parameters.

[dEF Apr] Loading legal for trade approved parameters as programming parameters :

Please press 1 key to reload the parameters required by EN 45501. This is used for if LM 3 is a scale terminal.

[StP S-b] Storing actual programming parameters to backup memory :

Please press 1 key to store programming parameters in Backup memory.

[[StP b-S] Reloading programming parameters from Backup memory :

Please press 1 key to reload operation programming parameters from Backup memory.

[[CLb S-b] Storing actual calibration parameters to backup memory :

Please press 1 key to store calibration parameters in Backup memory.

[[CLb b-S] Reloading calibration parameters from Backup memory :

Please press 1 key to reload operation calibration parameters from Backup memory.

[[dLM d-S] Loading factory default parameters as recipe parameters :

Please press 1 key to reload factory default parameters as recipe parameters.

[[dLM A-S] Reloading stored recipe values to system memory :

Please press 1 key to reload recipe values from Backup memory.

[[dLM S-A] Storing recipe values to backup memory :

Please press 1 key to store recipe values to Backup memory.

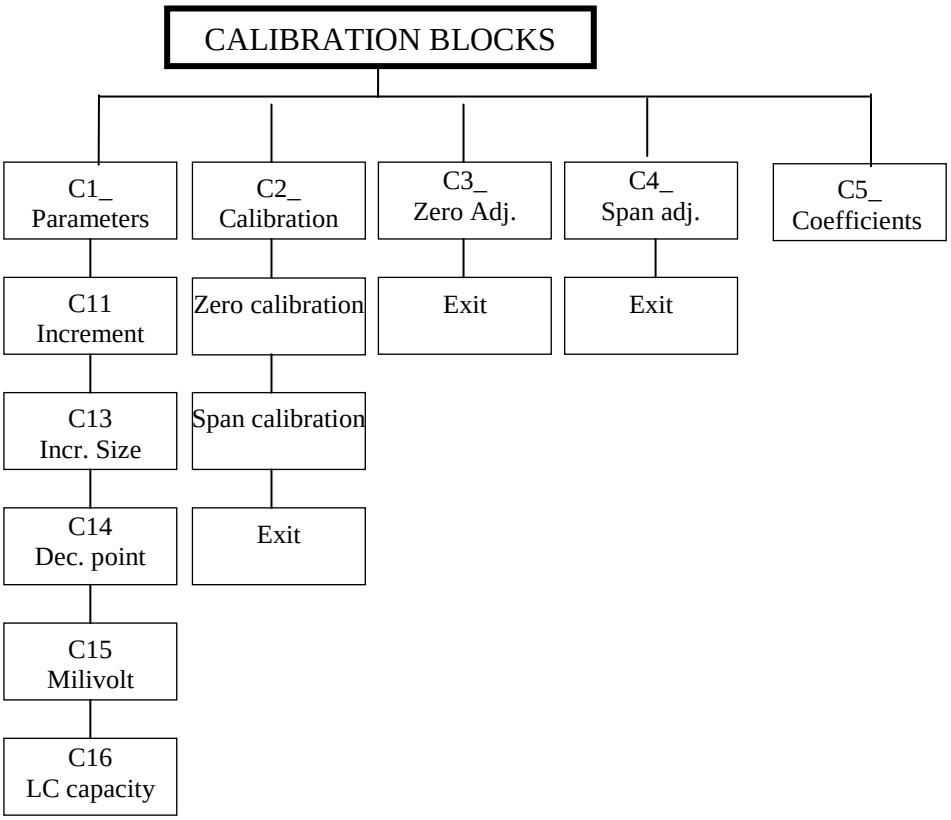
[U7] PRINTING SETUP PARAMETERS

You can get the list of all setup parameters printed by going into this block and pressing ↵ key. **[Prınt]** message appears and LM 3 will return to [**U0-**] parameter block after printing.

11.2 CALIBRATION

To go into calibration:

- Please press F , 9 keys consecutively, type in the password and press ↵ key.
- The message **[C1-]** will appear on the display. There exists 4 main block in the calibration menu. You can select the requested block by ↓ keys and press ↵ key to go into the selected block.
- F is pressed to go out from any block.



[C1] Calibration Parameters Block

[C11 X] Increment Number

Please select your increment size by pressing ↑ keys from 1000 to 20000. The possible values for increment size are indicated in Table I. The relation between scale capacity and increment size can be found in section " Relation between scale capacity and increment size".
↵ is pressed for the next step.

[C13 X] Increment size

Can be selected as 1,2 or 5. Indicates step of increment on the display.
↑ is used to select the requested value.
↵ is used to go to next step.

[C14 X] Decimal point

Decimal point can be selected as 10, 1 , 0.1 , 0.01 , 0.001 and 0.0001 .
↑ is used to select the requested value.
↵ is used to go to next step.

[C15 X.X] Load cell sensitivity

The load cell sensitivity is typed via numeric keys from 0.0 to 9.9 mV/V.
↵ is used to go to next step.

[C16 X] Maximum load cell capacity

Maximum load cell capacity is multiplication of number of cells and load cell capacity. For example, for 4 load cells each with the 1000 kg in the scale, the maximum load cell capacity is 4000 kg. You can type this value by numeric keys and press ↵ key to go to next parameter.

Relation between scale capacity and increment size

The Table.I the possible values for C11, C13 and C14 are indicated.

C11	1000, 1500, 1600, 2000, 2500, 3000, 4000, 5000, 6000, 7500, 8000, 10000, 12000, 15000, 16000, 20000
C13	1, 2, 5
C14	0.0001, 0.001, 0.01, 0.1, 1 , 10

Table.I: Possible values for C11, C13 and C14

Scale capacity= C11 x C13 x C14
C13= Readibilty/ C14

Example 1 : Let the scale is 100 kg x 0.02 kg (20 g)

Capacity : 100 kg
Readability : 0.02 kg
Decimal point : 0.01

C14= 0.01
C13= 0.02/C14= 0.02/0.01=2
C11= Scale capacity/ C13xC14= 100/ 0.01 x 2 = 5000

Example 2: Let the scale is 1500 kg x 0.5 kg (500 g)

Capacity : 1500 kg
Readability : 0.5 kg
Decimal point : 0.1

C14= 0.1
C13= 0.5/C14= 0.5/0.1=5
C11= Scale capacity/ C13xC14= 2000/ 0.1 x 5 = 4000

Example 3: Let the scale is 60000 kg x 20 kg

Capacity: 60000 kg
Readability: 20 kg
Decimal point : 1

C14= 10
C13= 20/C14= 20/10=2
C11= Scale capacity/ C13xC14= 60000/10 x 2 = 3000

IMPORTANT NOTE:
If C11 is calculated between any 2 numbers in Table.I, the bigger will be selected.

[C2] Calibration Block

1- The message [**Zero CL**] comes on the display. Please unload scale and press ↵ key. The message [**dELAY**] will come to the display. LM 3 is now getting zero value of the scale. It will take about 10 seconds and please do not touch the scale during this period.

2- The message [**CALB W**] appears and a value comes to display in 5 seconds. This value is the last entered test weight for span calibration. You can use this test weight or enter the new one. Please place the test weight on the scale and enter this value via numeric keys and press ↵ key. [**Gaın CL**] message appears. Press ↵ key and the [**dELAY**] message appears. LM 3 is now getting known the test weight value and doing span calibration. It will take about 10 seconds and please do not touch the scale during this period.

3- After delay period [**CALL End**] and [**SAvE 1**] messages appears consecutively. Please press 1 key to save the new calibration. If, F key is pressed, the new calibration will be lost after power off.

[C3] ZERO ADJUSTMENT

If the zero of the scale is changed by any reason, only zero adjustment is done without complete calibration steps in this block. [**Zero CL**] message appears when you enter this block. Please empty the scale and press ↵ key. The message [**dELAY**] appears for about 30 sec. Please do not touch the scale during this period. After this period first [**CALL End**] message appears and then [**SAvE 1**] message comes. Please press 1 key to save the new zero. If, F key is pressed, the new zero value will be lost after power off.

[C4] SPAN ADJUSTMENT

If the span calibration of the scale is changed by any reason, only span calibration is done without complete calibration steps in this block. [**CALB W**] message appears when you enter this block. Please press ↵ key and the value of the last test weight appears on the display. You can use the old test weight or change it. Please place the test weight on the scale and type in this value via numeric keys and press ↵ key. [**Gaın CL**] message appear and press ↵ key. The [**dELAY**] message appears. LM 3 now gets known the test weight value and doing span calibration. It will take about 20-30 sec and please do not touch the scale during this period.

After delay period [**CALL End**] and [**SAvE 1**] messages appears consecutively. Please press 1 key to save the new calibration. If, F key is pressed, the new calibration will be lost after power off.

[C5] CAL. COEFFICINTS

In this block, you can see 8 values by pressing Enter key. Please write down those values after the calibration. In case of the calibration is lost, those values are entered to calibrate the scale without calibration.

12. TESTING PARALEL I/O AND SERIAL PORTS

You can reach test menu by pressing [F] and [6] keys consecutively and enter password. **[t0_]** message appears on the display. You can reach the requested test by [↑] key or [F] key is pressed to exit from the test menu.

8.2 Parallel Output Test :

Please press [↑] key until **[t0_]** message appears and press [↵] key. The message **[t00 0]** comes to display. The first 3 digit indicates the output number and the digit on the right shows the status of this output. [↑] key is pressed to select output numbers. You can change the status of output by pushing 0 or 1 keys. Please press [F] key to exit.

8.1 Parallel Input Test :

Please press [↑] key until **[t1_]** message appears and press [↵] key. The message [**t1 XXXX**] comes to display. Each digit on the display shows the status of the inputs respectively. X= **0** means no input and X=**1** means an input is applied.
Please press [F] key to exit.

8.3 Serial Port Test:

Please press [↑] key until [**t2_] message appears and press [↵] key. The message [**t2] comes to display. If you press any key (X) of LM 3, the display changes as [**t2_ X _]** and the ASCII value of this key is sent via serial port. If any value received from serial port, the display changes as [**t2_ X_ X**].
If you connect RXD and TXD pins of serial port connector and apply this test, you can read the value of the pressed key (X) on the display as [**t2_ X_ X**].
Please push [F] key to exit.

13. SERIAL DATA INTERFACE

Baud rate is selectable from 1200 to 19200. 8 bit data, no parity and 1 stop bit is standard. Other adjustments can be done in parameter U5.

13.1 Test data for start-up (U50=1) :

This parameter can be used during start-up of the filling machine. The filling result together with some filling parameters printed automatically after filling cycle. The effect of the filling parameters on filling result can be followed easily and gives idea for the best values to get best filling result.

13.2 Standart-1 Data output (U50=2):

At the end of the filling, LM 3 sends the filling report in single line as indicated below.

Date					Time					ID						CN						Gross		
MSD		LSD	SP	SP	MSD		LSD	SP	SP	MSD		LSD	SP	SP	SP	MSD		LSD	SP	SP	SP	MSD		LSD

					Tare							Net								
SP	SP	SP	SP	SP	MSD		LSD	SP	SP	SP	MSD		LSD	SP	CR	LF

DATE

D	D	/	M	M	/	Y	Y	Y	Y

Msd Lsd

TIME

H	H	/	M	M

Msd Lsd

ID

I	D	=	D4	D3	D2	D1	D0

Msd Lsd

CN

C	N	=	D5	D4	D3	D2	D1	D0

Msd Lsd

GROSS

G	=	SP	D6	D5	D4	D3	D2	D1	D0	K	g

Msd Lsd

TARE

T	=	SP	D6	D5	D4	D3	D2	D1	D0	K	G

Msd Lsd

NET

N	=	SP	D6	D5	D4	D3	D2	D1	D0	K	g

Msd Lsd

[SP] : Space
[CR] : Carriage return
[LF] : Line feed
[Msd] : Most significant digit
[Lsd] : Least significant digit
[Dx] : Data

13.3 Standart-2 Data Output (U50=3) :

At the end of first filling cycle, the headlines such as Date, Time, ID, CN are printed together with the filled weight. After the following filling cycles only the filled weight values are printed as the next lines. To terminate the printing, press the total key first and press the print key while the total weight is displayed.

13.4 Continuous Data Output (U50=4) :

Data is transmitted continuously as indicated below.

	STATUS			GROSS							TARE							
STX	STA	STB	STC	D6	D5	D4	D3	D2	D1	D0	D6	D5	D4	D3	D2	D1	D0	CR

14. LOAD CELL AND SERIAL PORT CONNECTORS

14.1 LOADCELL CONNECTOR (DB9 FEMALE)

PIN NO	MEANING	LOAD CELL 6 LINE CABLE	LOAD CELL 4 LINE CABLE
1	+ EXCITATION	+ EXCITATION	+ EXCITATION
2	+ SENSE	+ SENSE	+ EXCITATION
3	SHIELD	SHIELD	SHIELD
4	- SENSE	- SENSE	- EXCITATION
5	- EXCITATION	- EXCITATION	- EXCITATION
7	+ SIGNAL	+ SIGNAL	+ SIGNAL
8	- SIGNAL	- SIGNAL	- SIGNAL

14.2 RS 232C SERIAL PORT CONNECTOR (DB9 MALE)

PIN NO	MEANING
2	TXD
3	RXD
7	GND

15. SPARE PART LIST

Order code	Name
LM 3/10	**Housing- Desk top**
LM 3/11	Housing- Panel type
LM 3/12	Housing- Wall mount
Lm 3/2	Front panel membrane
LM 3/3	Main board
Lm 3/42	Display board
LM 3/50	Power supply board
Lm 3/51	Power supply line filter
LM 3/71	Load cell connector
Lm 3/72	Parallel port connector
LM 3/73	Serial port connector

16. ERROR TABLE

16.1 Filling errors

Codes	Description	Solution
E GatE	The discharge gate is open during filling or close during discharging.	- Check the gate - Check the output signal by I/O test
E VLV	Filling valve is not at proper position	- Check the pneumatic valve and cylinder. - Check the output signal by I/O test
E VLVH	Drum is not being properly positioned.	- Provide proper drum position - Check SAFEtY device parameter.
E Zero	Entered zero range in recipe is over.	- Press Start to acknowledge the error. - Zero the scale - Check the recipe zero range
no rEC	Recipe is not defined	- Enter recipe
E StbL	Weight is not stable	- Wait for the stability
E oVEr	Weight is over range	- Decrease the weight - Check the load cell
E trGt	Target is more the scale capacity	- Enter proper target value
E FtıME	Max. filling period ended	- Press Start to acknowledge the error. - Check the material flow - Increase filling period
E tare	Tare is out of range	- Press Start to acknowledge the error. - Check your tare tolerances
E Zer H	Out of scale zero range	- Clean the scale or recalibrate
E WGht	Insufficient weight to be discharged (Mode 4)	- Add material

16.2 Scale errors

Codes	Description	Solution
UndEr	Scale is under range	- Check the scale and load cell - Check calibration - Main board error
OWEr	Scale is over range	- Check the scale and load cell - Check calibration - Main board error
AdC oUt	Weight is out of range	- Check the scale and load cell - Check calibration - Main board error
- EEE	Power up zero cannot be executed. Auto zero range is out of range in minus	- Press enter key - Check the scale and load cell - Check calibration
EEE	Power up zero cannot be executed. Auto zero range is out of range in positive	- Press enter key - Check the scale and load cell - Check calibration
SSSS	Power up timer is in process	- Check the scale and load cell - Check calibration - Main board error
Err 1	NOVRAM error	- Contact to Baykon
Err 2	NOVRAM error	- Contact to Baykon
Err 3	RTC error	- Contact to Baykon
Err 4	RTC error	- Contact to Baykon
Err 11	Setup parameters checksum error	- Press print key. Reload or backup the parameters.
Err 12	ID memory checksum error	- Press print key to clear ID and totals.
Err 13	Total memory checksum error	- Press print key to clear total
Err 14	Calibration novram checksum error	- Press print key. Please check the scale calibration.
Err 15	Memory checksum error in standard 2 printout.	- Press print key to clear memory.
Err 16	Calibration parameters checksum error	- Press print key. If need be calibrate the scale.
Err 17	Header checksum error	- Press Print key. Reload header.
Err 18	Filling parameters error	- Press Print key. Reload or backup the parameters.
Err 33	Calibration weight is not sufficient.	- Press Print key and increase calibration weight.
Err 34	Zero calibration error	- Press Print key. Check the scale and recalibrate it.
Err 35	Gain calibration error	- Press Print key. Recalibrate scale - Check load cell connections. - Check the scale. - Change main PCB.
Err 37	Scale is in motion	- Provide stabile conditions during calibration. - Check ground connection.
E AdC	Weight is out of range	- Check the load cell - Check the calibration - Replace the main board

17. PARAMETERS LIST

Parameter	Factory Default values	Legal for trade default values	Appliciable values for sealed scales
U00	0	1	0, 1
U01	0	1	1
U02	0	3	1, 2, ….., 9
U03	1	1	0, 1
U10	1	1	0, 1
U11	1	1	0, 1
U12	0	0	0, 1, 2
U20	1.0	0.4	0.0, …., 0.4
U21	1	1	0, 1, 2, 3, 4
U22	1	1	0, 1, 2, 3, 4
U40	1	1	0, 1
U50	2	2	0, 1, 2, 3, 4
U51	3	3	0, 1, 2, 3, 4
U52	1	1	1, 2, ….., 9
U53	0	0	0, 1
U54	0	0	0, 1
U55	0	0	0, 1
U56	0	0	0, 1
U58	0	0	0, 1, ….., 9
U59	0	0	0, 1
C11	10000	3000	Up to 6000
C13	1	1	All values
C14	0.001	0.1	All values
C15	2.0	2.0	
C16	20.000	635.0	
0			
1			
2			
3			
4			
5			
6			
7			

18. DIMENSIONS

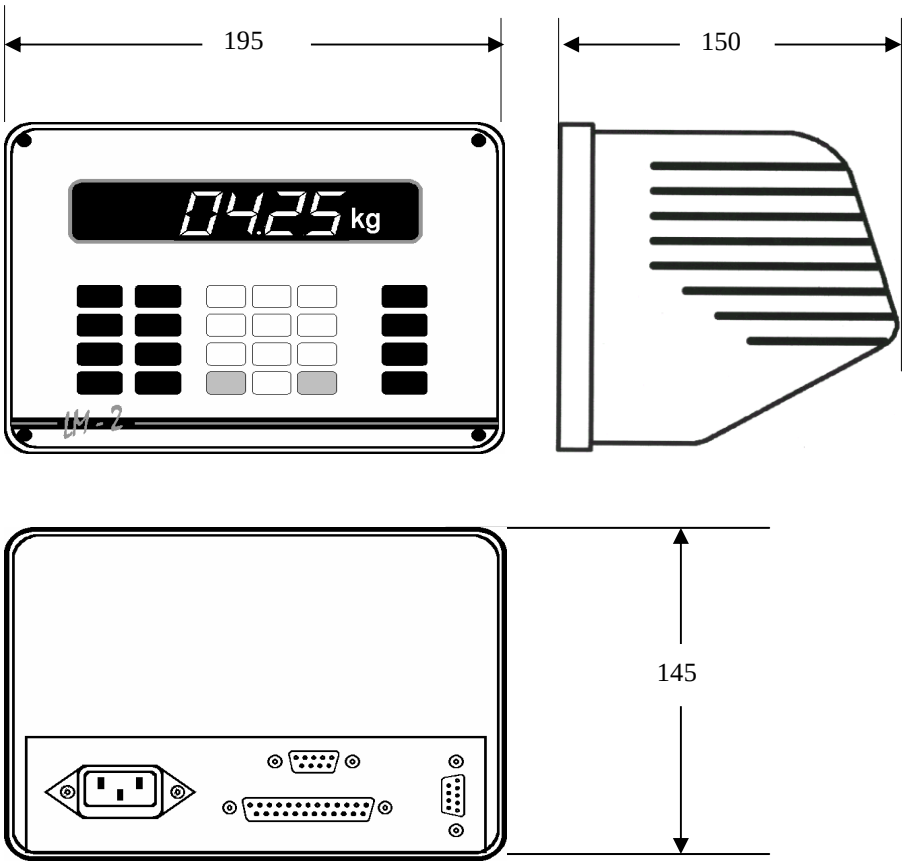


Figure 2. LM 3 layout and dimensions

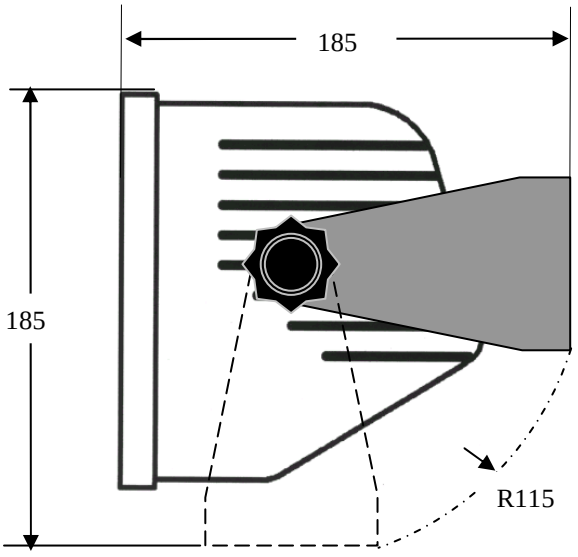


Figure 3. LM 3 wall mount dimensions

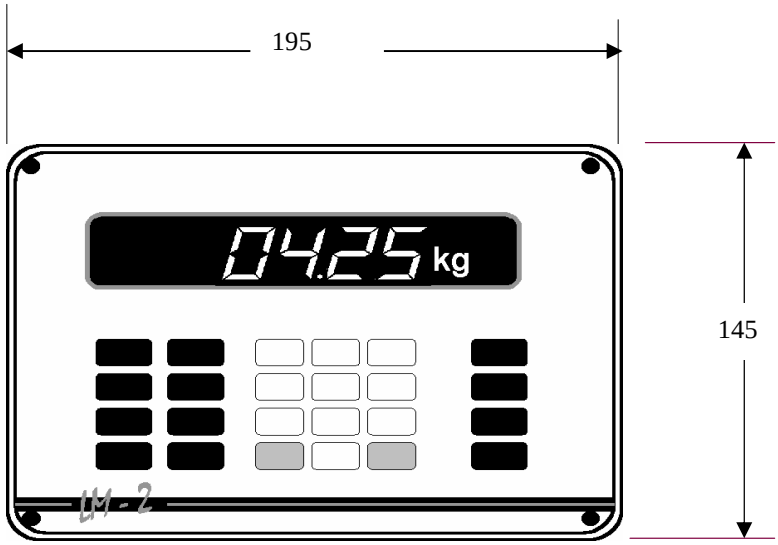


Figure 4. Panel type front view and dimensions

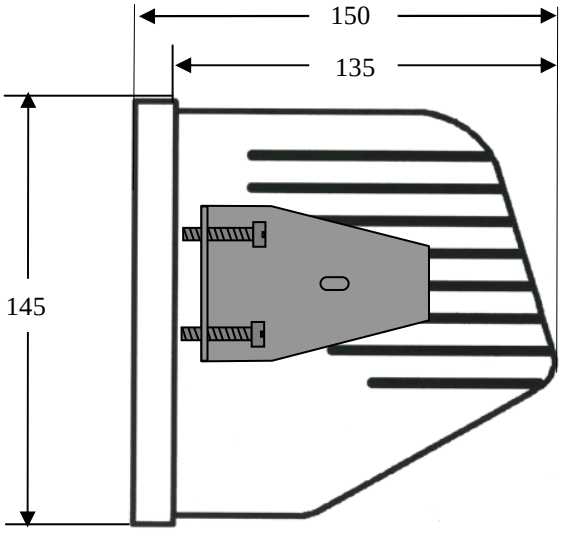


Figure 5. LM 3 Panel mount side view and dimensions

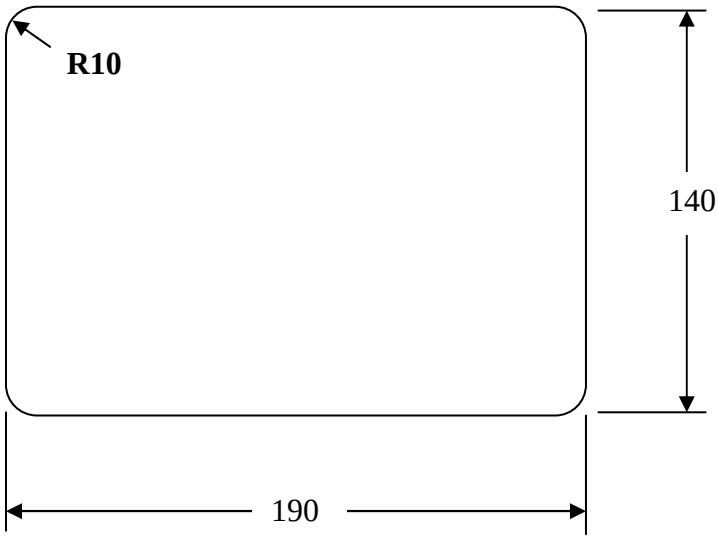


Figure 6. Panel cut off dimensions for LM 3 panel type

19. APPENDIX I:

STATUS BYTES OF CONTINUOUS DATA OUTPUT

Status word A			
Bit 0, 1 and 2			
0	**1**	**2**	**Decimal point**
0	0	0	XXXXOO
1	0	0	XXXXXO
0	1	0	XXXXXX
1	1	0	XXXXX.X
0	0	1	XXXX.XX
1	0	1	XXX.XXX
0	1	1	XX.XXXX
1	1	1	X.XXXXX
Bit 3 and 4			**Readibilty**
3	**4**		
1	0		X 1
0	1		X 2
1	1		X 5
Bit 5			Always=1
Bit 6			Always=1
Bit 7			Not used

Status B	
Bit 0	**Gross=0, Net=1**
Bit 1	Weight positive=0, Weight negative=1
Bit 2	Over weight=1
Bit 3	Stabile=0, In-motion = 1
Bit 4	Kg=1
Bit 5	Always = 1
Bit 6	Zeroed when powered up.
Bit 7	Not used

Status C	
Bit 0	**Always = 1**
Bit 1	Always = 1
Bit 2	Always = 1
Bit 3	Always = 1
Bit 4	Always = 1
Bit 5	Always = 1
Bit 6	Always = 1
Bit 7	Always = 1

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