Load Line 2
Weight Indicator
User Manuel

TUNAYLAR

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1. GENERAL FEATURES

Load Line-2 is a digital weight indicator using the latest Sigma - Delta A/D technology and providing fast and accurate weighing. It can be used in a very diversified set of weighing Applications owing to its technological design which is appropriate to national and international standards.

Load line 2 can be used even in very hard environmental conditions because of its durable (stell or stainless steel) construction, practical and easy usage features. Beside to its weighing abilities, Load Line-2 also provides additional functions .

ANALOG PART FEATURES	
Usage Features:	■ User-friendly, easily understandable menu structure ■ Full digital calibration (load calibration, linearization correction, self calibration, gravity acceleration) ■ Auto zero, manual zero, initial zero setting ■ Digital filter, sudden load filter, ADC conversion speed, load cell gain rate selection ■ Standstill range and standstill waiting time ■ Tare ■ Free programmable 4 inputs / 4 outputs parameters ■ Communication parameters (port selection, baud rate, transmit type) ■ Printer parameters (ticket design, printing language) ■ Tare, zero and printing through serial port or externa buttons. ■ Date / Time
Memory Features:	■ Calibration and parameters memory ■ Factory defaults memory ■ 105.000 weighing records (each record includes serial no, gross and tare) ■ Auto ticket number memory
Reporting:	■ Detailed weighing records ■ All records
Display Features:	■ 6 digits LED display ■ Zero, standstill, tare, net, piece, lb and kg signals ■ Displaying x10 ■ Displaying internal counts, calibration value
Other Functions:	■ Piece counting
Options:	■ Alibi Memory (2Mb) including 105.000 records ■ 2 RS 232 port ■ 3 RS485 (2 of them are full duplex) port ■ 4 optoisolated inputs / 4 optoisolated transistor or relais outputs ■ 0-10V , 0-20 mA , 4-20mA analog output ■ Panel type options

PC PART : (For WT, WT-S types only)	
General Features	■ PC based Compact Weighing Terminal. ■ Server - Client arthitecture. ■ Customized Software options. ■ Flexible desing. ■ Large Disc Capcity. ■ High Capacity RAM. ■ Unlimited data storage. ■ Data transfer through modem, serial ports, ethernet, internet. ■ Fast reporting options. ■ All Microsoft Operating System (Dos, XP, Windows 98, Windows 2000) with weighing software.
Display & Sound	■ SVGA Monitor, CRT & LCD flat Monitor Options. ■ High display resolution. ■ VGA Out Port. ■ Onboard Sound Card.
Inputs & Outputs	■ PS/2 Keyborad and PS2 Mouse ■ Serial Ports (at least one). ■ Parallel Port (LPT1). ■ USB ports (At least one). ■ Available PCI Slots. ■ Network Connection (Ethernet).

2. TECHNICAL SPECIFICATIONS

CERTIFICATES		
Type Approval Certificate	Number:	
	Directive:	90/384/EEC
	Notified Body:	0199 Delta Danish Electronics, light & Acoustics
	Validity Date:	
EMC (CE)Test Report	Number:	
	Standard: 89 / 336	
	Notified Body:	Delta Danish Electronics, light & Acoustics
	Date:	

PERFORMANCE	
ADC Non-Linearity	0.0007 % FSD
Approved Resolution (n)	10,000 divisions for Class III , Single Interval, Multi Range, Multi Interval
Display Resolution	80,000 division (Non Approved)
Minimum Input Voltage	0.8µV/e
Calibration Method	Software controlled calibration which is kept in non-volatile memory
A/D Type	24 bit Delta-sigma, (16,000,000 internal counts)
A/D Conversion Speed	Maximum of 100 conversions per second
Load Cell Connection	4 or 6 wires. 8 pieces 350 ohm load cells.
Excitation Voltage	5V DC
Signal Range	0.1 mV/V - 3mV/V
Filter	Adjustable between 6.25 - 100 Hz
Tare	Subtractive (-Max)
Zero	20% of Max
Divisions	1, 2, 5, 10, 20, 50, 100, 200, 500

INPUTS / OUTPUTS	
Serial	Optoisolated data ports for continuous and manual data transmit or receive. 1 RS232 is standard, 2 RS232 and 3 RS485 is optional (2 of them is full duplex). They can be configured as remote display, printer or computer connection.
Control Outputs / Inputs	Optoisolated 4 logical inputs, Optoisolated 4 optic or relais outputs Outputs: - 4 Galvanically isolated via opto-coupler - NPN transistors, open collector - External supply, no common refe rence potential - Protected against wrong polarity - Signal level / current up to max. 32V, 75mA - Voltage drop Iload x 55 ohm+1V - Load spark suppression must be provided for inductive loads as close as possible to the load Inputs: - 4 Galvanically isolated via opto-coupler - Passive mode - External supply, no common refer ence potential (ground) - Protected against wrong polarity - Input voltage level 10V&31V for 1 -signal (high), 0V&5V for 0 -signal or open input - Input current (high) <5mA at 12V, <11mA at 24V
Analog Out	- 0-10 V - 0-20 mA - 4-20 mA output selection options

OPERATOR INTERFACE	
Display	6 Digits, 20mm height, LED display . Signals: Zero, motion, net, pcs, lb, kg and weighing range.
Keypad	Covered by polyester Folio, 8 functional buttons for calibration, programming and other functions.
Power Supply	12 VDC Supply voltage, (5 W max).
Case	Stainless steel for Type WT-S, CTB, CTC Painted for WT, CTA
Dimensions	See drawings section

ENVIROMENTAL	
Operating temperature	-10°C...+40°C
Store temperature	-20°C...+65°C
Protection class	IP 54 - Type CTB IP 65
Weight	WT Type: WT-S Type: CTA Type: CTB Type: CTC Type:

CTA, CTC : Table / Coloumn Type
WT, WT-S: Table Type
CTB : Panel Type

3. SUBJECTS TO BE CONSIDERED DURING SETUP, OPERATING AND MAINTENANCE

Mounting:

The instrument is suitable for table or panel mounting (see drawings for details of different types). Please observe the Required environmental conditions as given in technical Specifications.

Dismantling the Instrument:

When removing the housing, covers or other protecting parts, live parts or terminals will be exposed. Therefore setting - up the instrument must be performed only by trained personnel who are aware of risks.

Earthing:

The instrument has to be earthed according to latest safety requlations which are valid locally.

Electrostatically Sensitive Components:

This instrument con tains electrostatically sensitive components. Therefore repair of electrostatically sensitive assemblies or Components must be carried out only by qualified personnel at workstations protected against electrostatic discharge.

Other Instructions:

* Check network voltage and especially protective earthing line before operating the terminal

* Do not turn on The indicator before load cell cable connector is connected.

* Do not Disconnect load cell or serial port connectors while the indicator is operating,

* In order to operate the indicator properly, it must be connected to a socket which have earthing,

* Prevent device from direct sunshine. Keep it away from heat sources (like stove),

* Do not make hard push to the buttons on the keypad, do not use pencil, screwdriver or other sharp tools,

* You can use little moist, soft and hairless gland in order to clean the device,

* Prevent the device from water leaps. If water or any other liguid is spilled on the device, disconnect all of electricity connections and dry it. After being sure that the device is dried, you can start to operate it again.

* Check the contents of the consignment for completeness and note whether any damage has occurred during transport. If the contents are incomplete, or if there is damage, immediately inform us in order to facilitate the repair or replacement of the instrument.

Parts provided with your device are as follows:

- Load line-2 digital weight display (device itself)
- Adaptor
- MIC 6 Connector (for Load cell)
- User Manual

Additional for WT, WT-S Type :

- PC Monitor
- PC Keyboard
- Mouse

4. GENERAL VIEW

4.1. Front Panel:

4.2. Buttons:

SET / EXIT TARE

Tare button is used to keep displayed weight vaule as tare. After pushing it, net value will be seen on the display If :

- Weight is positive
- Weight display is in standstill condition
- Indicator is not in set up mode, or in failure mode

If it is pushed one more time, device will go back to gross display mode. Additionally, the weight display Changes automatically to NET mode, indicated by status signal NET.

It is also used to Move cursor right during alphanumerical or numerical data entries.

FUNCTION

F button is used to enter functions, Calibration and Set Up Menus.

UPWARD

It is used for strolling Upward Direction between progamming and calibration menus.

DOWNWARD

It is used for strolling Downward Direction between progamming band calibration menus.

SET TO ZERO

Zero button is used to make displayed weight value zero. In order to set weight to zero conditions given Below must be satisfied:

- Weight display is in standstill condition
- Tare is reset
- Gross weight is in previously selected manual zero range
- Indicator is not in set up mode, or in failure mode

It is also used to move cursor left during alphanumerical or numerical data entries.

PRINT

Print button is used to print Weighing result Or save it Into alibi memory. (This button is disabled if continuous data transmit mode is active, please see the section for serial communication. Pressing to this button causes to print provided that:

- Indicator' s manual transmit has correspondingly be activated
- The weight display is in standstill condition
- Weight vaule is greater than min printable amount selected before not in set up mode, or in failure mode.

ENTER

Enter button is used to enter programming and calibration menus and to make selection among alternatives. It is also used as "Yes" button for question messages.

ESC

Esc button is used to go back to upper menus from sub menus. It can be used to exit without changing parameters. It is also used as cancel button for question messages.

4.3. Status Signals:

STANDSTILL

Standstill signal shows that the load on the platform does not move. It lights up as soon as "no motion" is anymore detected within the initially set range and time (If the difference between consecutive weight values is smaller than the value selected in P2.7, then this signal will light after the time selected at P2.8 is elapsed).

ZERO

Zero signal shows that there is no load on the scale. It lights as soon as the actual gross weight is equal to zero.

NET

NET

Net signal will light during net weight value is seen on display (lights up as soon as having tared by pressing tare or preset tare button).

Pcs

PIECES

Pieces counting signal will light if pices counting function is activated.

Lb

POUND

Lb signal will light if " pound" is selected as weighing unit.

kg

KG

Kg signal will light if "kilogram" is selected as weighing unit .

Range 1

This symbol shows 1st weighing range. If the weight is smaller than Max1 value, it will light.

Range 2

This symbol shows 2st weighing range. If the weight is greater than Max1 value, it will light.

5. CONFIGURATION AND CALIBRATION MENUS

- In order to enter P1 - General, P2 - Parameters, P3 - Configuration and P4 - Calibration menus, calibration jumper must be closed.
- Press F button to enter configuration and calibration menus, when FUNC ? message is appeared, press Enter button,

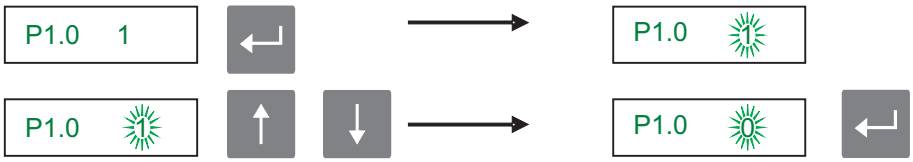
- After PASS ? message is displayed, write password and press Enter ,

- You can use ↑ and ↓ buttons in order to stroll between main menus up, or down

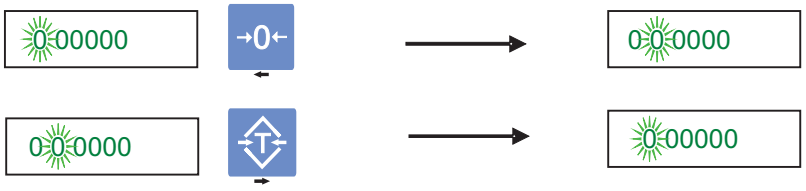
- Use Enter button in order to enter sub menus of any of the main menus,

- Again you can use ↑ and ↓ buttons in order to stroll between sub menus,

- Press Enter button in order to start changing a parameter. Change it by using ↑ / ↓ buttons and save it by pressing Enter button,



- During data entry menus, →0← and ⌖ buttons are used to move cursor one step right or left.



- And select the number which you want to write.

- After changes are confirmed by enter button, use Esc button to go back to main menus from sub menus,

- In order to exit from programming and calibration menus, go to "End" menu and press Enter button, During SAVE ? message, press Enter button in order to save differences or use Esc button to exit without saving.

Calibration Sequence Summary:

1. Close calibration jumper J1 (for P1, P2, P3, P4)
2. Go through steps P1…P9 and select END
3. Open calibration jumper J1
4. Close and seal the weight indicator housing as described in this manual.

P1	GENERAL
P1.0	PURPOSE OF USE
P1.1	SINGLE INTERVAL / MULTI RANGE / MULTI INTERVAL
P1.2	DEFAULT VALUES

P2	PARAMETERS
P2.0	AUTO ZERO TRACKING
P2.1	AUTO ZERO TIME
P2.2	MANUAL ZERO
P2.3	INITIAL ZERO
P2.4	LOAD CELL GAIN RATE
P2.5	ADC INTERVAL FILTER
P2.6	DIGITAL FILTER
P2.7	STANDSTILL DETECT INT.
P2.8	STANDSTILL TIME
P2.9	TARE ENABLE

P3	CONFIGURATION
P3.0	CAPACITY 1
P3.1	DIVISION 1
P3.2	DECIMAL POINT PLACE 1
P3.3	CAPACITY 2
P3.4	DIVISION 2
P3.5	DECIMAL POINT PLACE 2
P3.6	WEIGHING UNIT
P3.7	DECIMAL POINT TYPE
P3.8	OVERLOAD

P4	CALIBRATION
P4.0	WEIGHT CALIBRATION
P4.1	SELF CALIBRATION
P4.2	GRAVITY PARAMETERS

P5	PORTS
P5.0	ALIBI MEMORY
P5.1	BAUD RATE FOR COM 1-2
P5.2	BAUD RATE FOR COM 3
P5.3	CONTINOUS PORTS
P5.4	MANUAL PORTS
P5.5	SLAVE PORTS
P5.6	ADDRESS
P5.7	RS 422/485 PORTS

P6	INPUT / OUTPUT
P6.0	OUTPUT OPERATING TYPE
P6.1	OUTPUT ASSIGNING
P6.2	OUTPUT SET WEIGHTS
P6.3	INPUT OPERATING TYPE

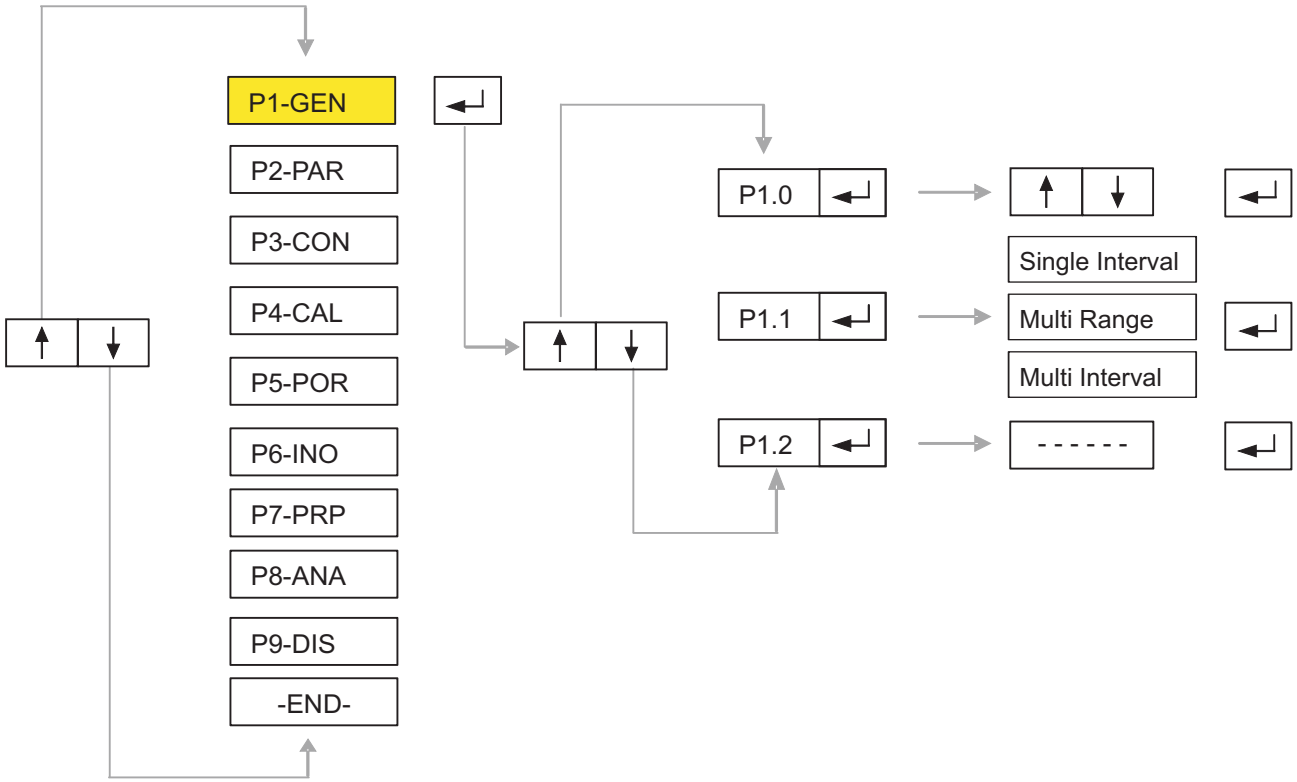
P7	PERIPHERALS
P7.0	MIN. LOAD FOR PRINTER
P7.1	TICKET FORMAT
P7.2	TICKET FIELDS
P7.3	TICKET LANGUAGE
P7.4	PAPER TYPE

P8	ANALOG OUT
P8.0	ENABLE / DISABLE
P8.1	RANGE
P8.2	TYPE
P8.3	MODE
P8.4	CALIBRATION

P9	DISPLAY
P9.0	INTERNAL COUNT DISPLAY
P9.1	CALIBRATION VALUE DISPLAY

- END -

5.1. P1-General:



SYMBOL	NAME	ALTERNATIVES	DEF.	EXPLANATION
P1.0	Purpose of Use	1 Non Approved 2 Approved	2	If non approved mode is selected, indicator adjustments can be changed without any restrictions. In approved mode, the data input will only be accepted if they are convenient to EN45501 standard.
P1.1	Single Interval Multi Range Multi Interval	0 1 2	0	You can select the operation type of the indicator from this menu. Select 0 for single Interval, 1 for Multi Range and 2 for Multi Interval.
P1.2	Default Values *	-------		This option is used to return all of indicators parameters back to their factory default values.

*** Factory default values are as follows:**

P1 – GENERAL

P1.0 – 2
P1.1 – 0
P1.2 – -

P2 – PARAMETERS

P2.0 – 0
P2.1 – 4
P2.2 – 1
P2.3 – 0
P2.4 – 64
P2.5 – 0
P2.6 – 5
P2.7 – 1
P2.8 – 2
P2.9 – 0

P3 – CONFIGURATION

P3.0 – -
P3.1 – 1
P3.2 – 0
P3.3 – -
P3.4 – 1
P3.5 – 0
P3.6 – 1
P3.7 – 1
P3.8 – 2

P4 – CALIBRATION

P5.0 – -
P5.1 – -
P5.2 – -

P5 – PORTS

P5.0 – 1
P5.1 – 9600
P5.2 – 9600
P5.3 – 0
P5.4 – 2
P5.5 – 1
P5.6 – 001
P5.7 – 0

P6 – INPUTS / OUTPUTS

P6.0 – 0
P6.1 – -
P6.2 – -
P6.3 – 0
P6.4 – -

P7 – PERIPHERAL EQUIPMENTS

P7.0 – 0
P7.1 – -
P7.2 – -
P7.3 – 0
P7.4 – 0

P8 – ANALOG OUT

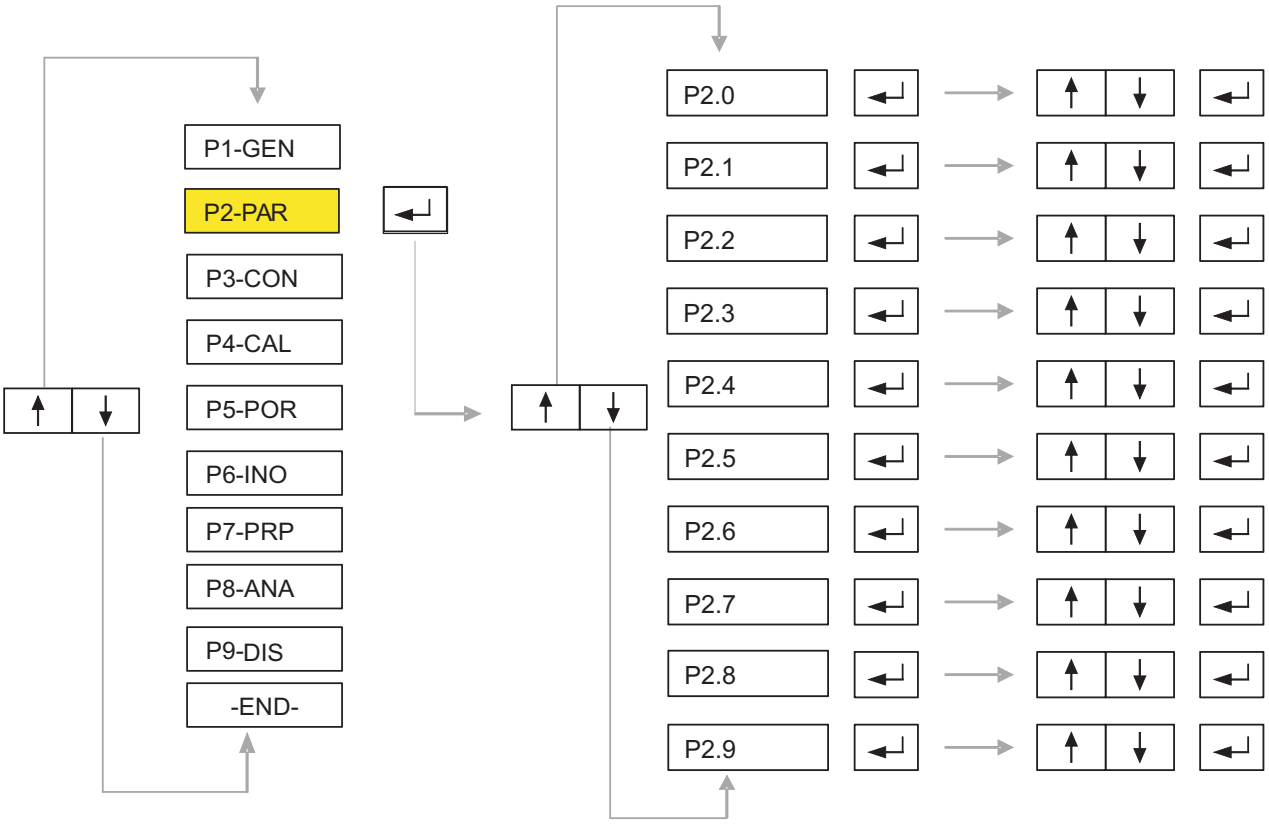
P8.0 – 0
P8.1 – -
P8.2 – 0
P8.3 – 0
P8.4 – -

P9 – DISPLAY

P9.0 – -
P9.1 – -

P10–END

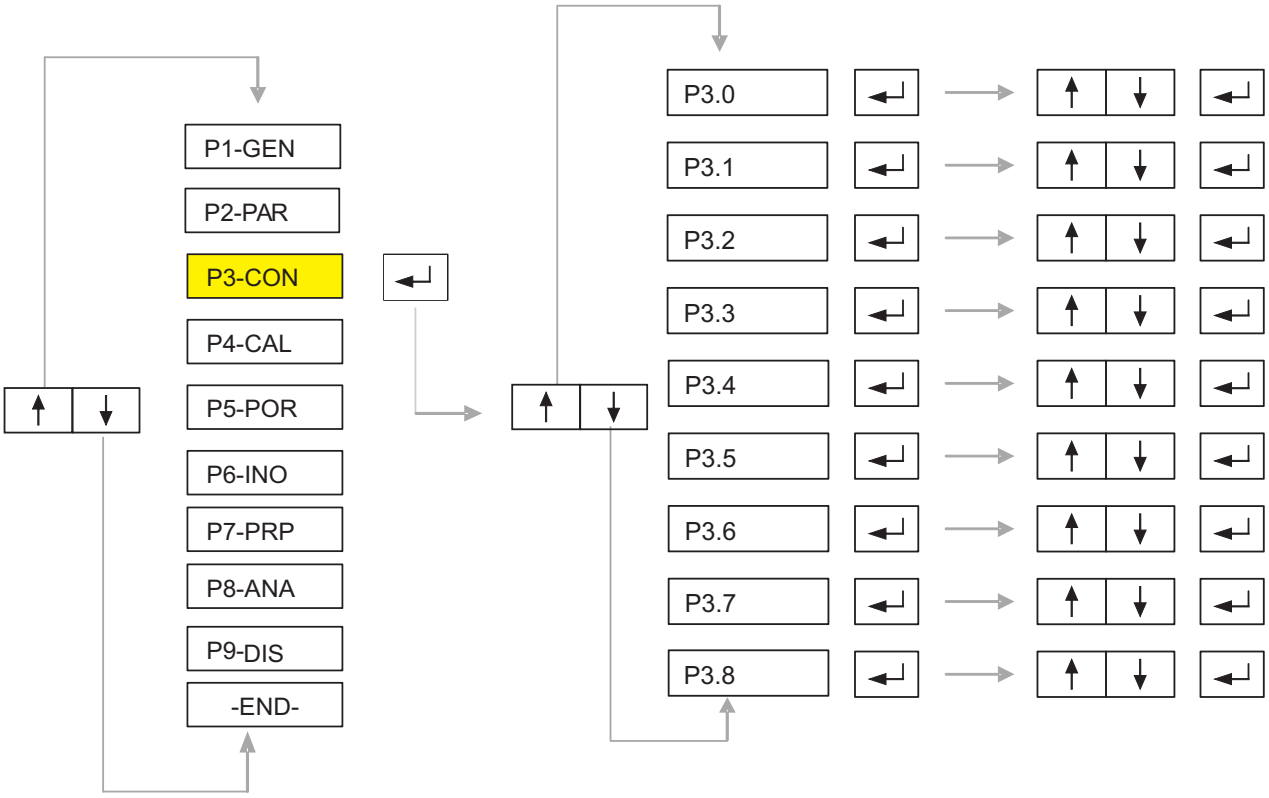
5.2. P2-Parameters:



SYMBOL	NAME	ALTERNATIVES	DEF.	EXPLANATION
P2.0	Auto Zero Tracking	0 Disable 1 0.25e 2 0.5e 3 0.75e 4 1e 5 1.25e 6 1.5e 7 1.75e 8 2e	0	Weight vaules smaller than the selected value will be set automatically to zero.
P2.1	Auto Zero Waiting Time	0 0 sec. 1 0,5 sec. 2 1 sec. 3 1,5 sec. 4 2 sec.	4	Time which will be elapsed before auto zero is activated.
P2.2	Manual Zero	1 %2 2 %20 3 full capacity	1	Select max imum load range that can be manually zeroed by pushing zero button.
P2.3	Initial Zero	0 Disable 1 - %1 2 - %5 3 - %10 4 - %20	0	Select range which will be zeroed during start-up.

P2.4	Load Cell Gain Rate	1 x1 2 x2 4 x4 8 x8 16 x16 32 x32 64 x64	64	Select gain rate of mV sig nal coming from load cells. Select 64 for 1 mV/V load cells, Select 64 or 32 for 2mV/V load cells, Select 64, 32 or 16 for others. 1, 2, 4 and 8 are dedicated for special applications.
P2.5	ADC Internal Filter	0 100 sps. 1 50 sps. 2 25 sps. 3 12.5 sps. 4 6.25 sps.	0	Select filter level against sudden impacts.
P2.6	Digital Filter	0 Disable 1 Last 2 2 Last 4 3 Last 8 4 Last 16 5 Last 32	5	Select filter level. Moving average of last 2 32 weight vaules will be calculated.
P2.7	Standstill Detection Interval	1 1e 2 2e 3 3e 4 4e 5 5e	1	If the difference between consecutive weight values is smaller than this value, standstill signal will light after the time period selected at P2.7 is elapsed.
P2.8	Standstill Waiting Time	0 0 sec. 1 0,5 sec. 2 1 sec. 3 1,5 sec. 4 2 sec.	2	Select time period will be elapsed before standstill signal lights (if the consecutive weight values are smaller than P2.6).
P2.9	Tare Request	0 Tare Enable 1 Tare Disable	0	Tare button can be enabled o r disabled.

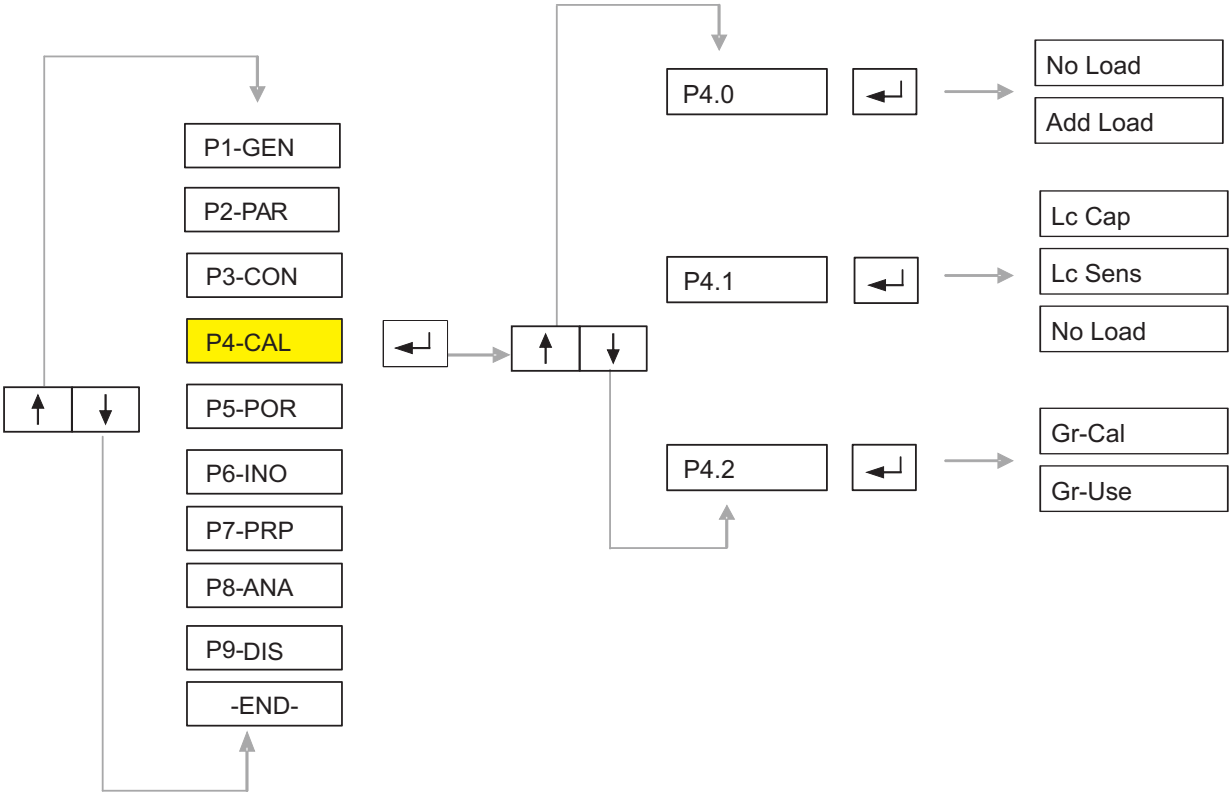
5.3. P3-Configuration:



SYMBOL	NAME	ALTERNATIVES	DEF.	EXPLANATION
P3.0	Capacity 1	0000000		Enter maximum capacity of the first weighing range (If single interval is selected at menu P4.1,this will be the Maximum Capacity of the scale)
P3.1	Division Interval 1 (Verification Scale Interval)	1 1 2 2 3 5 4 10 5 20 6 50 7 100 8 200 9 500	1	Scale's division interval (verification scale interval.) for weighing range 1. If P1.0 (purpose of use) is selected as approved, number of divisions can not exceed 3000. For non-approved applications you can select up to 50,000 divisions.
P3.2	Decimal Point Place 1	0 No point 1 xxxxx.x 2 xxxx.xx 3 xxx.xxx 4 xx.xxxx	0	This option is to select place of decimal point for weighing range 1.
P3.3	Capacity 2	0000000		Enter maximum capacity of the second weighing range
P3.4	Division Interval 2 (Verification Scale Interval)	1 1 2 2 3 5 4 10 5 20 6 50 7 100 8 200 9 500	1	Scales division interval (verification scale interval.) For weighing range 2. If P1.0 (purpose of use) is selected as approved, number of divisions can not exceed 3000. For non-approved applications you can select up to 50,000 divisions.
P3.5	Decimal Point Place 2	0 No point 1 xxxxx.x 2 xxxx.xx 3 xxx.xxx 4 xx.xxxx	0	This option is to select place of decimal point for weighing range 2.

P3.6	unit	1 kg 2 lb	1	Select weighing unit which will be displayed and printed on the ticket.
P3.7	Decimal Sign Type	1 point 2 comma	1	Select sign type (if decimal vaules are used).
P3.8	Overload	0 0 e 1 1 e 2 9 e 3 - %2	2	Select overload value which can be displayed after full scale capacity.

5.4. P4-Calibration:

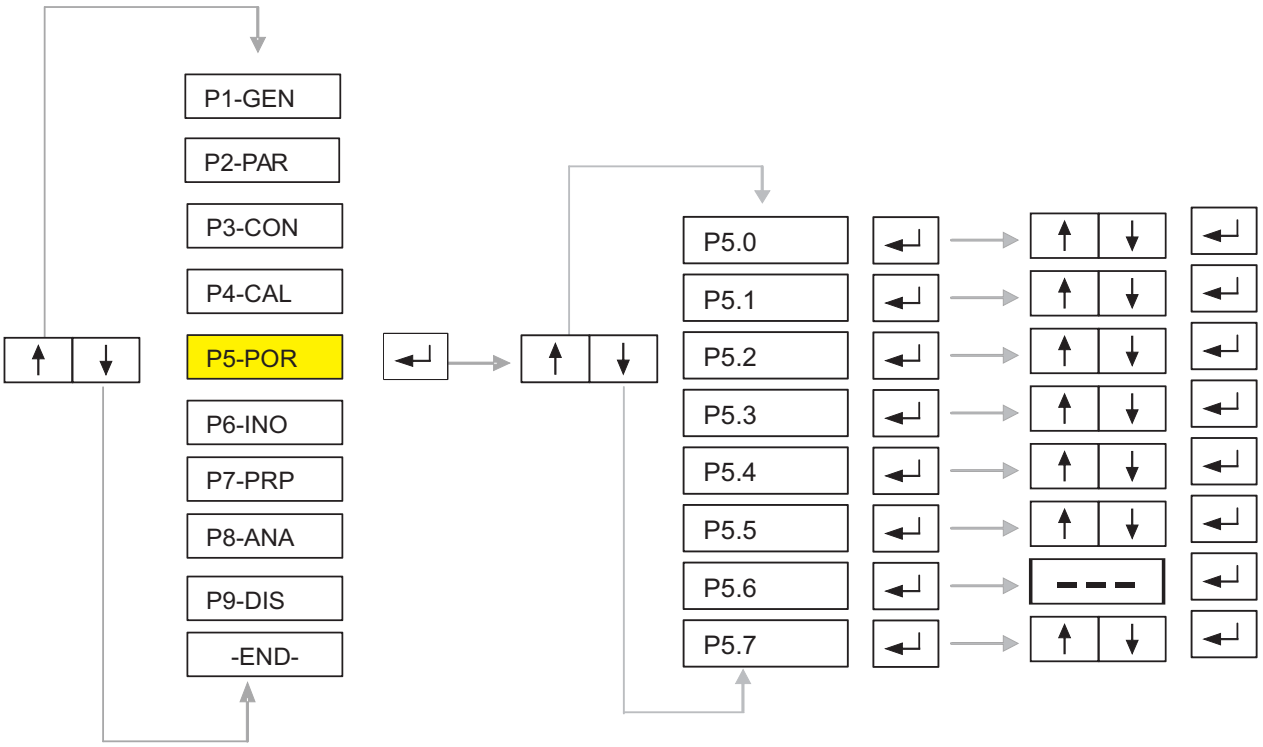


SYMBOL	NAME	ALTERNATIVES	DEF.	EXPLANATION
P4.0	Calibration With Weight	-------		Note: Maximum capacity and and division interval values must be set before starting calibration process. After No Load message appears, make sure that scales platform is empty and press Enter button. Device will show "BUSY" message. "Add Load" message will appear. Put calibration weight on scales platform (min 10 % of full scale, preferably close to maximum capacity) and press Enter button. Then, write this calibration weight value via keypad and press Enter button. Device will display " BUSY " message again. After calibration is completed, main menu will be seen on display. After calibration with weight process is implemented, gravity acceleration values will be zeroed.

P4.1	Self Calibration	-------		This method is used to calibrate the device without calibrated weigh ts. You must enter number of load cells (Lc No), capacity of load cells (Lc Cap), mi llivolt signal (Lc Sens) and to let the device sense the dead load of the scale (No Load) . Finally press Enter button, device will show "BUSY" message Note: self calibration can be used only for not legal for trade applications
P4.2	Gravity Acceleration	-------		Gravity acceleration parameters make it possible to compensate the weight difference between the place in which the instrument is calibrated (GR-CAL) and the place in which the instrument will be used (GR-USE), due to different gravity acceleration. Gravity acceleration values must be between 9,77000 and 9,84000 Enter these two parameters by using keypad (starting from left) and press enter button. After that, the weight calibration is automatically corrected. Gravity values at some places are as follows:

Amsterdam	9.813	m/s^2
Athens	9.800	m/s^2
Auckland NZ	9.799	m/s^2
Bangkok	9.783	m/s^2
Birmingham	9.813	m/s^2
Brussels	9.811	m/s^2
Buenos Aires	9.797	m/s^2
Calcutta	9.788	m/s^2
Chicago	9.803	m/s^2
Copenhagen	9.815	m/s^2
Djakarta	9.781	m/s^2
Frankfurt	9.810	m/s^2
Glasgow	9.816	m/s^2
Havana	9.788	m/s^2
Helsinki	9.819	m/s^2
Kuwait	9.793	m/s^2
Lisbon	9.801	m/s^2
London (Greenwich)	9.812	m/s^2
Los Angeles	9.796	m/s^2
Madrid	9.800	m/s^2

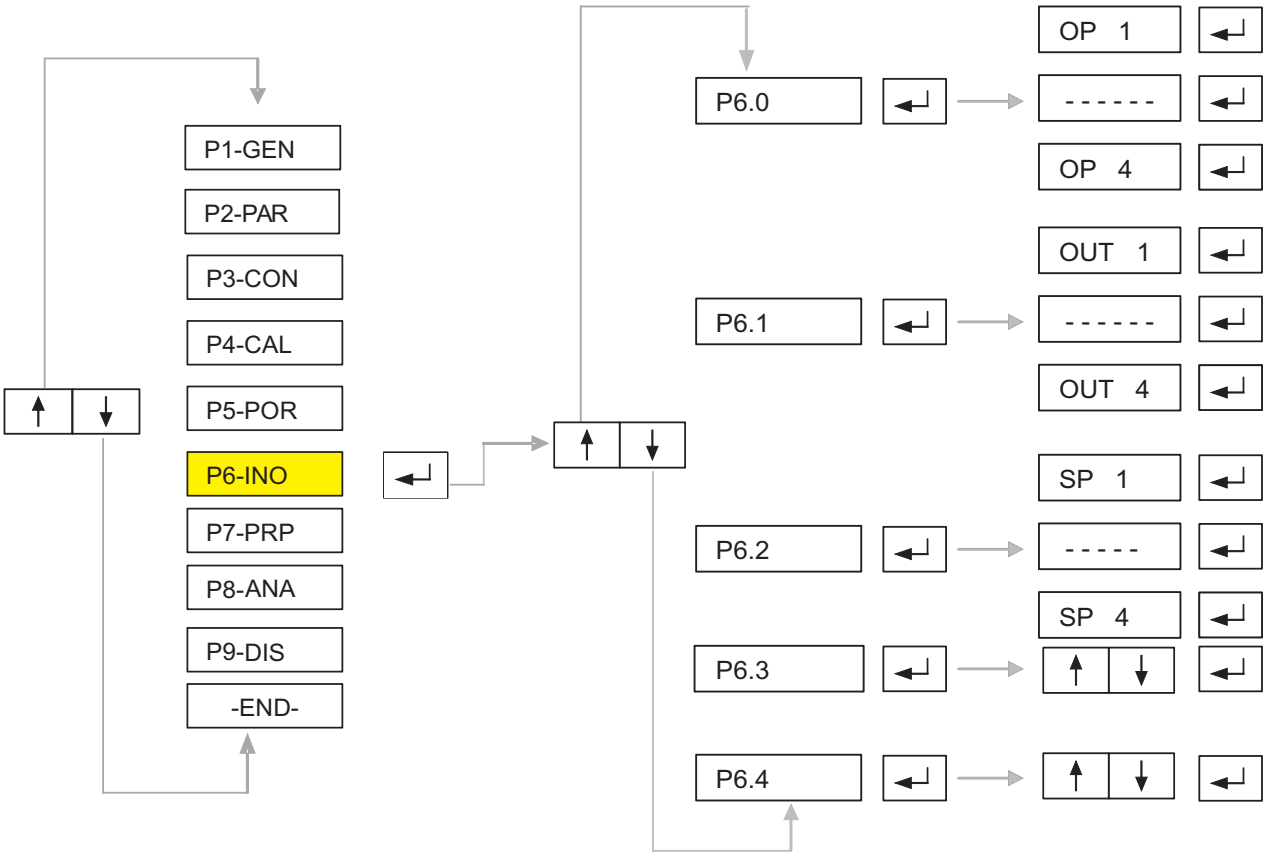
5.5. P5-Ports :



SYMBOL	NAME	ALTERNATIVES	DEF.	EXPLANATION
P5.0	Alibi Memory	0 Disable 1 Enable	1	Alibi memory can be enabled or disabled. Capacity of alibi memory is 105.000 records. When this capacity is exceeded, device will not send serial data until records in alibi memory is deleted.
P5.1	Baud Rate for Ports 1 - 2	300 600 1200 2400 4800 9600 19200 38400	9600	Select baud rate of communication Ports 1-2
P5.2	Baud Rate for Port 3	300 600 1200 2400 4800 9600 19200 38400	9600	Select baud rate of communication Port 3
P5.3	Ports for Continuous Data Transmit	0 Disable 1 Com 1 2 Com 2 3 Com 3 4 Com 1+2 5 Com 1 + 3 6 Com 2 + 3 7 Com 1 + 2 + 3	0	Select port names for continuously transmitting data (data protocol is given in later sectons).

SYMBOL	NAME	ALTERNATIVES	DEF.	EXPLANATION
P5.4	Ports for Manual Data Transmit	0 Disable 1 Com 1 2 Com 2 3 Com 3 4 Com 1+2 5 Com 1 + 3 6 Com 2 + 3 7 Com 1 + 2 + 3	2	Select port names for manually transmitting data(data protocol is given in later sections). Alibi memory reports can be taken through this parts.
P5.5	Slave Ports	0 Disable 1 Com 1 2 Com 2 3 Com 3 4 Com 1+2 5 Com 1 + 3 6 Com 2 + 3 7 Com 1 + 2 + 3	1	Device can be used as slave or master. Select port names which will be used as slave ports.
P5.6	Address	(---)	001	Max. of 32. indicators can be connected. Enter. device's address information here. If this value is left as zero then the slave port will not work properly.
P5.7	RS 422 / 485	0 Disable 1 Com 2 2 Com 3 3 Com 2 + Com 3	0	Select port names for RS422/485 data communication. These ports are full duplex.

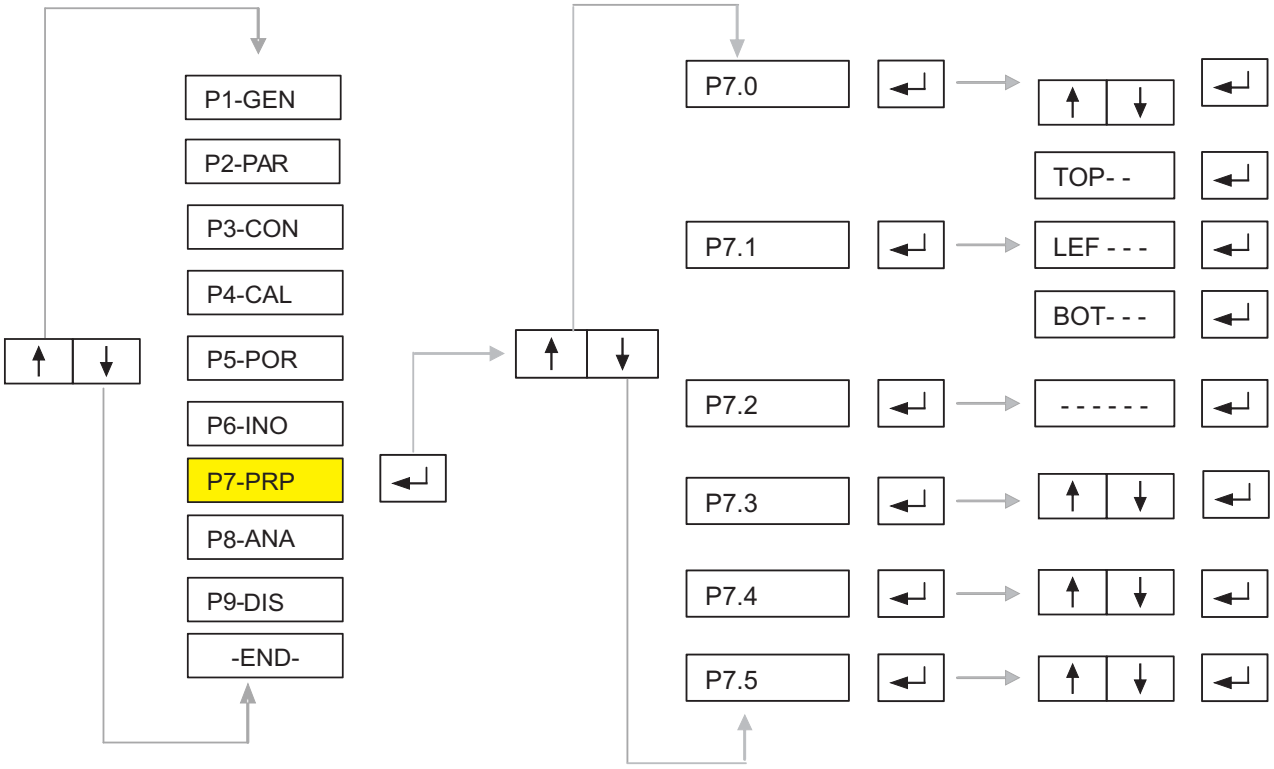
5.6. P6-Inputs / Outputs:



SYMBOL	NAME	ALTERNATIVES	DEF.	EXPLANATION
P6.0	Output Operating Type	0 Disable 1 Net Values 2 Brut Values 3 Inputs	0	You can select operating type of each of outputs. If 0 (disable) is selected, relevant output will be disabled. If 1 (net) is selected, re spective output will be closed when net weight value is greater than set point weight (entered at P6.2). If 2 (brut) is selected, this time brut values will be compared with set point weights. If 3 (inputs) is selected, output will work with respect to inputs, meaning that if one of the inputs is active, then respective output will be active (you can assign different inputs to each of outputs as shown in P6.1).
P6.1	Output Assign	-------		You can assign different inputs to each of outputs. First of all s elect output number and press enter button. Then write respective in puts you want to assign by using the following formula: Input1 x 1 + Input2 x 2 + Input3 x 4 + Input4 x 8.

P6.1	Output Assign	-------		Press Enter button to go next one. You dont have to enter all of 4 outputs, you can exit at any time by using Esc button. Example: if output 1 is assigned to inputs 1 and 3, select output 1 (Out 1) and press enter button. Then write the result of following formula: 1x1 + 0x2 + 1x4 + 0x8 = 06
P6.2	Output Set Point Weights	-------		You can define 4 different set point weights. Enter set weight values by using numerical buttons and then press Enter button to go next one. You dont have to enter all of 4 set values, you can exit at any time by using Esc button. Example: if displayed weight value (brut or net) is smaller than set point 1, output 1 will be open till it exceeds set point 1. As soon as weight value is greater than or equal to set point 1, output 1 is closed.
P6.3	Input Operating Type	0 Disable 1 Standard 2 External Buttons	0	You can select operating type of the set point inputs. If 0 (disable) is selected, inputs will be disabled. If 1 (standard) is selected, inputs will be enabled. If 3 (external buttons) is selected, 1st in put will be used as tare button, 2nd input will be used as zero button and 3rd input will be used as print button.
P6.4	Application Type	0 Filling 1 Level Measuring		If 0 is selected , outputs will not be set while weight is returning back to zero un til zero is displayed. If 1 is selected , outputs will be set as soon as weight is smaller than related set point value.

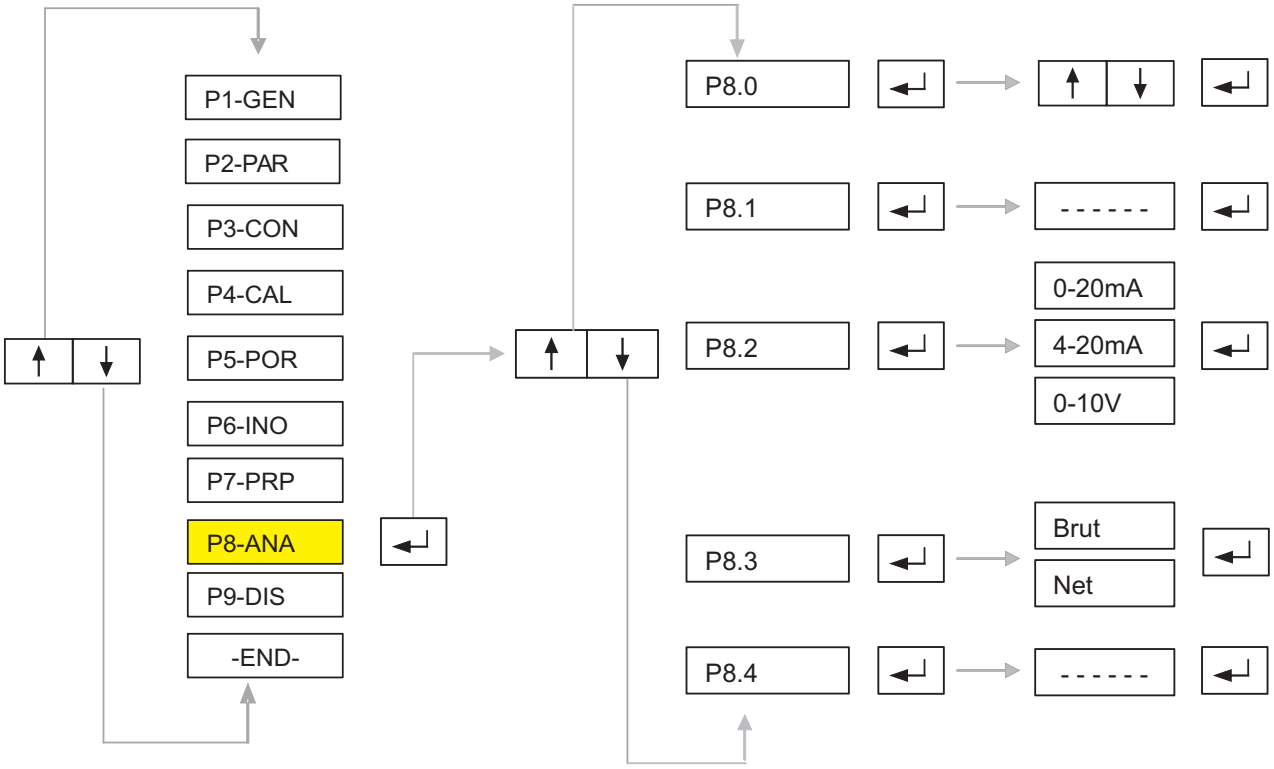
5.7. P7-Peripheral Equipments:



SYMBOL	NAME	ALTERNATIVES	DEF.	EXPLANATION
P7.0	Minimum Load for Printer	0 0 1 20 e 2 50 e	0	This value shows minimum weight value at which pinter outputs can be taken.
P7.1	Ticket Format	-----		Enter number of blank rows from top (Top), number of blank characters from left (left) and blank rows at the end (Bottom). Note: Each of above values must be between 1 to 255.
P7.2	Ticket Fields	-----		Fields on the ticket can be defined by using the following formula: Ticket no x 1 + Firm Name x 2 + Date-Time x 4 + Code x 8 + Weight x 16 + Barcode x 32. You must put 1 for the fields you want to include to the ticket, and put 0 for others. Then calculate above formula and enter it to P7.2 Example: If you want only ticket no and weight fields on the ticket, then result of the formula will be equal to: 1x1 + 0x2 + 0x4 + 0x8 + 1x16 + 0x32 = 17. You must enter 17

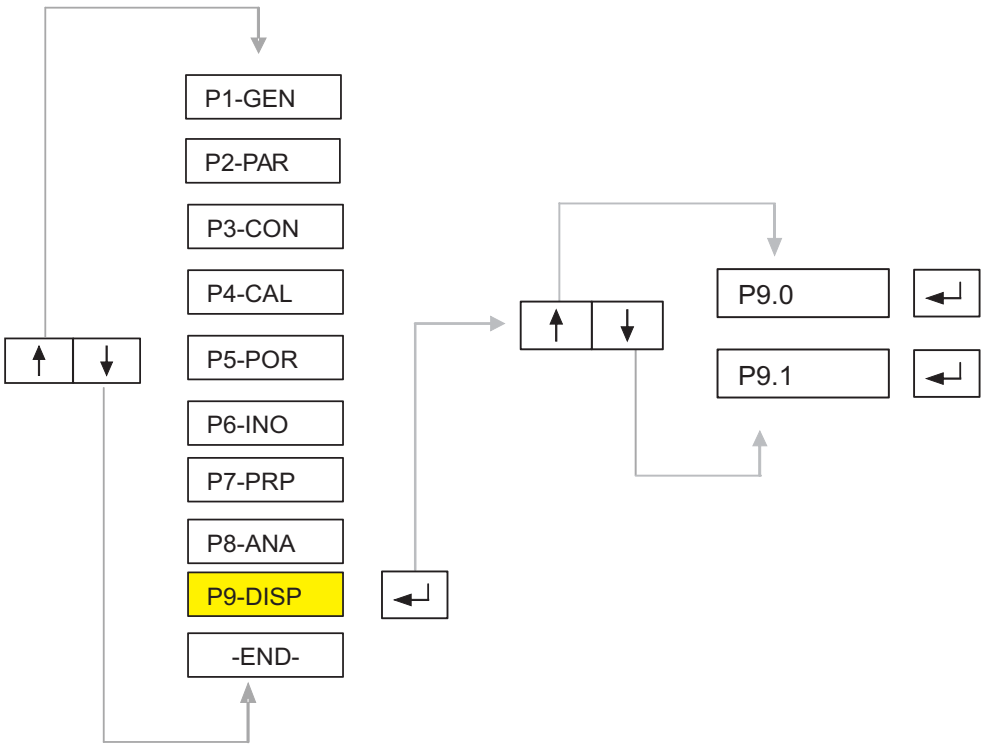
SYMBOL	NAME	ALTERNATIVES	DEF.	EXPLANATION
P7.3	Ticket Language	0 Turkish 1 English	0	Select language which will be used to explain fields on ticket.
P7.4	Ticket Paper Type	0 Standard 1 Sticker	0	Select paper type.

5.8. P8-Analog Out



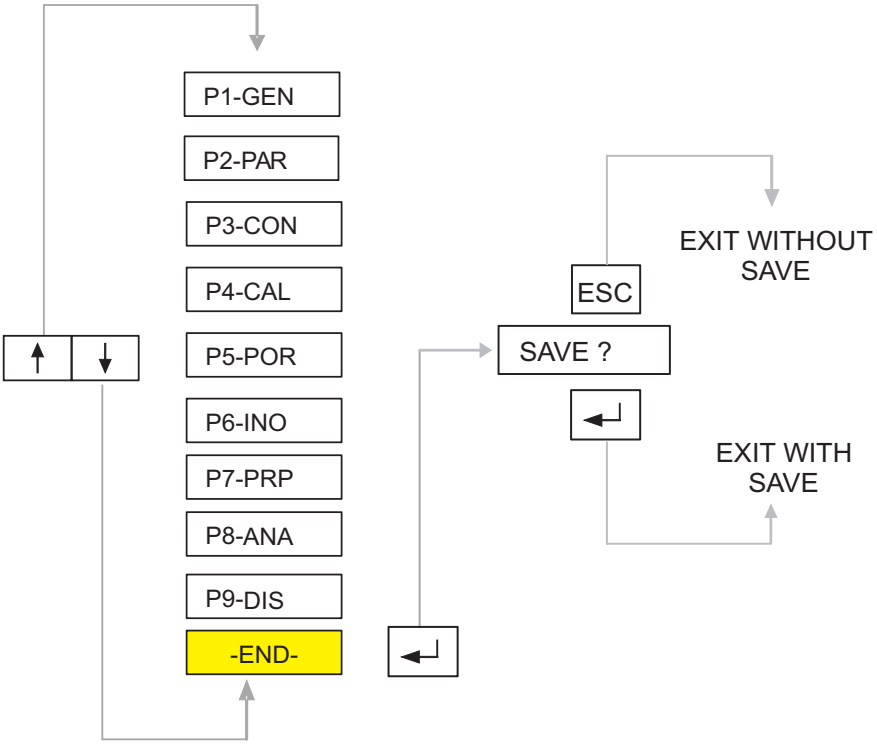
SYMBOL	NAME	ALTERNATIVES	DEF.	EXPLANATION
P8.0	Disable / Enable	0 1	0	You can enable or disable Analog Out. If Analog Out is enabled it works continously within the range given in P8.1
P8.1	Range	---	-	Select weight range in which analog out will work.Analog out will not be active if the current weight value is not in this range. (Min. and Max. Weight values)
P8.2	Type	0 1 2	0	Select one of three analog out operating types.(0-20mA,4-20mA,0-10V)
P8.3	Mode	0 1	0	Select work mode as Brut(0) or Net(1).
P8.4	Calibration	---	-	This part is used to calibrate Analog Output. First enter zero value and then maximum value. Calibration will provide more accurate analog output value.

5.9. P9-Display:



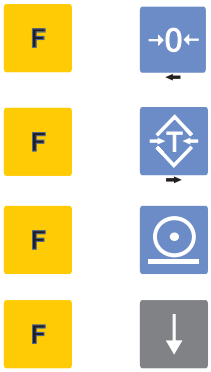
SYMBOL	NAME	ALTERNATIVES	DEF.	EXPLANATION
P9.0	Internal Count Display	-----		You can change display type from weight display to internal count display by pressing Enter button at P9.0. Esc button can be used to exit.
P9.1	Calibration Value Display	-----		Calibration value shows number of internal counts per one verification scale interval (i.e. slope of calibration line).

5.10. End :



SYMBOL	NAME	ALTERNATIVES	DEF.	EXPLANATION
-END-	End (or Exit)			In order to exit from programming and calibration menus, select End ? and press Enter button. Then Save ? message will appear, you can save changes permanently by pushing Enter button.

6. FUNCTIONS:



Date

Hour (Time)

Piece Counting

x10 Viewing

F →0←	Date	DATE ? message will appear. Press enter button to see and change date (date format is: ddmmyy)
F	Time	HOUR ? message will appear. Press enter button to see and change time (time format is: hh mm)
F	Piece Counting	First of all put a few of items you wa nt to count on the scale and select this function. COUNTIN? message will appear. Press Enter button and write number of pieces on the scale, then press enter button again. Number of pieces will be seen on display and pcs signal will light. Now you can put all of items you want to count. Use Esc button in order to exit from this function.
F	x10 Viewing	Ent 10? message will appear. If you press Enter button verification scale interval will be divided by 10 and device will be 10 times more sensitive X10 viewing will last 5 seconds.

7. ALIBI MEMORY :

All Weighing Records

Delete Records in Alibi Memory

F ↑ →0←	All Weighing Records	"ALL" message will be seen, you can print all weighing records by pushing enter button. You can exit by pushing Esc button.
F ↑ ⇳	Deleting Weighing Records	DELETE ? message will appear. If you press Enter button all of weighing records in the alibi memory will be printed and deleted. Serial number (ticket number) will also be zeroed. You must clean alibi memory if maximum capacity is reached, otherwise device will not send data to serial port. You can exit without deleting records by pushing Esc button.

Standard Report Example :

```
010104  10:20

ALL RECORDS

S.NO      BRUT      TARE      NET
 000001   13000kg   2000kg    11000kg
 000002   15000kg   5000kg    10000kg
 000003   17000kg
 .....
```

8. SERIAL COMMUNICATION PROTOCOL

8.1. Continuous Data Transmit:

Each package has 21 bytes and starts with Chr(2) and ends up with Chr(13). Serial data baud rate is adjustable between 300, 600, 1200, 2400, 4800, 9600, 19200, 38400. Data length is 8 bits and there is no parity . Data will be sent only after standstill condition is reached. Order of bytes in each package is as follows:

SB	A	B	C	SP	WEIGHT 1	SP	WEIGHT 2	CH	CK	ST

SB: Start Byte (1 Byte)
Chr (2)

A: Status Word (1 Byte)

A.0: Always 1
A.1: 1 for Net
A.2: 1 for Preset Tare
A.3: 1 for Zero
A.4: Not used
A.5: Always 1
A.6: 1 for Negative
A.7: Not Used

B: Status Word 2 (1 Byte)

B.0: Always 1
B.1: 1 for manual print
B.2: Always 0
B.3: Always 0
B.4: Always 1
B.5: Always 1
B.6: Always 0
B.7: Always 0

C: Status Word 3 (1 Byte)

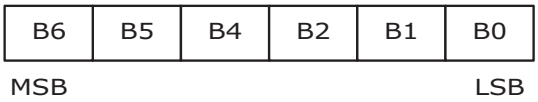
C=0: If there is no decimal point
C=1: If there is 1 character after point
C=2: If there are 2 characters after point
C=3: If there are 3 characters after point
C=4: If there are 4 characters after point

SP: Space (1 Byte)

WEIGHT 1: Displayed Weight Value (6 Byte)

B6	B5	B4	B2	B1	B0
MSB					LSB

WEIGHT 2: Tare Weight (6 Byte)



CH: Character (1 Byte)
Chr (3)

CK: Checksum (1 Byte)
ASCII totals of bytes between SB and CH (with respect to Mod 256)

ST: Stop Byte (1 Byte)
Chr (13)

8.2. Manual Data Transmit:

Standard Data Transmit Shape 1 (Gross Weight):

Ticket No:

N	O	:	SP	SP	SP	SP	SP	D6	D5	D4	D3	D2	D1	CH

Date Time:

D6	D5	/	D4	D3	/	D2	D1	SP	SP	SP	D4	D3	:	D2	D1	CH

Weight:

W	E	I	G	H	T	:	SP	D6	D5	D4	D3	D2	D1	SP	D2	D1	CH

Standard Data Transmit Shape 2 (Net Weight):

Ticket No:

N	O	:	SP	SP	SP	SP	SP	D6	D5	D4	D3	D2	D1	CH

Date Time:

D6	D5	/	D4	D3	/	D2	D1	SP	SP	SP	D4	D3	:	D2	D1	CH

Gross Weight:

B	R	U	T	:	SP	SP	SP	D6	D5	D4	D3	D2	D1	SP	D2	D1	CH

Tare Weight:

T	A	R	E	:	SP	SP	SP	D6	D5	D4	D3	D2	D1	SP	D2	D1	CH

Net Weight:

N	E	T	:	SP	SP	SP	SP	D6	D5	D4	D3	D2	D1	SP	D2	D1	CH

SP: Space
CH: chr (13)

D6, D5, D4, D3, D2, D1: Data

Standard Ticket Examples:

NO: 000250
01/01/2004 16:15

BRUT: 00250.5 kg

Standard Transmit Shape 1

NO: 000250
01/01/2004 16:15

BRUT: 00250.5 kg
TARE: 00100.0 kg
NET: 00350.5 kg

Standard Transmit Shape 2

Note: You can modify or change ticket format by using parameters at P7-PRP menu.

8.3. Master - Slave Communication :

If the ports are configured in slave mode two way and full duplex communication is possible. To do that, first of all each weight indicator must be addressed. In order to take data from Slave ports the following characters must be send to the indicator.

SB	+	Address	+	ST

SB : Start Byte

Address : 1 Byte (Address Info)

ST : Stop Byte

As soon as the indicator take these bytes it will send data to master device via the ports which are dedicated as slave. This communication can be done through RS 232 or RS 422/485. It is possible to connect up to 32 indicators. Data structure is as follows :

SB	+	Address	+	Record No	+	Date	+	Time	+	Weight	+	CK	+	ST

SB : Start Byte

Address : 1 Byte (Address Info)

Record No :

D6	D5	D4	D3	D2	D1

Date :

D6	D5	/	D4	D3	/	D1	D2

Time :

D4	D3	:	D2	D1

Weight :

D6	D5	D4	D3	D2	D1

CK : Checksum

ST : Stop Byte

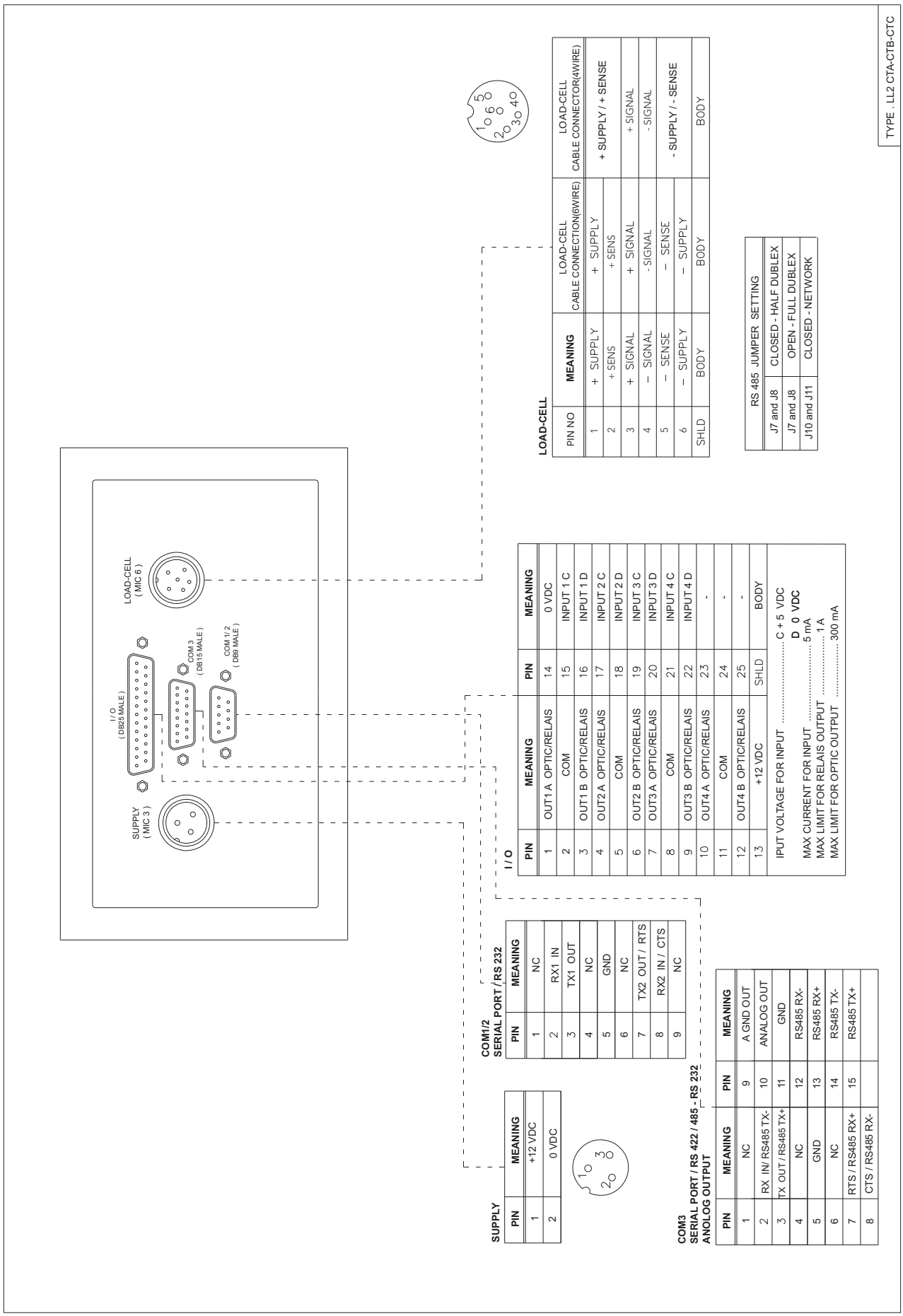
9. ERROR MESSAGES

Error 1	ADC Conversion Error	Restart the device and call our firm if error message appears again
Error 2	Signal Failure	Signals are oppositely connected. Correctit.
Error 3	Weak Signal	Check calibration parameters (especially P3.8) and steel construction of the scale.
Error 4	Division Number Error	Check maximum capacity and verification scale intervals.
Error 5	Initialization Error	Restart device. Be sure that load is still while the device is opening.
Error 6	Calibration Weight Error	Calibration Weight must be greater than or equal to 5% of maximum capacity.
Error 7	Parameter Error	Check all parameters.
Error 8	Incorrect Calibration Password	Check your calibration password and then try again.
Error 10	Calibration jumper does not exist	Attach calibration jumper. C alibration jumper must be attached in order to enter some of programming and calibration parameters.
Error 11	Date Time Error	Check date and time parameters.

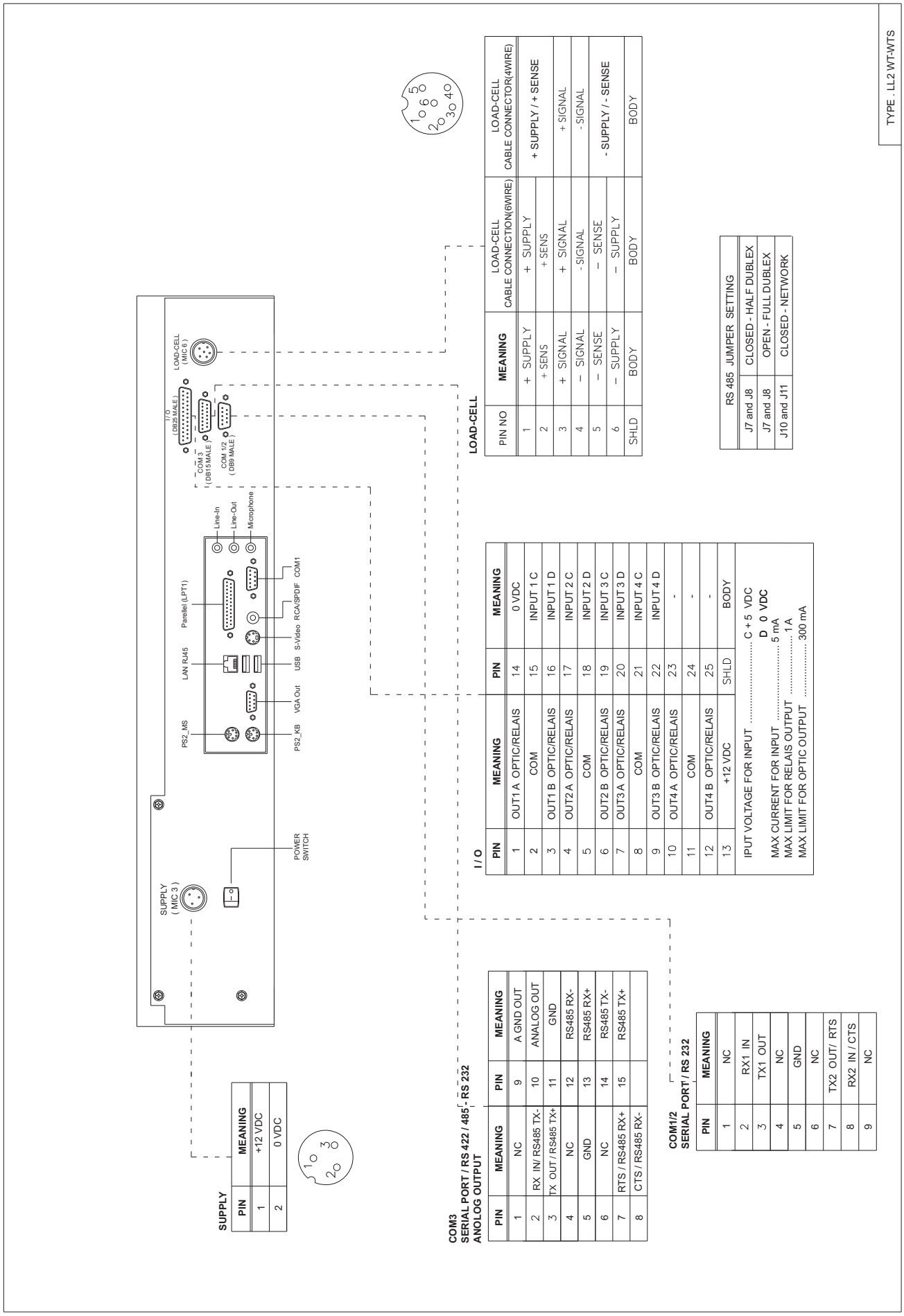
Error 12	Serial Port Selection Error	Ports selected for continuous and manual data transmit must not be the same.
Error 13	Linearization Correction Error	Difference between manually entered value and displayed weight value must be smaller than +-2% of displayed value.
Error 14	No Load Cell	There is no mV signal coming to the device, check load cell connection.

Note: If you meet with one of error messages given above, please implement relevant instructions or call one of our authorized services.

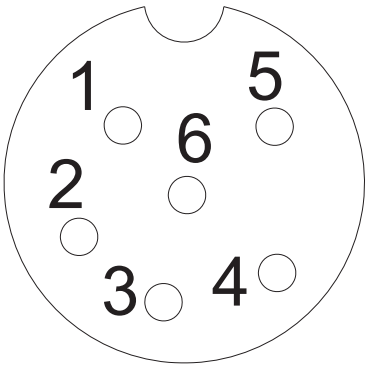
10. CABLE CONNECTIONS (TYPE CTA-CTC-CTB)



10. CABLE CONNECTIONS (TYPE WT, WT-S)



10.1 Load Cell Connection :



The load cell cable must not be channelled with other cables (i.e. outputs connected to remote switches or power supply wires), but must follow its own route.

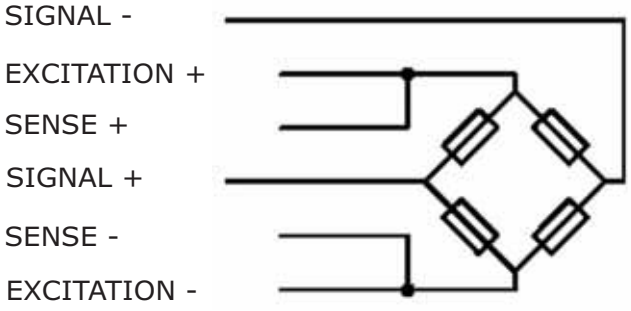
Any cable extensions must be carefully shielded, respecting the colour codes and using the same type of wire as that supplied by the manufacturer. The extension connections must be soldered or connected through support terminal blocks or the joint block supplied separately.

The load cell wire must not have more conductors than those effectively used (4 or 6). In the case of a 6-conductor wire, of which only 4 are used (excitation + and -, signal + and -), connect the sense + and -wires to the respective polarities of the excitation wires.

A maximum of eight 350-ohm load cells can be connected to the instrument in parallel. The load cell excitation voltage is 5 Vdc and is protected against a temporary short circuit.

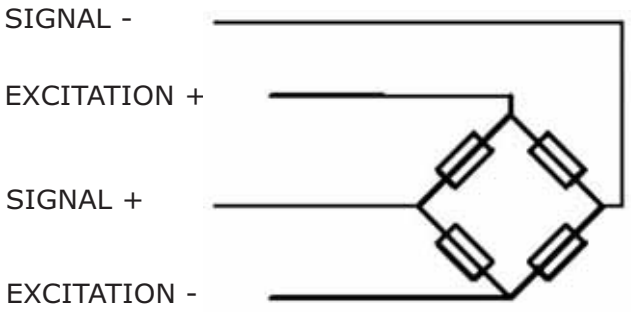
6 Wire:

PIN NO	DESCRIPTION	CABLE CONNECTION
1	+ SUPPLY	+ SUPPLY
2	+ SENSE	+ SENSE
3	+ SIGNAL	+ SIGNAL
4	- SIGNAL	- SIGNAL
5	- SENSE	- SENSE
6	- SUPPLY	- SUPPLY
SHLD	BODY	BODY



4 Wire:

PIN NO	DESCRIPTION	CABLE CONNECTION
1	+ SUPPLY	+ SUPPLY / + SENSE
2	+ SENSE	
3	+ SIGNAL	+ SIGNAL
4	- SIGNAL	- SIGNAL
5	- SENSE	- SENSE / - SUPPLY
6	- SUPPLY	
SHLD	BODY	BODY

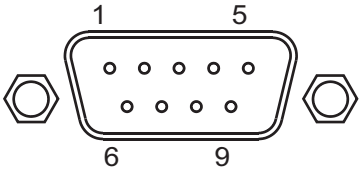


10.2 Serial Connections :

In order to create the serial connection use a shielded cable, making sure that only one of the two shield ends is grounded. If the cable has more conductors than those used, connect the free conductors to the shield.

The serial connection wire must be a maximum of 15 metres long (EIA RS-232-C standards), in addition to which it is necessary to adopt the Rs422 interface th at the instrument can be equipped with.

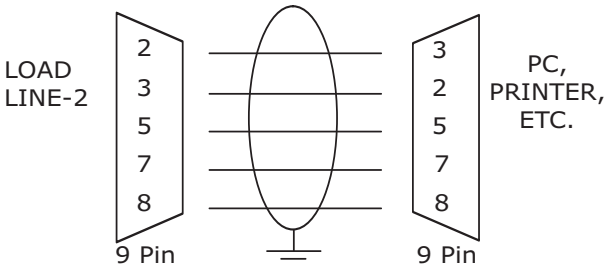
The cable must not be channelled with other cables (i.e. outputs connected to remote switches or power supply wires), but must follow its own route. The PC used for the connection must conform to the EN 60950 standard.

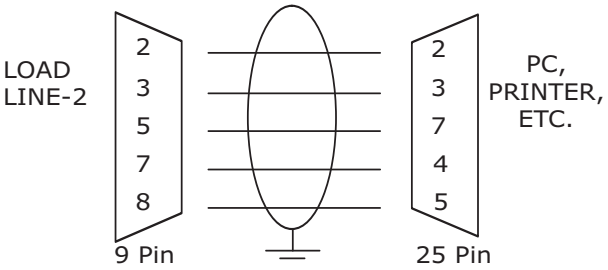


Com 1/2: (RS 232)

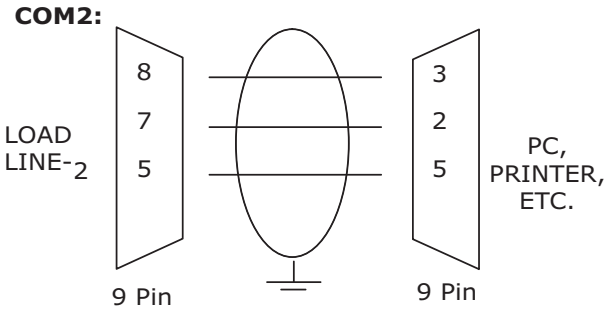
PIN NO	DESCRIPTION
2	RXD
3	TXD
5	GND
SHLD	BODY
7	RTS / TX 2
8	CTS / RX 2

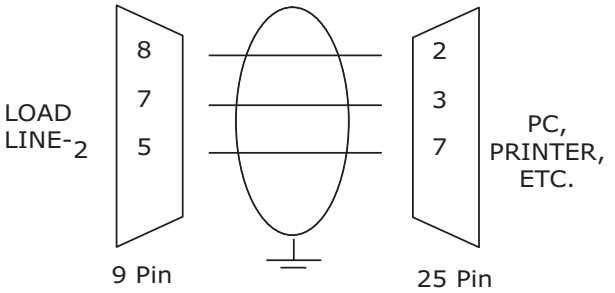
COM1:



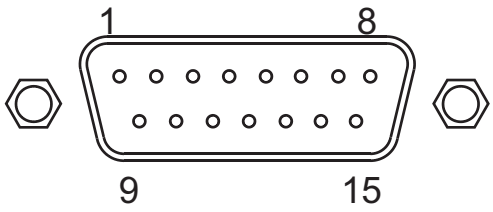


COM2:



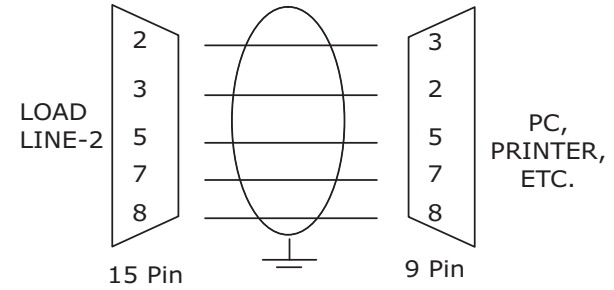


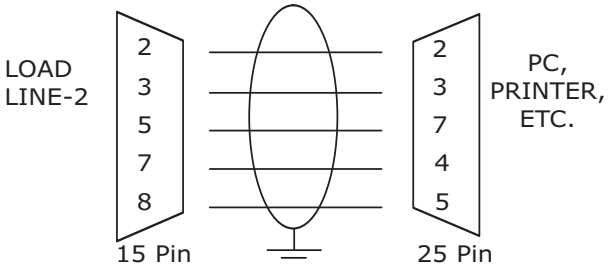
Com 3: (RS 422/485 - RS 232)



PIN NO	DESCRIPTION
1	NC
2	RX IN
3	TX OUT
4	NC
5	GND
6	NC
7	RTS
8	CTS
SHLD	BODY

COM3:



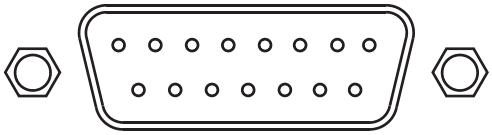


10.3 COM3 (RS422/485) Serial Connection :

- The serial connection cable must be suitable for Rs485 serial communications, with two twisted pairs and relative protective shielding.

- The cable must not be channelled with other cables (i.e. outputs connected to remote switches or power supply wires), but must follow its own route.

- The PC used for the connection must conform to the EN 60950 standard.



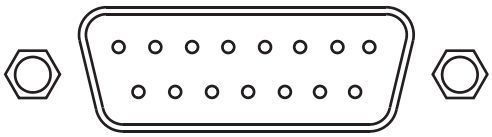
Com 3: (RS 422/485) 1

PIN NO	DESCRIPTION
12	RS485 RX-
13	RS485 RX+
14	RS485 TX-
15	RS485 TX+
SHLD	BODY

Com 3: (RS 422/485 Optional) 2

PIN NO	DESCRIPTION
2	RS485 TX-
3	RS485 TX+
7	RS485 RX+
8	RS485 RX-
SHLD	BODY

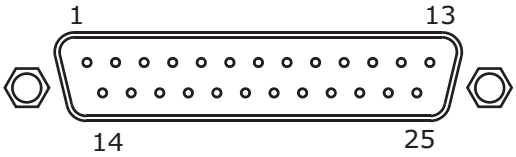
10.4 Analog Ouput (Optional) :



(DB 15 MALE)

PIN NO	DESCRIPTION
9	A GND OUT
10	ANALOG OUT
SHLD	BODY

10.5 Inputs / Outputs



PIN NO	DESCRIPTION	PIN NO	DESCRIPTION
1	OUT 1A	14	0VDC
2	COM	15	INPUT 1C
3	OUT 1B	16	INPUT 1D
4	OUT 2A	17	INPUT 2C
5	COM	18	INPUT 2D
6	OUT 2B	19	INPUT 3C
7	OUT 3A	20	INPUT 3D
8	COM	21	INPUT 4C
9	OUT 3B	22	INPUT 4D
10	OUT 4A	23	-
11	COM	24	-
12	OUT 4B	25	-
13	+12VDC	SHLD	BODY

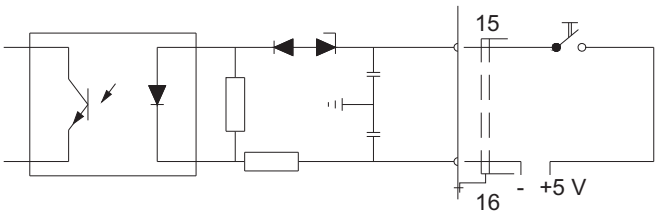
Inputs:

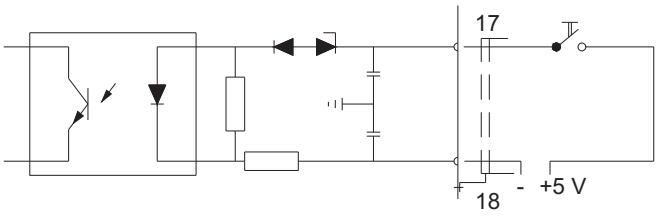
The logic inputs are electrically isolated from the instrument through opto-isolators.

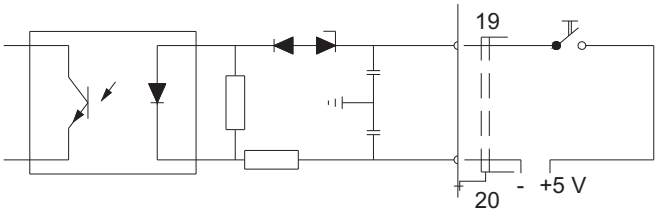
- Use the shortest possible connection wire.

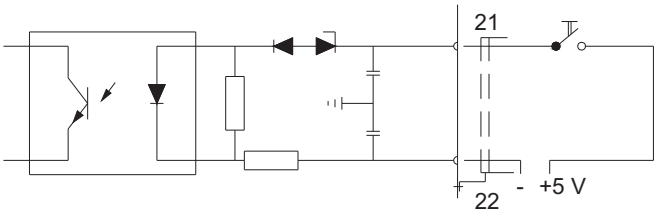
The inputs are active when a voltage of 5 Vdc is applied (PNP logic).

In order to activate a logic input, it is necessary to close the relative terminal supplied by external power.





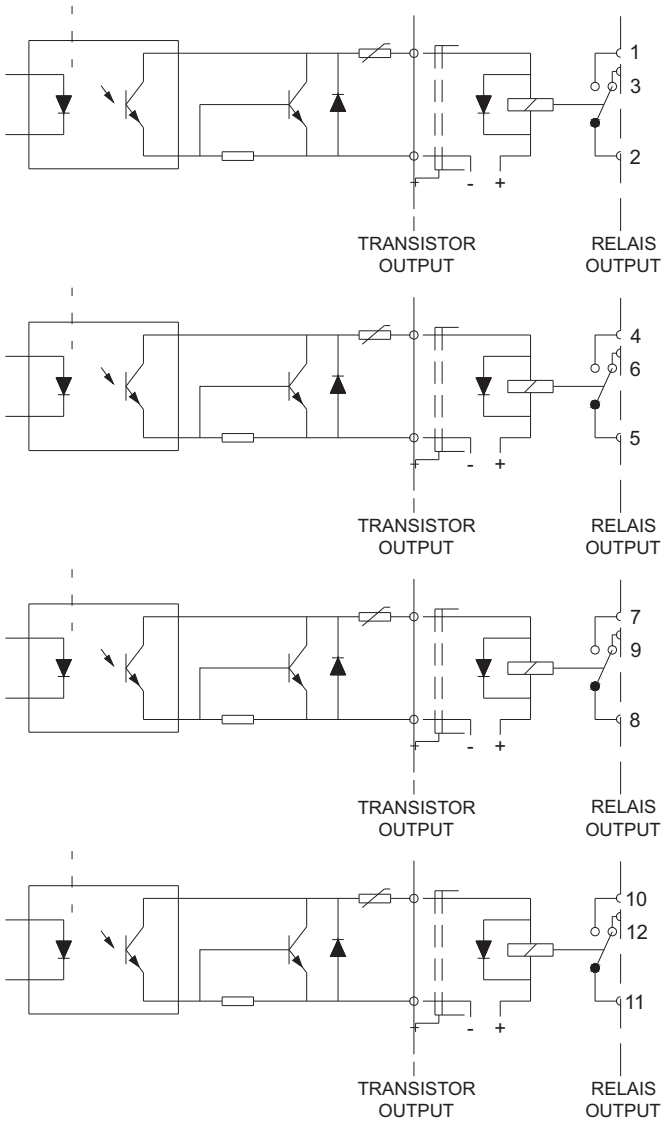




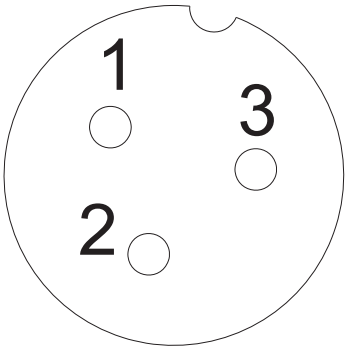
Outputs:

The logic outputs are electrically isolated from the instrument through opto - isolators.

The logic outputs are provided on a 4 relays, the rate of each contact is 1A/24Vdc or 0.5A / 125 Vac. Each output is free programmable.



10.6 Power Supply



PIN NO	DESCRIPTION
1	+12VDC
2	0 VDC

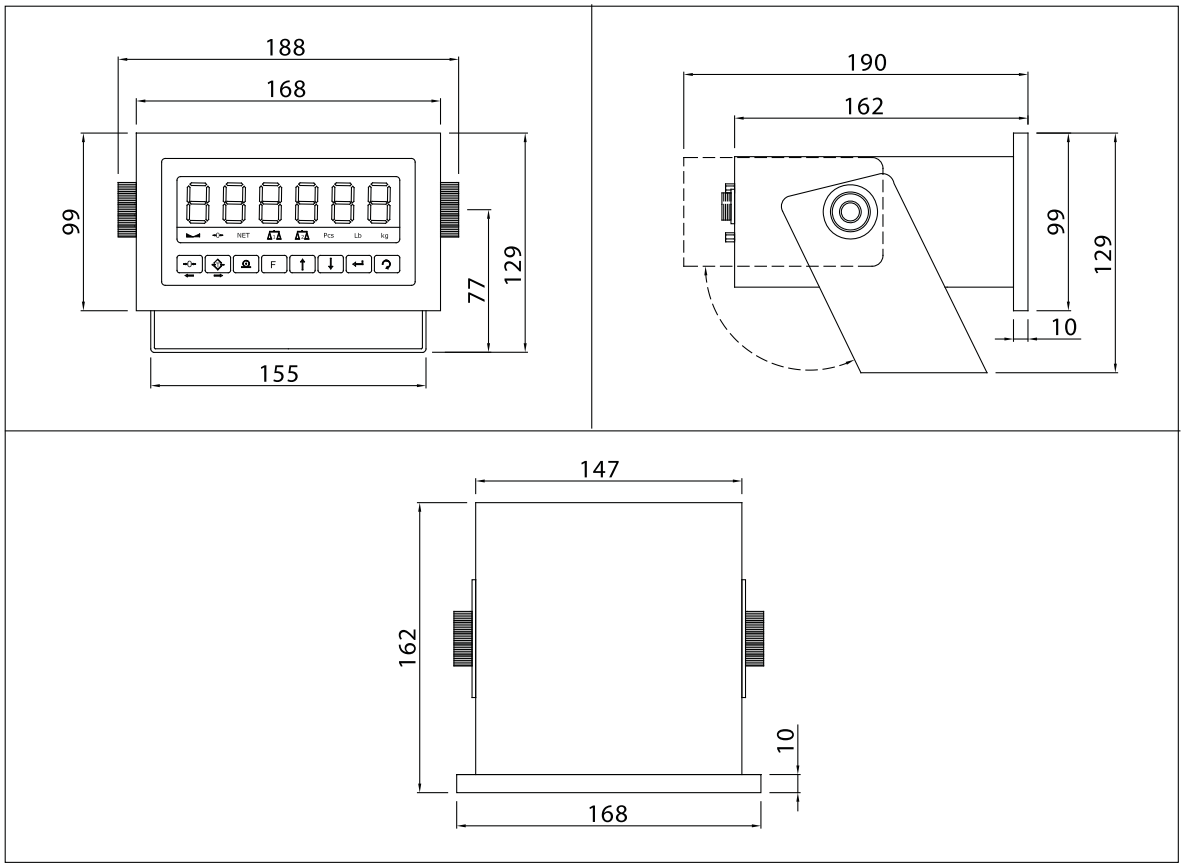
The power supply wire must be grounded and must be channelled separately from other supply wires with different voltages, from the load cell wires and the logic input/output wires.

Supply voltage: 12VDC ~ 50/60 Hz

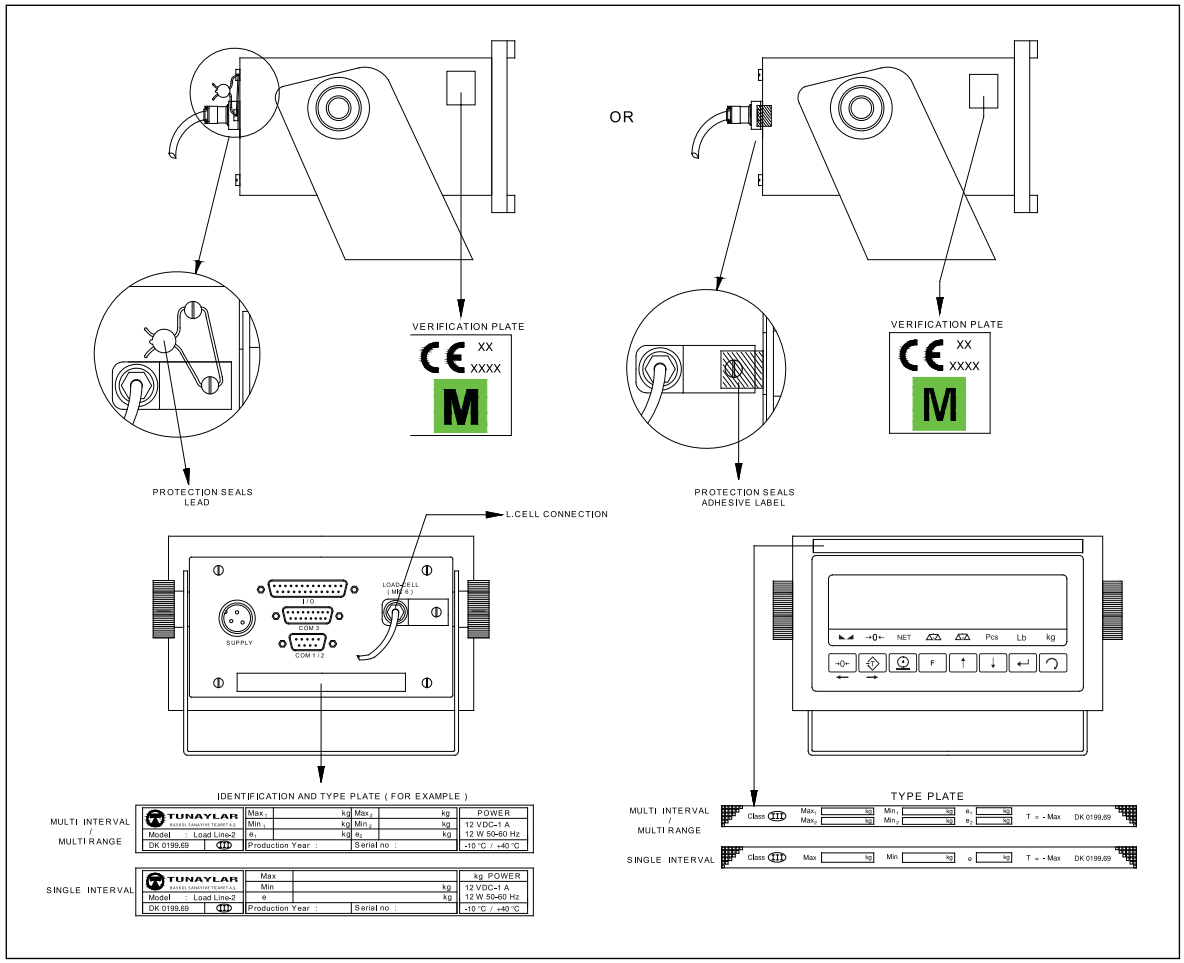
The instrument is grounded for practical reasons, therefore check the presence of valid ground protection.

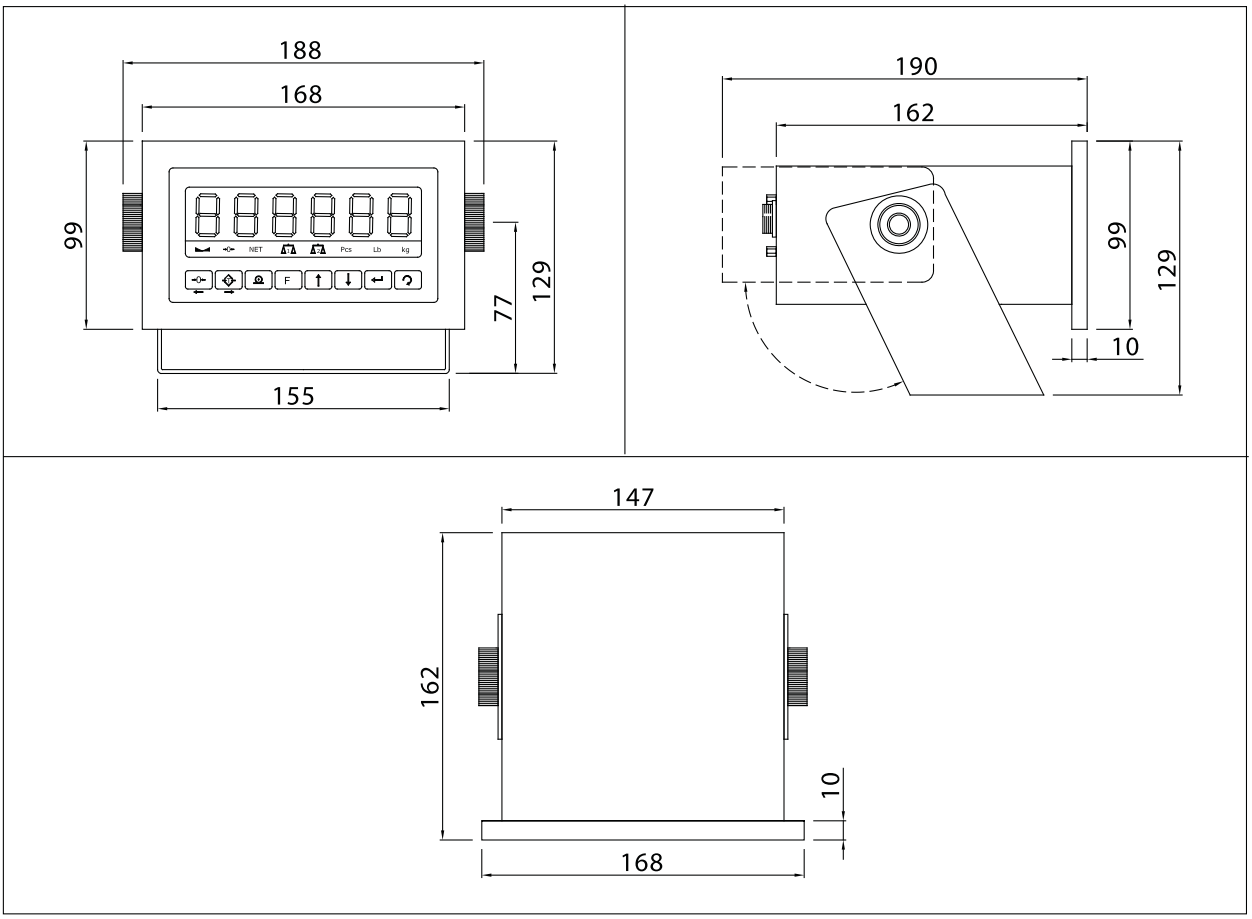
11 . DRAWINGS & SEALING PLANS

TYPE CTA

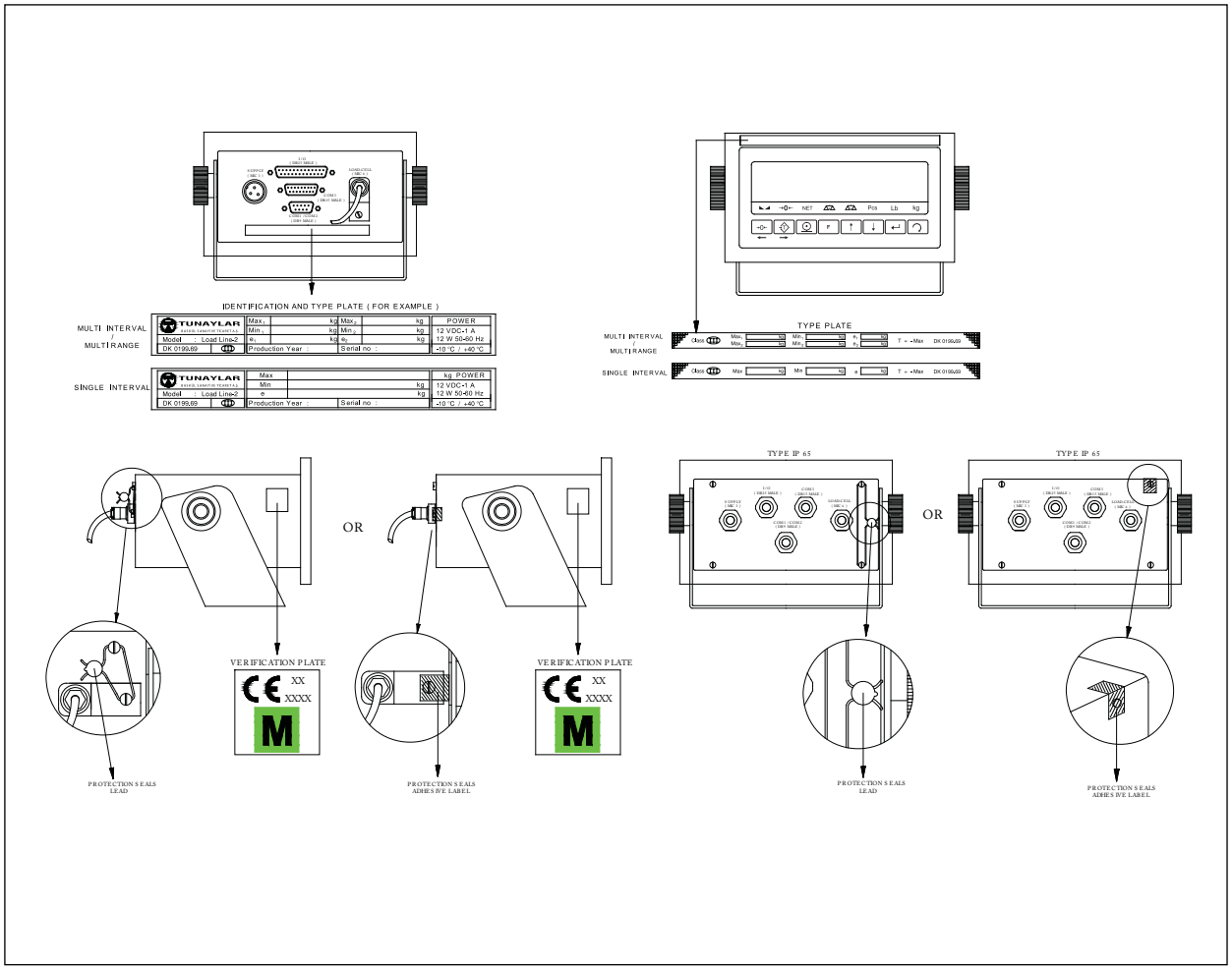


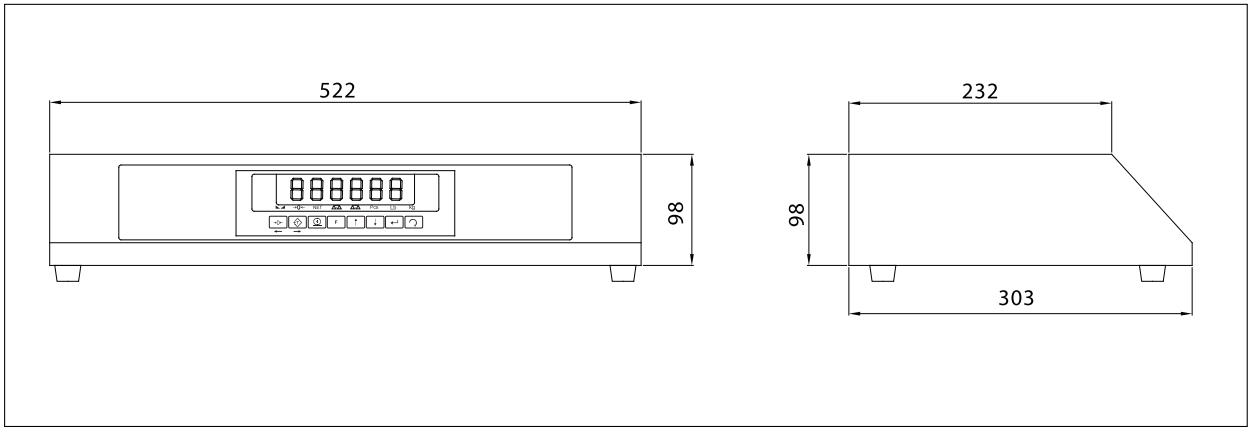
Steel



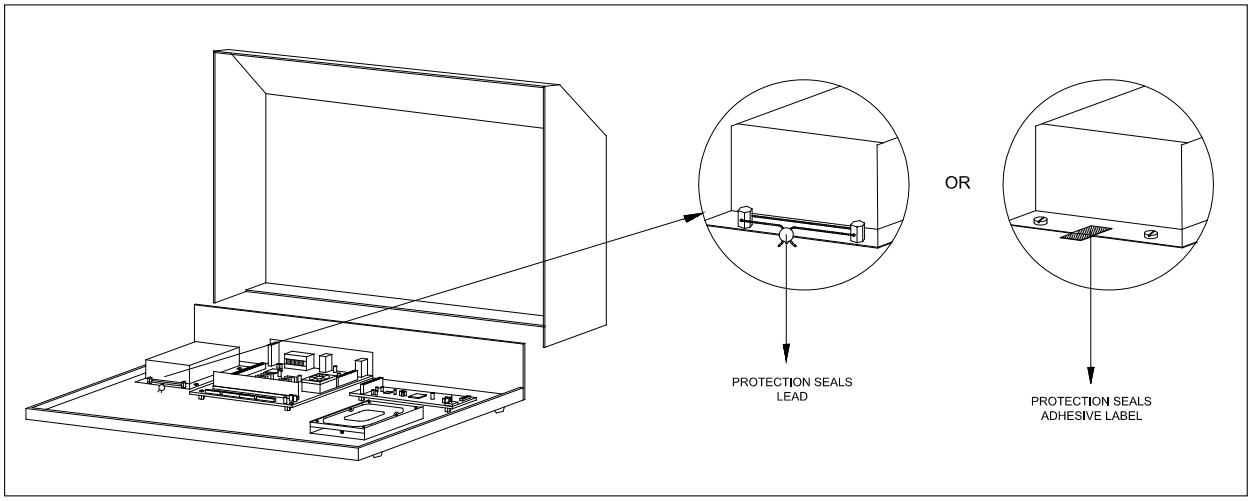


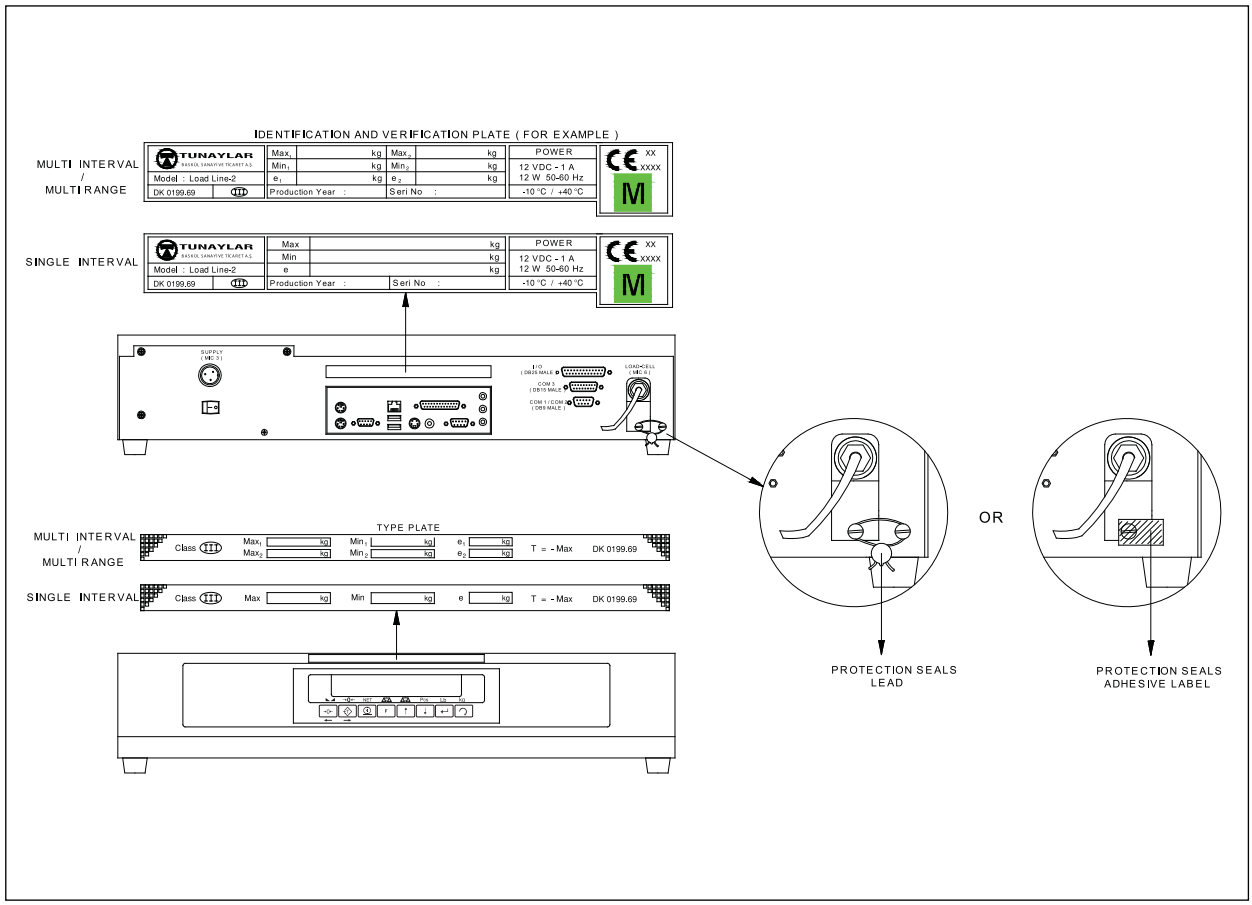
Stainless Steel

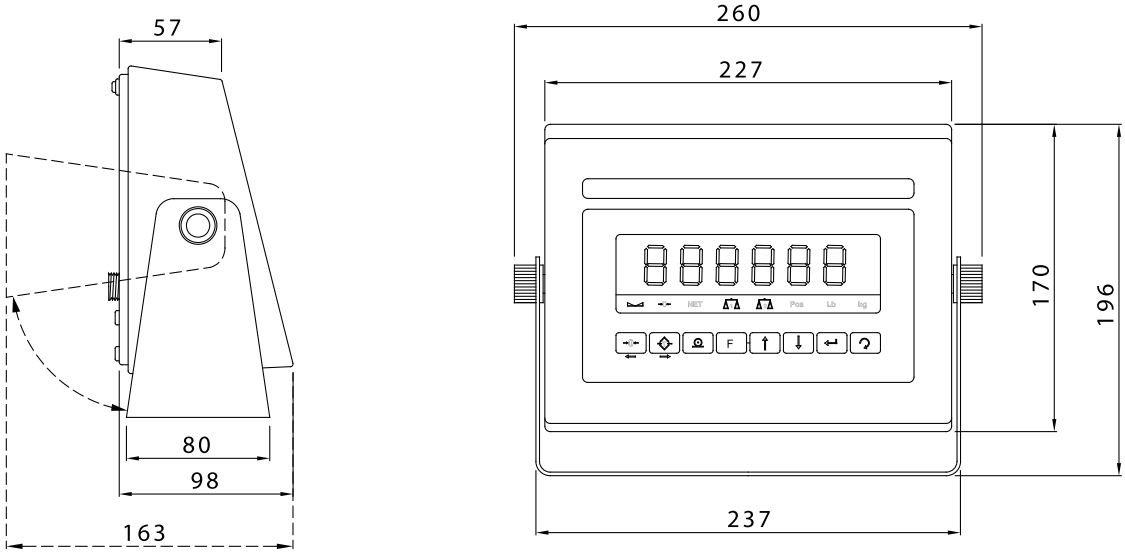




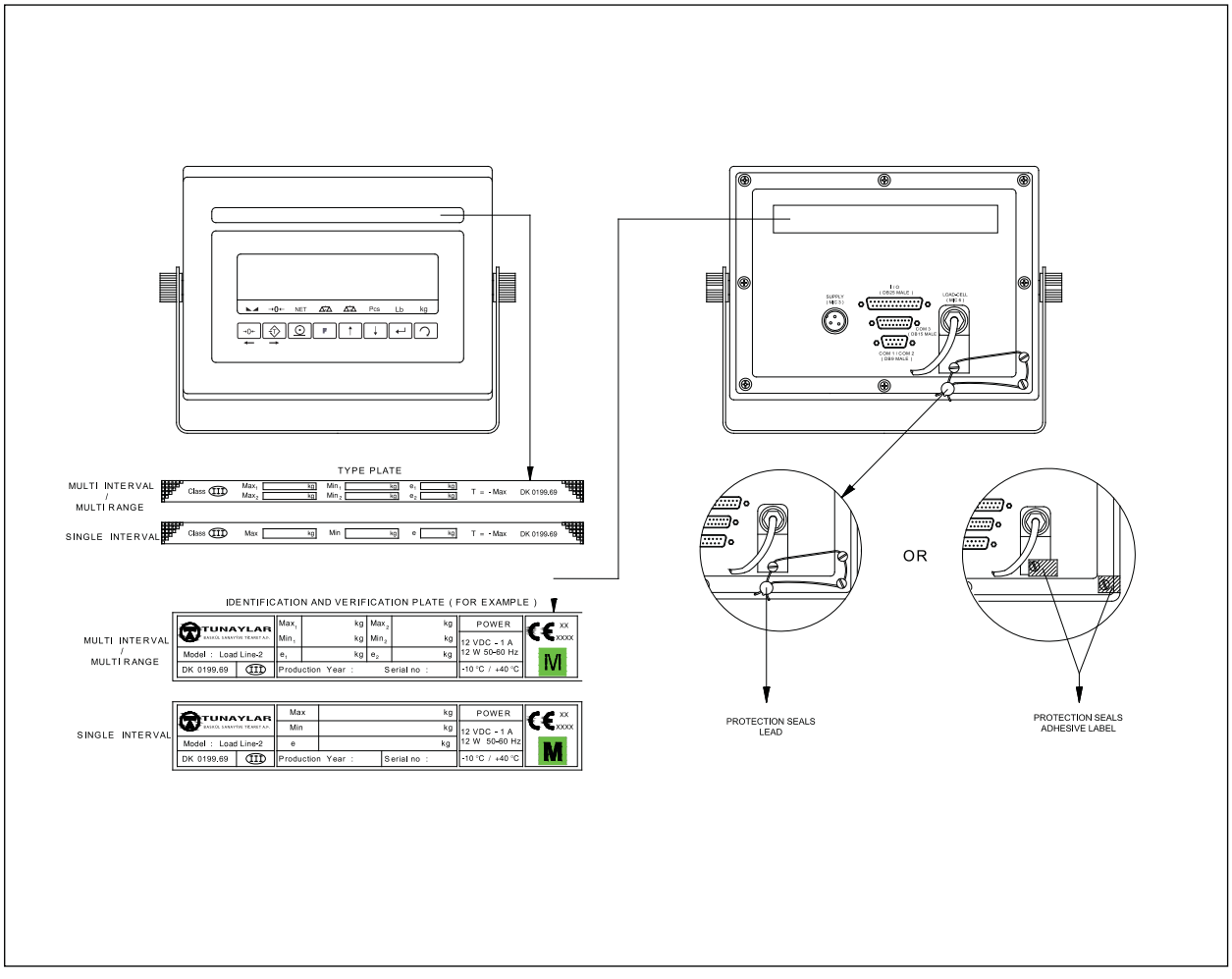
Painted & Stainless Steel







Stainless Steel



KM.LL2E.003

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