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WEIGHING CONTROLLER TYPE MCE9625L

Installation guide for system with digital loadcells and LED display

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2) Installation

2.1 Introduction

This manual describes installation of the EILERSEN ELECTRIC weighing controller type MCE9625L (with LED display) with 1-8 digital loadcells with MCE9610 loadcell modules (Microchip PIC17 based):

- Connection of up to eight loadcells. All loadcells must be used in the same weighing system.
- Three digital inputs (5-30VDC) and three digital outputs (24VDC).
- RS485 connection between loadcells and MCE9625 display.
- Two RS232 interfaces
- One RS422/RS485 interface.

This manual is to be used in combination with the *Users guide* for the installed software and applies to software of type: STDLED, LEDLIM, LEDRCP and software derived from these standard applications.

2.2 Mains

The supply should be as stable as possible. Avoid connecting the weighing terminal to the mains at points where interference generating equipment is connected. The earth connection should only be made if a sufficiently noise-free earth is available (a separate earth connection may be required). It is **strongly** recommended that the weighing system is always powered.

As soon as power is applied the following will happen:

- The display unit will perform a display test; the two displays and the LEDs are switched on. By looking at the display, the user of the terminal can check that the two displays and all LEDs are operative.
- The application checksum is verified (the display will show "`CS rEAd`" and then "`CS ACCEpt`").
- The display will show "`SELEct SEtUp`" to allow the user to enter BIOS setup. Please refer to the separate BIOS manual for details.
- The application program is started (the display shows "`StArt`").
- The software version is displayed.
- The compilation date and time of the software is displayed.
- The terminal will perform a power-up print of the application version and the parameters (the display will show "`Print P.UP`"; please refer to the separate *Users guide* for channel and communication settings).
- The terminal is now ready for weighing.

If an error is present during power-on the upper display will show "`--P.UP.--`", while the lower display will show the error code. To select normal reading press `[Esc]` (= `[Shift]` + `[Del]`). The error may then be corrected by correcting parameter setting etc.

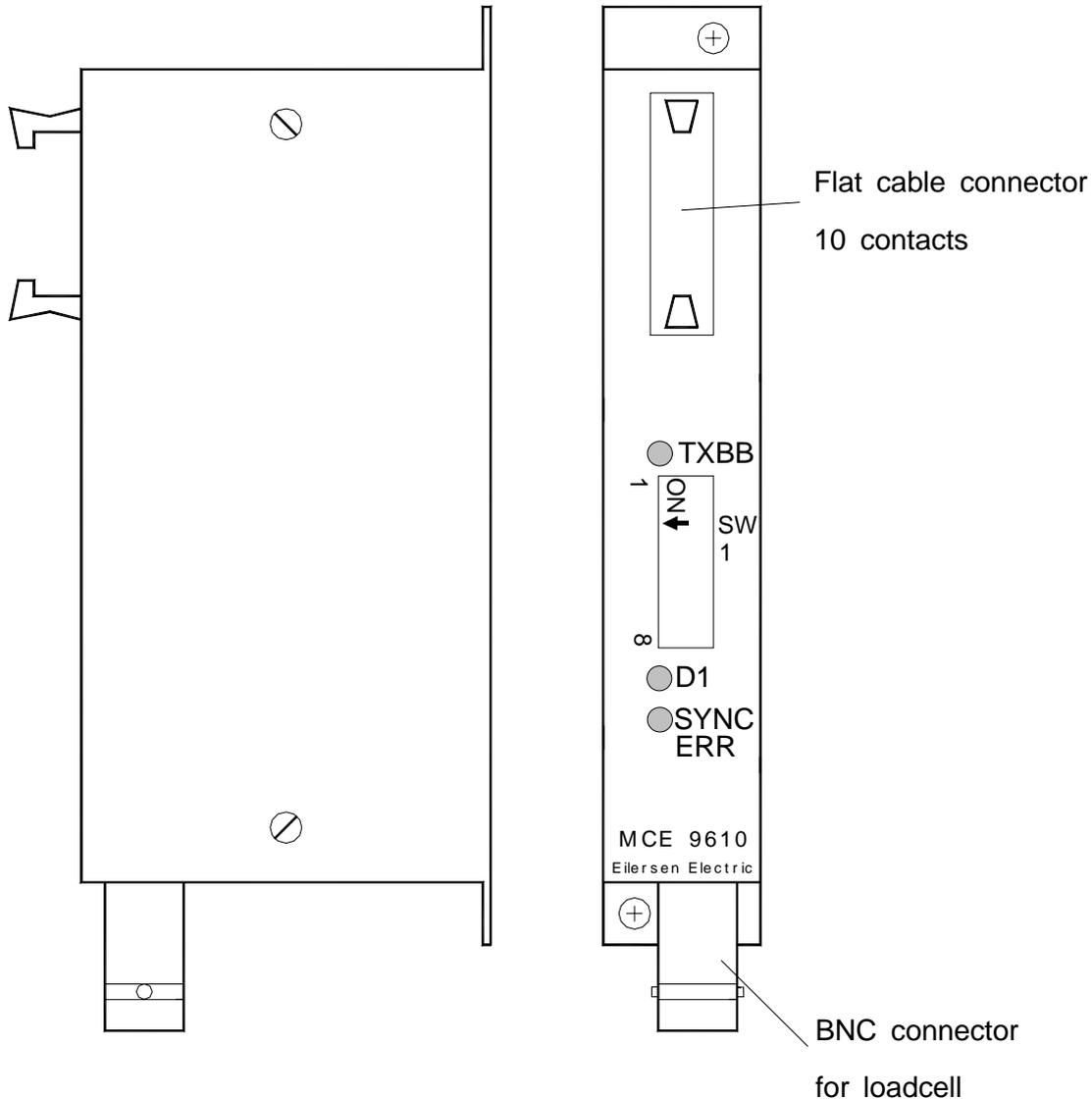
2.3 Loadcell modules (MCE9610)

Below the layout of the MCE9610 loadcell module is shown. Before using the system the loadcells must be connected to the loadcell modules.

Please notice that the loadcell and the PIC in the loadcell module **MUST** have the same number. Loadcells and loadcell modules **MUST NOT** be mixed. The loadcell module **MUST** be connected to exactly the loadcell it is intended for and vice versa.

All switches (SW1) in the loadcell module must be at the correction position.

Please notice that the switches are only read at power-up. So if a change in the switch setting is necessary the power has to be disconnected and then reconnected (after 10 seconds) before the MCE9610 loadcell module recognises the new switch setting.



The LED's are used to indicate the following conditions:

MCE9610 LED'S		
TXBB	Green	Communication. Must be on/flashing rapidly whenever the system is has started the application program.
D1	Yellow	No synchronisation between loadcell modules: One or more loadcells not connected to loadcell module or poor connection.
SYNC ERR	Red	No loadcell synchronisation: No loadcell connected to loadcell module or poor connection.

The switches SW1.1-4 are used to select different modes of operation. Normally when used with a MCE9625 the default settings must be used.

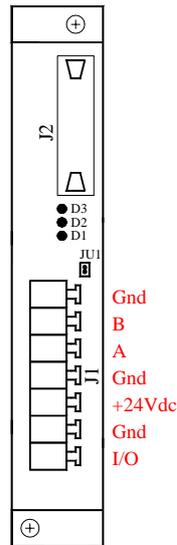
MCE9610 SW1.1-4		
SW1 No	Default setting	Function
1	OFF	Test mode
2	ON	Filter
3	ON	Compensation look-up table (for some loadcell module software versions this feature is always enabled)
4	OFF	Baud rate OFF: 115200 ON: 9600

Switch SW1.5-8 is used for address selection. All loadcell modules must have unique addresses ascending from 0 with no gaps. In systems with 1-8 load cells switch SW1.5 must be set to OFF. Please refer to the separate manual for special systems using more than eight loadcells for further details.

MCE9610 SW1.6-8				
SW1.5	SW1.6	SW 1.7	SW1.8	Address
OFF	OFF	OFF	OFF	0
OFF	OFF	OFF	ON	1
OFF	OFF	ON	OFF	2
OFF	OFF	ON	ON	3
OFF	ON	OFF	OFF	4
OFF	ON	OFF	ON	5
OFF	ON	ON	OFF	6
OFF	ON	ON	ON	7

2.4 MCE9601 Terminal Module

Below the layout of the MCE9601 terminal module is shown. The MCE9601 module is used for connection between the Eilersen Electric digital loadcell bus at one side and power supply/equipment at the other side.



The J1 terminal block is used for connection of the following:

- Terminals **Gnd** and **B** (-) and **A** (+) gives access to the RS485 bus of all equipment connected to the loadcell bus. These terminals are used to connect it to the loadcell modules.
- Terminals Gnd and +24Vdc provides external power to the equipment connected to the loadcell bus. These terminals has to be connected to an external +24VDC power supply.
- Terminals Gnd and I/O are the internal synchronization signal used by the loadcell modules. Normally these terminals have no external connection and must be left open.

The J2 connector is used for connecting equipment (loadcell modules, communication modules etc.) on the digital loadcell bus by using the supplied ribbon cable with mounted connectors.

The JU1 jumper is used for hardware synchronisation. Normally this jumper should be left in the default factory setting which is ON.

The light emitting diodes on the MCE9601 module have the following function:

LED	Function
D1 (Green)	RS485 Communication. This LED should be ON during normal operation (Actually it is flashing quickly, but this can look like a steady light).
D2 (Yellow)	This LED should be OFF during normal operation. If this lamp is lit, the I/O pin are at reversed polarity.
D3 (Red)	Hardware Synchronisation. This LED should be ON during normal operation (Actually it is flashing quickly, but this can look like a steady light).

2.5 Installation of the system

First check that the weight display is showing no status codes (the display could however be showing “OL” or “UL” to indicate that the weight is out of range). If a status code is shown please see below for the reason and correct the error.

Please notice that all parameter description texts used below assumes that the language parameter is set to *English*.

Please notice that parameter numbers can differ slightly for some special software. Please refer to the separate *Users guide* for a complete description of parameters and parameter numbers.

Installation of the system is done by following the instructions given in his section sequentially.

- Entering of number of loadcells and loadcell factor
- Entering of weighing range parameters
- Tare compensation (Coarse taring)
- Checking loadcell connection
- Corner calibration (where applicable)
- Fine adjustment of calibration (where applicable)
- Linearization (where applicable)
- Entering of parameters for analog output (optional)

2.6 Weighing range parameters

To be able to use the scale the following weighing range parameters must be entered.

Weighing range parameters			
Group	Parameters	No	Display tekst
Calibration	Loadcell factor	19	LC. FAC.
Range Normal reading	Number of loadcells	20	LC no.
	Unit (kilogram, gram or tons)	21	Unit
	Decimal point position (0-3)	22	d.dPno
	Display division (0.001 – 5 kg)	23	d.div.
	Minimum weight	24	d. ULSP
	Maximum weight	25	d. OLSP
Range Calibration	Decimal point position (0-3)	32	c.dPno
	Display division (0.001 – 5 kg)	33	c. div.
	Minimum weight	34	c. ULSP
	Maximum weight	35	c. OLSP

2.6.1 Number of loadcells

The number of loadcells connected must be entered as the first . This is done by selecting parameter reading (**F5**), parameter 20 ("**LC. no.**") and then enter the desired number (1-16). This value is used to check the number of loadcells connected during power-on. Of these values do not match an error code will be displayed (8000).

2.6.2 Loadcell factor (optional)

In some programs it is possible to set the number of supports divided by the number of loadcells. This is done by selecting parameter reading (**F5**), parameter 19 ("**LC. FAC.**") and then enter the desired factor (1-6). If a tank with 3 legs has only one loadcell the value 3 is entered , while 4 legs and 2 loadcells will give the factor: 2.

Please notice that this feature is optional and not present in all programs. If present the factor must be entered **before** the parameters described below.

2.6.3 Other settings

The *unit*, the *decimal point position* and the *division* is selected by selecting *parameter mode* (**F5**) and selecting (**F1**, **F2**) the desired parameter and then using **.** (or **Del** = **Shift** + **.**) to cycle through the allowed values. The *maximum* and *minimum weight* is entered by selecting *parameter mode* (**F5**) and selecting (**F1**, **F2**) the desired parameter and then start entering the new value (**0**-**9**, **±**). Then value entered are the weight at which the code "O.L." and "U.L." will indicate that the weight is out of range. The *minimum weight* is normally a negative number (otherwise the display will read "U.L." when the weight is empty). Negative numbers are entered by pressing **±** as the first key.

2.7 Tare compensation (Coarse taring)

To compensate for the weight of the weighing arrangement, execute the following procedure:

1. The weighing arrangement must be empty and clean.
2. Select *Parameter mode* (**F5**) and select (**F1**, **F2**) parameter 49 with the identification text "C. tArE".
3. Press **.** or **Ins** (= **Shift** + **.**).
4. The upper display will now show the actual coarse tare weight.
5. Accept the value by pressing **Enter**.
6. Select *Normal mode*.

The procedure can be aborted by pressing **Esc** (= **Shift** + **Del**).

2.8 Checking of loadcell connection

Check that all loadcells are connected correct, that all loadcell modules have unique addresses ascending from 0 with no gaps and that the weighing arrangement mechanically does not touch the surroundings, by executing the following procedure:

1. Select a load that weighs more than 1% of the weighing range, and that can be placed on the weighing-arrangement just above each loadcell.
2. Select *Normal mode* (gross weight).
3. In turn, place the load just above each loadcell. The changes in the reading (the upper display) should always be positive and equal no matter what loadcell the load is placed on. If the changes are not equal or are not positive, maybe the weighing-arrangement mechanically is touching the surroundings or one or more of the loadcells are connected wrong or one or more loadcell module addresses are wrong. If the changes are not within +/-10% of the load value check and correct the weighing ranges (as described above) and the loadcell module addresses.

If the checking of the loadcell connections causes any changes to the mechanical system, the loadcell connections, the loadcell module addresses or the weighing range parameters please redo the coarse taring as described above.

2.9 Corner calibration

Corner calibration is not necessary if the loadcells are levelled and there is no tension in the weighing arrangement and/or the load is always distributed in the same way (e.g. tanks). To perform the corner calibration a reference load is necessary. To compensate for the mechanical differences and levelling inaccuracies perform the following procedure:

1. The weighing arrangement must be empty and clean.
2. Zero the system (**>0<**).

3. Select *Parameter mode* (**F5**) and select (**F1**, **F2**) parameter 1 with the identification text "**Cal. Wei.**". Enter the weight of the reference load.
PLEASE NOTICE: The accuracy of the scale's calibration depends on the accuracy of the reference load.
4. Select (**F1**, **F2**) parameter 11 with the identification text "**Cor. 0**".
5. Press **.** or **Ins** (= **Shift** + **.**) to invoke the corner calibration procedure.
6. For all loadcells repeat the following
 - a. Place the reference load above the loadcell in the corner (1-4) indicated by the display.
 - b. Press **.** or **Ins** (= **Shift** + **.**).
 - c. Accept the weight reading by pressing **Enter**.
 - d. Remove the load.
 - e. Zero (**>0<**) the system if the reading does not return to zero.
 - f. The upper display will show the actual weight while the lower display will show the number (0-)of the corner currently being calibrated
7. After this procedure the loadcell will calculate the corner calibration factors while counting from 0 to 100%. This may take a moment.
8. Select *Normal mode*.

The procedure can be aborted by pressing **Esc**.

2.10 Fine adjustment of calibration

The software is equipped with an automatic calibration feature. *Automatic calibration* is for use, when the system is already installed, and the gain needs minor adjustments. Please perform *Coarse taring* and *Corner calibration* before executing the *Automatic calibration procedure* described in the separate *Users Guide* and below.

2.11 Linearization

Linearization can be done in 10 points; numbered 0-9. These points must be used in ascending order: Point 0 is used for the smallest gross weight (0 kg weather a correction is necessary in this point or not), point 1 is used for the next gross weight etc. Unused points must be placed as the last points and a gross weight corresponding to maximum system weight must be entered along with a 0 kg correction. Before the linearization is entered it must be established at which gross weights a correction has to be made and what the correction value should be. Between the points a linear approximation is used. The correction is done by adding the correction value. This value can if necessary be negative.

2.12 Analog output signal (optional)

With some programs the terminal can be connected to a MCE9629 analog output module for transfer of actual gross or net weight. Connection of the analog output module is made via the AUX-bus as described in the connection list. The MCE9629 module must be equipped with the program:

MCE9629.AUXSLAVE.O2_I7.010126.0

The actual output signal can be read on the display of the MCE9629 module. For further information regarding the MCE9629 module please refer to the separate document for the MCE9629 module. The analog output is programmed by the using the following parameters:

Analog output parameters (optional)			
Group	Parameter	No	Display tekst
MCE9629 Parameters	Analog Display Type (mA/Volt)	130	An.diSP
	Analog Test Mode (Off/On)	131	An.tEst
	Analog Output Mode (Gross/Net)	132	An.tyPE
	Load for maximum analog output	133	An.LoAd
	Analog Output Value	134	An.Out
AUX communication	Status for AUX-communications unit no. X	150-151	dEv.0-dEv.1

During connection of the MCE9629 module the following must be indicated/chosen:

- the desired analog display reading. The analog output/display type is entered in parameter 130 ("**An.diSP**"). "AmP" / "Volt" is selected depending on the configuration of the MCE9629 module.
- the desired weight (gross or net) that the analog output signal should follow. The weight that the signal should follow is entered in parameter 132 ("**An.tyPE**").
- the desired weight value that should result in maximum analog output signal. The weight resulting in maximum analog signal is entered in parameter 133 ("**An.LoAd**").

It is always possible to read the value that is transferred to the MCE9629 analog module no matter if analog test mode is enabled or not (see below). The transferred value (in mA or in Volt) can be read in parameter 134 ("**An.Out.**").

It is possible to test the analog output connection. This is done in parameter 131 ("**An.tEst**") by selecting "On" and thereafter entering the desired output signal in parameter 134 ("**An.Out.**"). The output signal is normally overwritten by the signal corresponding to the actual load; but NOT if the analog test mode is enabled. Remember to disable analog test mode again by selecting "OFF".

Please note that MCE9629 analog modules configured as current modules, can go below 4.00 mA, if the selected weight becomes negative (since 0 kg equals 4.00 mA).

2.13 AUX communication

It is possible to read the status for those units that are connected to the AUX-bus, and that the MCE9625 terminal is communicating with. Status of a unit X can be read in parameter 150+X ("**dEv. X**"). During display of status for a given unit "**96xx.ss**" is shown in the big display. Here "96xx" indicates the type of unit, while "ss" indicates the actual status of the unit. Depending of the actual status the following status codes can appear as 2 digit hexadecimal numbers:

Status	Cause
80	Unit NOT detected since power-up.
40	Unit detected but communication error with unit.
20	Unit detected but number of received data bytes does not match the expected.
00	Unit detected and communication with this unit is error free.

3) Parameter list

Below the most common parameters are listed. All the parameters needed to install the system is included in this list.

Please notice that parameter numbers and identification texts can differ slightly for some special software. Please refer to the separate *Users guide* for a complete description of parameters and parameter numbers.

Parameters			
Group	Parameter	No	Display tekst
Calibration	Reference load	1	CAL.vEi
	Perform calibration	2	CALibr.
	Common calibration factor	3	CAL.FAC.
	Corner calibration factors	11-	Cor 0 -
	Loadcell factor	19	LC.FAC.
Weighing range (normal display)	Number of loadcells	20	LC no.
	Weight unit	21	Unit
	Decimal point position	22	d.dPno
	Display division	23	d.div.
	Minimum weight	24	d. ULSP
	Maximum weight	25	d. OLSP
Weighing range (calibration)	Decimal point position	32	c.dPno
	Display division	33	c. div.
	Minimum weight	34	c. ULSP
	Maximum weight	35	c. OLSP
Coarse tare	Individual loadcells	41-	C. tAr0 -
	Total	49	C. tArE
Loadcell status	Loadcell reading/state	51-58	LC0-LC7
	Total loadcell reading/state	59	LC tot.
Zeroing	Automatic zeroing range	61	A Z.
Integration period	Integration period	70	IntE.PE.
Auxiliary settings	Language	79	LangUA
Linearization (gross weight)	Linearization point 0-9 (gross weight)	100-109	L.gr. 0 - 9
Linearization (Correction)	Linearization correction 0-9	110-119	L.Cor. 0 - 9

MCE9629 Parameters	Analog Display Type (mA/Volt)	130	An.diSP
	Analog Test Mode (Off/On)	131	An.tEst
	Analog Output Mode (Gross/Net)	132	An.tyPE
	Load for maximum analog output	133	An.LoAd
	Analog Output Value	134	An.Out
AUX communication	Status for AUX-communications unit no. X	150-151	dEv.0-dEv.1

Please notice that not all programs can be used with a MCE9629 analog module. Please check the separate *Users guide* for a detailed explanation of the features of the individual programs.

4) Status codes

Status codes are shown as a 4 hex digit number (XXXX). If more than one error is present the individual status codes will be OR'ed.

Code	Type	Reason
0001	Sample ID missing	Poor connection between loadcell module(s) and display.
0002	Loadcell time-out	No loadcell connected to loadcell module or poor connection.
0004	No loadcell synchronisation	No loadcell connected to loadcell module or poor connection.
0008	No synchronisation between loadcell modules	One or more loadcells not connected to loadcell module or poor connection.
000E	Synchronisation error	All of the above error codes OR'ed together: One or more loadcells not connected to the loadcell module or poor connection. This is normally the result when one or more loadcells are not connected.
0010	Loadcell module overflow	Internal loadcell module error.
0040	Latch ID wrong or missing	Poor connection between loadcell module(s) and display
0080	Loadcell module not answering	Poor connection between loadcell module(s) and display or loadcell module not connected or not powered.
0400	Weight buffer overflow	Weighing time to long..
0800	No load modules connected	Poor connection between loadcell modules and display or loadcell modules not connected or not powered.
8000	Wrong number of loadcells	The number of loadcells found during power-on does not match the number entered (in the WEIGHING screen). If the parameter entered is correct please check the LOADCELL STATUS screen to see that all loadcell modules addresses etc are correct.

If an error is present during power-on the upper display will show " --P.UP.--", while the lower display will show the error code. To select normal reading press **Esc** (= **Shift** + **Del**). The error may then be corrected by correcting parameter setting etc.

5) Operator panel

5.1 Introduction

Please note that the use of keys and LED's stated in this section may differ slightly for some special software. Please refer to the separate *Users Guide* to see the specific use of all keys and LED's.

The display contains to six digit LED displays and a number of LED's and keys. The upper display is mainly used to show the actual weight and keyed in values while the lower display is used to show texts identifying the value in the upper display. The LED's are named after the key nearby and are used to indicate the following conditions:

F5: Parameters are shown and can be changed.

Please refer to the separate *Users Guide* to see how the other LED's are uses. The keys are used as follows:

0 - **9**: Keying of numbers.

.: Decimal point. Used during decimal number entry.

±: Initiates the entry of a negative number.

Enter: Accepts the keyed in number.

Del: Deletes the last digit entered.

Esc = **Shift** + **Del**:

Abort the entry and use the old value.

F1 - **F10**: Function keys (**F6** - **F10** is reached by holding down **Shift** while pressing **F1** - **F5**)

Function dependant of mode.

Stop: Return to the prior mode.

↑ = **Shift** + **8**:

Select prior.

↓ = **Shift** + **2**:

Select next.

>0<: Zero the weight reading.

AT: Taring (Zero the net weight).

This is the general function of the keys Please note that the use of keys stated in this section may differ slightly for some special software. Please refer to the separate *Users Guide* to see the specific use of all keys.

5.2 Normal reading

Please note that the use of keys and the display readings stated in this section may differ slightly for some special software. Please refer to the separate *Users Guide* to see the specific use of all keys and the display readings. While *Normal mode* is selected the upper display will show the weight while the lower display will indicate whether the gross or the net weight is shown.

If the load is above the weighing range the display will show "OL", if the load is below the weighing range the display will show "UL". The weighing range is selected with the *Maximum weight* and *Minimum weight* parameters. If an error condition is present a status code will be shown: "XXXX". Please refer to the *Status code* section for further details on the individual error codes. The keys are used as follows:

- Zeroes the gross weight and select gross weight reading. The scale can only be zeroed when the load is within certain limits: The global zeroing range. If the load is outside these limits the display will show an error code "ZerO UL" or "ZerO OL" when the load is below or above the zeroing range when is pressed. When the load is within the zeroing range the display will read "ZerO donE".
- Taring. The net weight is zeroed and net weight reading is selected.
- Toggles between gross and net weight reading.
- Selects *Parameter mode*. *Parameter mode* is used to inspect and change the parameters.

Please note that the use of keys and the display readings stated in this section may differ slightly for some special software. Please refer to the separate *Users Guide* to see the specific use of all keys and the display readings.

5.3 Parameters

Please see above for a complete list of all parameters. Most parameters can be keyed in. When *Parameter mode* is selected the display will show parameters continuously. *Parameter mode* is selected by pressing . When *Normal mode* is selected parameters can be changed and displayed shortly if the parameter number is known. If the keyboard is left untouched for 30 seconds during parameter entry *Normal mode* will be selected automatically WITHOUT any change to the actual parameter. To manually abort a parameter entry press (= +) BEFORE is pressed to accept the keyed value. During power-up the terminal will make a print of all parameters (the display will show "Print P.UP"; please refer to the separate *Users guide* for channel and communication settings). This can also be done by pressing while *Parameter mode* is selected.

5.3.1 Parameters in *Normal mode*

During *Normal mode* parameter values can be read by pressing . When this is done the upper display will be blanked and the lower display will be ready to accept a parameter number entry, like this:

```
"      "  
"Par. _ "
```

Key in the desired parameter number and press . The upper display will now show the parameter value while the lower display will show the parameter identification text, e.g. like this:

```
"524288"  
"CAL.FAC."
```

After approximately 3 seconds the weight reading will be re-established.

It is also possible to change the parameter values when *Normal mode* is selected. This is done by simply starting to enter the new value. When the digits are keyed the upper display will show the keyed in value while the lower display will indicate that a new parameter value is being entered, like this:

```
"524_ "  
"Par.  "
```

When the entry of the new value is complete, press **Enter** to accept the value. The upper display will now show the keyed in value while the lower display will be ready to accept a parameter number entry, like this:

```
"524388"  
"Par. _ "
```

Now enter the desired parameter number and press **Enter**. The upper display will now show the new parameter value while the lower display will show the parameter identification text, like this:

```
"524388"  
"CAL.FAC."
```

After approximately 3 seconds the weight reading will be re-established.

To abort the parameter entry press **Esc** (= **Shift** + **Del**) before **Enter** is pressed the second time to accept the parameter number.

Please notice that not all parameters can be changed this way. Some parameters (e.g. coarse taring and calibration) has to read the loadcell signal while other parameters only can be switch among a set of pre pre-programmed values. This can only be done when *Parameter mode* is selected. Furthermore a range of parameters are read-only and cannot be changed at all (e.g. loadcell signals).

5.3.2 Parameters in *Parameter mode*

The procedures described above used to inspect and change parameter values can be used when *Parameter mode* is selected as well. However when *Parameter mode* is selected it is not longer necessary to know the parameter number to inspect and change parameter values. When *Parameter mode* is selected the most recent used parameter is display continuously. The upper display will show the parameter value while the lower display will show the parameter identification text or the parameter number, like this:

```
"524288"  
"CAL.FAC."
```

Here the following keys can be used:

- 0** - **9**, **⌘**: Start entering a new parameter value. **⌘**: Starts the entry of a negative number.
- ←** = **Shift** + **4** and
- ↑** = **Shift** + **8** and
- F1**: Select the previous parameter.
- = **Shift** + **6** and
- ↓** = **Shift** + **2** and
- F2**: Select the next parameter.
- F5**: Switches between display of the parameter number or the parameter identification text in the lower display.
- Ins** = **Shift** + **.** and
- .**: Read the new parameter value from the loadcells or select the next possible value.
- Print**: Print out all parameters as during power-up (please refer to the separate Users guide for channel and communication settings).
- Stop**: Select *Normal mode*.

When the desired parameter is selected the value can be changed simply by entering the new value (if a negative value has to be entered $\frac{\square}{\square}$ has to be pressed first). During the entry the upper display will show the keyed in value while the lower display will show the parameter identification text or the parameter number, like this:

```
"524_  "  
"CAL.FAC."
```

When the new value is complete press **Enter** to accept the entry.

To abort the entry press **Esc** (= **Shift** + **Del**) before **Enter** is pressed to accept the value.

For some parameters (e.g. decimal point position) it is not possible to key in a new value. Here it is possible to select from a set of pre-programmed values. To selected the next possible value press **.** or **Ins** (= **Shift** + **.**).

Please notice that the procedures described above cannot be used for all parameters. Some parameters (e.g. coarse tare and calibration) has to read the actual loadcell signals. To do this select the desired parameter and press **.** or **Ins** (= **Shift** + **.**). The upper display will now show the actual loadcell reading while the lower display will be asking for confirmation before the value is actually read:

```
" 5.100"  
"SurE?"
```

To confirm the value press **Enter**. To abort the reading press **Del** or **Esc** (= **Shift** + **Del**).

Please notice that a range of parameters are read-only and cannot be changed at all (e.g. loadcell signals).

5.4 Automatic zeroing

The terminal performs an automatic zeroing when the following conditions are met:

- The gross weight are within the automatic zeroing range and steady.
- The new zero is within the global zeroing range

There is not performed a full zeroing whenever a new weight reading is calculated. Instead the new zero is calculated from the old zero and the actual gross weight in the ratio 3:1 (new zero = (3*old zero + weight reading)/4). The automatic zeroing range is entered as parameter 61 ("**A Z**").

5.5 Calibration

The system can be calibrated with a reference load by performing this procedure:

1. The system has to be coarse tared and corner calibrated (where corner calibration applies) as described above. If there are any doubt please check at least the corner calibration with a reference load.
2. Zero the empty system by pressing **>0<** when *Normal mode* is selected.
3. Select *Parameter mode* (**F5**) and select parameter 1 ("**CAL.vEi.**"), reference load, and enter the weight of the load. Please notice that the precision of the calibration is directly dependant on the size and precision of the load The reference load must be chosen so that is it not smaller than the maximum load normally used on the system.
4. Select parameter 2 ("**CALibr.**") and place the reference load on the system. The weight reading in the upper display will now be within +/-10% of the correct load. If not so please check the mechanical an electrical connections as described above. Please check the weighing range parameters as well.

5. Press `.` or `Ins` (= `Shift` + `.`) to calibrate. The upper display will now show the actual weight reading while the lower display will ask for confirmation, like this:
 `" 5.000"`
 `"Sure?"`
 To confirm the calibration press `Enter`. To abort the calibration press `Del` or `Esc` (= `Shift` + `Del`).
6. Select *Normal mode* (`Stop`).

5.5.1 Reference load

The size of the reference load used for calibration and corner calibration (same parameter) must be entered prior to the calibration (or corner calibration). This is done by selecting *Parameter mode* (`F5`), parameter 1 ("**CAL.vEi.**") and then enter the value.

5.5.2 Calibration factors

The terminal permits reading and changing of the internal calibration factors. This feature is used to re-establish a prior calibration if the calibration factors are known. The terminal holds a common calibration factor, parameter 3 ("**CAL.FAC.**"), and a corner calibration factor for each loadcell/corner, parameter 11 ("**Cor. 0**") and forward.

5.6 Loadcell status

The terminal has a feature that enables the user to see the reading and status code of the individual loadcells (according to the section *Status codes*). This is done by selecting parameter 51-58 ("**LC0**"-"**LC7**") for loadcell 1-8 (addresses 0-7). If no errors are present the loadcell reading is shown otherwise the status code is shown. Parameter 59 ("**LC.tot.**") shows the total summed reading for all connected loadcells. During power-up the terminal will print all parameters (please refer to the separate *Users guide* for channel and communication settings) while the display shows "**Print P.UP**". This can be done by pressing `Print` while *Parameter mode* is selected as well. This print contains more detailed information on the individual loadcell: Serial number, production year, capacity, exponent etc.

5.7 Integration period

It is possible to select the measuring time (integration period) . This is done by selecting *parameter mode* (`F5`), parameter 70 ("**IntE.PE.**") and then enter the desired time in milliseconds. A smaller values will give a fast update of the display weight reading while a larger value will give a more steady reading. The default value is 400 ms.

5.8 Language

It is possible to select the display language to be English or Danish. This is done by selecting *Parameter mode* (`F5`), parameter 79 ("**LAn**") and select a new setting by pressing `.` or `Ins` (= `Shift` + `.`). Please notice that in this installation guide it is assumed that English is selected.

6) Connections

The connection shown below applies to the terminal block on the back of the MCE9625. If the system is connected via a motherboard please refer to the documentation for this motherboard. Please notice that the different groups (RS232, DIG.OUT. etc.) must normally **NOT** be powered from the terminals on the MCE9625, when the connection is made via a motherboard; the groups will then be powered from the motherboard.

POWER

No.	Function		Connection
+		+24VDC	Supply
-		0VDC	Supply

DIG.OUT

No.	Function		Connection
1	Output 1		
2	Output 2		
3	Output 3		
4	Common	+24VDC	

DIG.IN

No.	Function		Connection
1	Input 1		(closing switch to +24VDC)
2	Input 2		(closing switch to +24VDC)
3	Input 3		(closing switch to +24VDC)
4	Common	0VDC	

RS232

No.	Function		Connection
1	Supply	+24VDC	Supply
2	Txd-0		(RXD)
3	Rxd-0		(TXD)
4	Txd-1		(RXD)
5	Rxd-1		(TXD)
6	Supply	0VDC	Supply (and GND)

RS485 (Loadcells)

No.	Function		Connection
1	Supply	+24VDC	Supply
2	B	B	Loadcells: B
3	A	A	Loadcells: A
4	Supply	0VDC	Supply

RS485/422

No.	Function		Connection
1	Supply	+24VDC	Supply
2	R-		(T-)
3	R+		(T+)
4	Supply	0VDC	Supply (and GND)
5	T-		(R-)
6	T+		(R+)

AUX (LED –display and external devices)

No.	Function		Connection
1	Supply	+24VDC	Supply
2	B		External devices: B
3	A		External devices: A
4	Supply	0VDC	Supply and external devices: Gnd

6.1 MCE9629 Analog output module

The analog output module (MCE9629) is connected to the weighing terminal (MCE9625) via a MCE9601 module. The MCE9601 module is connected to the weighing terminal as follows:

6.1.1 MCE9601 connection

<u>Terminal</u>	<u>Connection</u>
GND	Not used
B	AUX.2 on MCE9625 terminal
A	AUX.3 on MCE9625 terminal
GND	AUX.4 on MCE9625 terminal
+24V	AUX.1 on MCE9625 terminal
GND	Not used
I/O	Not used

The MCE9601 module is connected to the analog module (MCE9629) via the supplied ribbon cable. In addition the following connections are available on the analog output module (MCE9629):

6.1.2 MCE9629: J2 (digital IO)

<u>No.</u>	<u>Function</u>		<u>Connection</u>
1	Input 1		Not used
2	Gnd	0VDC	Not used
3	Input 2		Not used
4	24VDC (Out)		Not used
5	OUT1		Not used
6	Common	+24VDC	Not used
7	OUT2		Not used

6.1.3 MCE9629: J4 (Analog output)

<u>No.</u>	<u>Function</u>		<u>Connection</u>
1	Analog output	4-20mA / 0-10V	Analog input
2	Analog return		Analog return

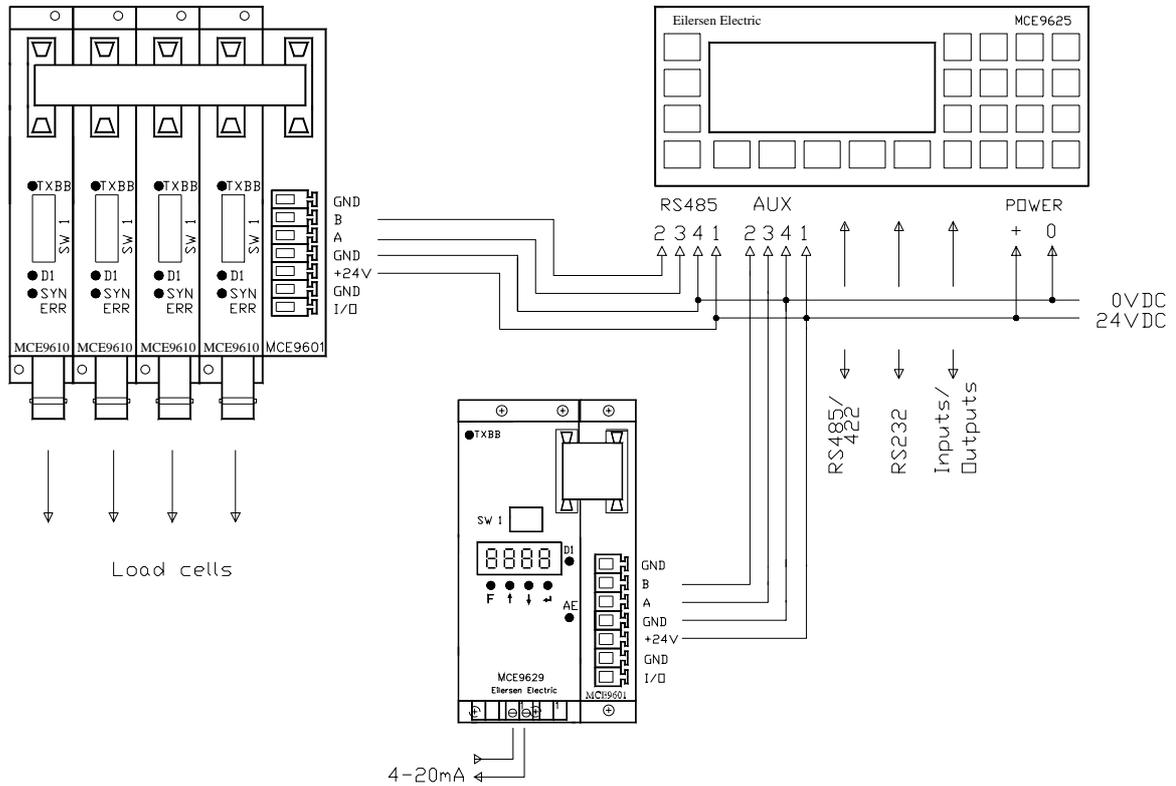
The analog output module (MCE9629) must be equipped with the following program:

MCE9629.AUXSLAVE.O2_I7.010126.0.

and all switches (Sw1.-Sw1.4) on the MCE9629 module **MUST** be OFF.

Please refer to the separate document for the MCE9629 module and the drawing below.

6.1.4 Connection of MCE9629 Analog module (and loadcells):



7) Download of new software to MCE9625

7.1 Download

1. Connect a RS232 cable from the PC COM port to one of the MCE9525 RS232 ports. Any COM-port can be used, but the batch-file on the download disk defaults to COM1. The COM-port can be change in the batch file (DL.BAT), replace '-c1' (for COM1) with e.g. '-c2' (for COM2). The cable must apply to this standard:

Download cable for MCE9625				
	PC COMx (Uses either 9 or 25 pin SUB-D connector)		MCE9625 (RS232 on block) (Use either RS232.0 or RS232.1)	
	9 pin connector	25 pin connector	RS232.0	RS232.1
PC.RxD	Pin 2	Pin 3	Terminal 2 *)	Terminal 4 *)
PC.TxD	Pin 3	Pin 2	Terminal 3 *)	Terminal 5 *)
GND	Pin 5	Pin 7	Terminal 6	Terminal 6

- *) Either RS232.0 or RS232.1 can be used. However RxD and TxD for the same port MUST be used.

All other connections to the RS232 port used for download must be disconnected.

Any kind of equipment connection to the RS232 port not used for download must be switch off. If this is not possible it must be disconnected.

2. Power on the MCE9625. If any doubt that the MCE9625 RS232 port is powered correctly (The RS232 has a separate supply) the voltage between terminal 1 and 6 on the MCE9625 RS232 section must be checked. The voltage on terminal 6 must be +24VDC (+/-20%) when terminal 1 is used as reference. If not so a +24VDC supply must be connected as described above.
3. When the PC is running the download disk must be inserted. Please observed that the disk MUST NOT be write protected during download as a temporary file is written to the disk.
4. If Microsoft Windows 95/98 is used a DOS box must be started by selecting "MS-DOS-prompt" in the "Start" menu.
5. Select the floppy drive (A: or B:) by keying:

```
"A: <ENTER>"
```

 or

```
"B: <ENTER>" .
```
6. Run the batch file 'DL.BAT' by keying:

```
"DL <ENTER>"
```

 After a copyright notice the screen will display:

```
Connecting..... etc.
```

 When using a floppy disp it may take 1-2 minutes before this happens.
7. Now download by switching the MCE9625 off shortly and then back on or press SHIFT, STOP and DEL simultaneously until the MCE9625 resets.

8. When the PC has made a connection to the MCE9625 the "Connecting" message will disappear and the PC will download the program. After this the PC program will stop and the MCE9625 will reboot with the new program. Download will take less than 5 minutes. Otherwise restart the procedure above.

The software version must be checked in the display when the MCE9625 reboots to assure that the download procedure was performed correct.

7.2 Errors

If this procedure is not working it is likely to be caused by one of these errors:

9. Cable error. Recheck the connections and try to switch TxD and RxD. Check the PC.TXD signal. The DC voltage must be between -3 and -25 VDC when GND is used as reference when download is not started. If not so the cable or the COM port is faulty.
10. The wrong COM port is used on the PC
11. No power supply for the MCE9625 RS232 block. Check this as described above.