BAYKON
Industrial Weighing Systems

BX11

Smart Process Indicator

User Manual

SAFETY INSTRUCTIONS

CAUTION! READ THIS MANUAL BEFORE OPERATING OR SERVICING THIS EQUIPMENT. FOLLOW THESE INSTRUCTIONS CAREFULLY. SAVE THIS MANUAL FOR FUTURE REFERENCE. DO NOT ALLOW UNTRAINED PERSONNEL TO OPERATE, CLEAN, INSPECT, MAINTAIN, SERVICE, OR TAMPER WITH THIS EQUIPMENT. ALWAYS DISCONNECT THIS EQUIPMENT FROM THE POWER SOURCE BEFORE CLEANING OR PERFORMING MAINTENANCE. CALL BAYKON ENGINEERING FOR PARTS, INFORMATION, AND SERVICE.

WARNING! ONLY PERMIT QUALIFIED PERSONNEL TO SERVICE THIS EQUIPMENT. EXERCISE CARE WHEN MAKING CHECKS, TESTS AND ADJUSTMENTS THAT MUST BE MADE WITH POWER ON. FAILING TO OBSERVE THESE PRECAUTIONS CAN RESULT IN BODILY HARM.

WARNING! FOR CONTINUED PROTECTION AGAINST SHOCK HAZARD CONNECT TO PROPERLY GROUNDED OUTLET ONLY. DO NOT REMOVE THE GROUND PRONG.

WARNING! DISCONNECT ALL POWER TO THIS UNIT BEFORE REMOVING ANY CONNECTION, OPENING THE ENCLOSURE OR SERVICING.

WARNING! BEFORE CONNECTING/DISCONNECTING ANY INTERNAL ELECTRONIC COMPONENTS OR INTERCONNECTING WIRING BETWEEN ELECTRONIC EQUIPMENT ALWAYS REMOVE POWER AND WAIT AT LEAST THIRTY (30) SECONDS BEFORE ANY CONNECTIONS OR DISCONNECTIONS ARE MADE. FAILURE TO OBSERVE THESE PRECAUTIONS COULD RESULT IN DAMAGE TO OR DESTRUCTION OF THE EQUIPMENT OR BODILY HARM.

CAUTION! OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES.

RIGHTS AND LIABILITIES

Contents:

1. KEY FEATURES

	BX10	BX10 MB	BX11	BX11 AN	BX11 MB	BX11 PB	BX11 PN	BX11 EN	BX11 CO
1 000 to 999 999 display resolution	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
High internal resolution up to 16 000 000 counts	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Up to 1600 conversion per second	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Serial interface RS 232C	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Serial interface RS 485	-	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Analogue output	-	-	-	Yes	-	-	-	-	-
Profibus DPV1 interface	-	-	-	-	-	Yes	-	-	-
Profinet interface	-	-	-	-	-	-	Yes	-	-
Ethernet interface	-	-	-	-	-	-	-	Yes	-
CANopen interface	-	-	-	-	-	-	-	-	Yes
Continuous data output	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fast Continuous data output	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
BSI data interface	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Modbus RTU	-	Yes	-	Yes	Yes	Yes	Yes	Yes	Yes
Modbus TCP	-	-	-	-	-	-	-	Yes	-
2 programmable digital input/output (non-isolated)	Yes	Yes	-	-	-	-	-	-	-
1 digital input and 3 relay contact output	-	-	-	-	-	Yes	Yes	-	Yes
2 digital input and 4 relay contact output	-	-	Yes	Yes	Yes	-	-	Yes	-
Bidirectional signal input for force measurement	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Unit selection (g, kg, t, lb, klb, N, kN)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Peak function	-	-	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hold function	-	-	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Auto-zero tracking and auto-zero at power-up	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Motion detection	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Zeroing and Taring via interface	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adaptive digital filter for faster measuring	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Electronic calibration (eCal) without test weights	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Electronic calibration (eCal) over field bus	-	Yes	-	Yes	Yes	Yes	Yes	Yes	Yes
Zero and Span calibrations over field bus	-	Yes	-	Yes	Yes	Yes	Yes	Yes	Yes
Zero adjustment	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Span adjustment with test weights	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Span adjustment for filled tanks	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3 point calibration (linearity correction)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Programming by BAYKON IndFace1X PC software	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
8 load cells 350 Ω or 18 load cells 1100 Ω	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
12 to 28 VDC power supply range	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

2. The Front View and Key Functions

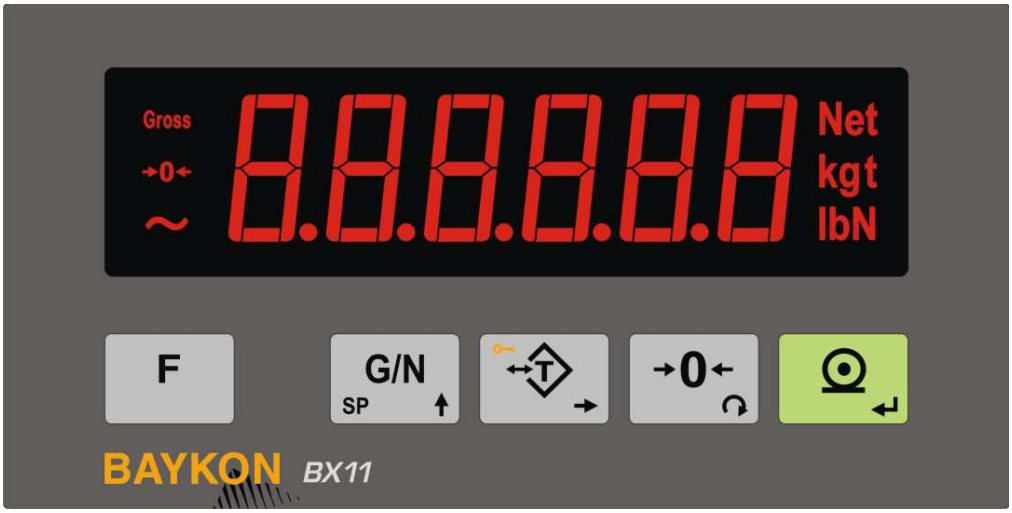


Figure 2-1 - Front panel view of BX11

2.1 Display

The weight display of BX11 is seven segments LED. At the right side of the display there are three LED's for indicating the net, gross and the unit (standard kg). The meanings of the announcement LED's on the display are:

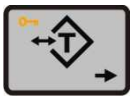
Gross	Announces the indicated value is the gross weight.
Net	Announces the indicated value is the net weight.
→0←	Announces the weight is in the center of zero.
~	Announces the weight value on the display is unstable.
Units	g, kg, t, lb, klb, N, kN units are located on the right of the display.

2.2 Key Pad

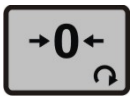
The keys and the key functions of BX11 are:

Function: Key function is programmable to Increased Indication, Total, Tare value indication, CN value indication, Peak function and Hold function at parameter [**116**].

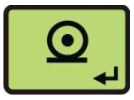
GN / Set Point: Pressing this key indicates the Gross weight temporarily. To enter the set point menu, long press this key.



Tare / Clear: Pressing this key tares the scale and get into the Net mode.



Zeroing: In Gross mode, if the scale doesn't show zero while there is no load on the pan, you can zero the scale by pressing this key.



Print: By pressing this key weight data and other information depending on the setup parameters sent to a printer or a PC via serial port.

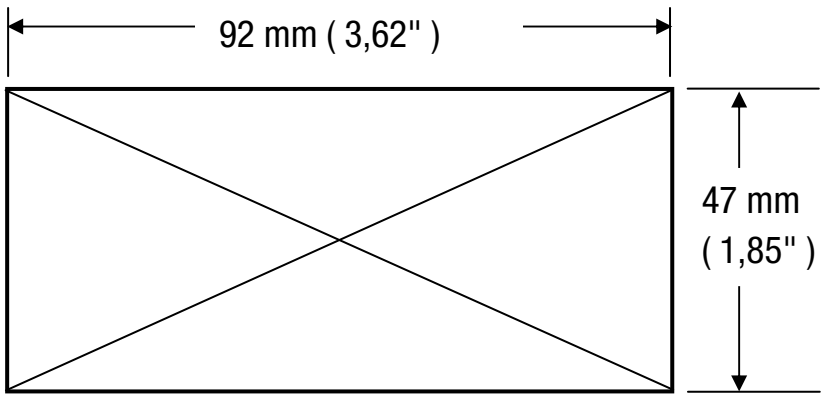
2.3 Key Lock

BX11 has ability to lock the keys to avoid unauthorized person's interfere. The key(s) which would be locked are programmed at parameter [**115**].

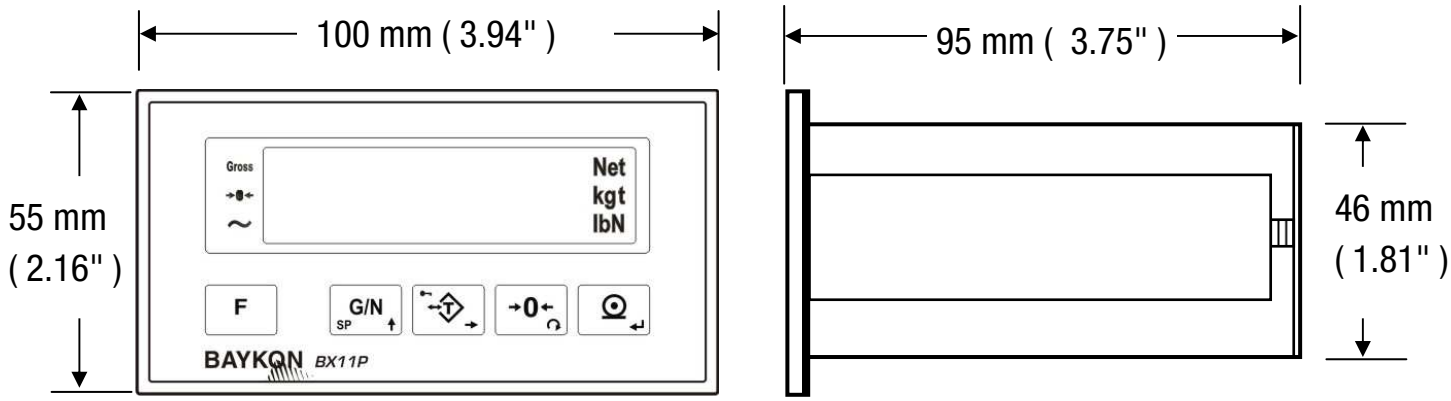
You can activate or deactivate this function by long pressing <**F**> key, press <**Tare/Clear**> and <**Print**> keys sequentially. [**Lock**] prompt appear for a short while to indicate the pressed key is locked.

2.4 Housing

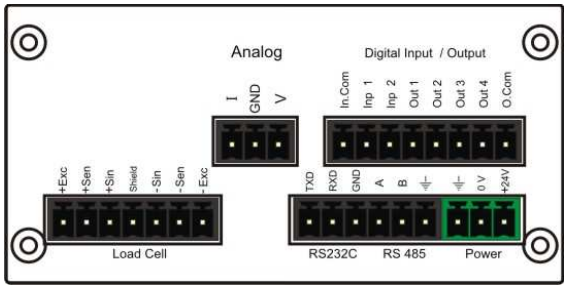
BX11 housings are panel type with stainless steel front and back parts, and aluminum body.



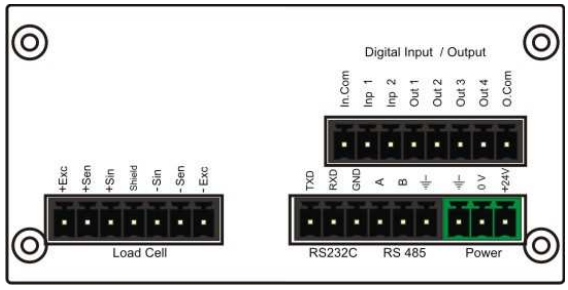
The hole dimensions for mounting BX11 on the panel



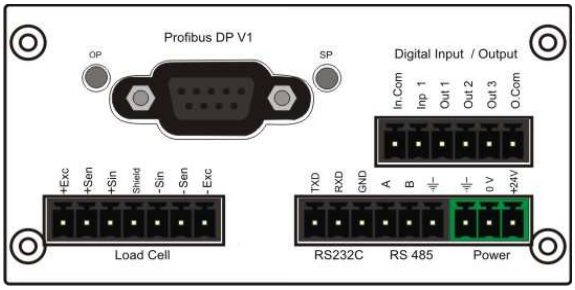
BX11 front and side view



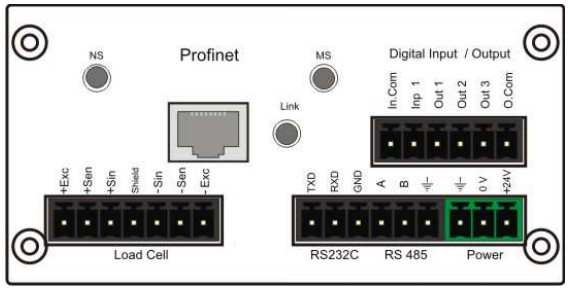
BX11 AN Panel type rear view



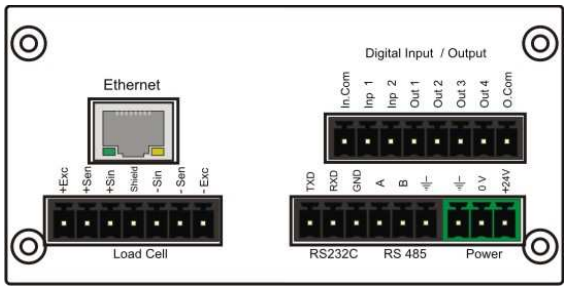
BX11 & BX11 MB Panel type rear view



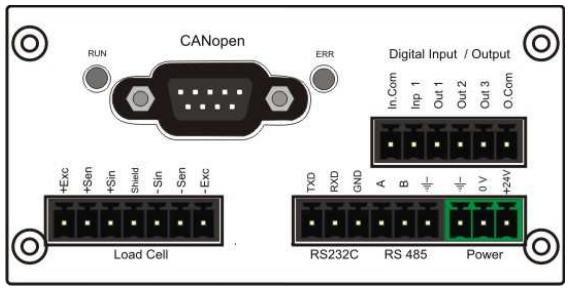
BX11 PB Panel type rear view



BX11 PN Panel type rear view



BX11 EN Panel type rear view



BX11 CO Panel type rear view

2.5 Accessories supplied with the instrument

The following accessories are supplied together with the BX11 instruments. If any part is missed, please contact to your supplier.

	BX11	BX11 AN	BX11 MB	BX11 EN	BX11 PB	BX11 PN	BX11 CO
3-pos and 3,81 mm pitch green plug for power supply and analogue output	1	2	1	1	1	1	1
7-pos and 3,81 mm pitch black plug for load cell cable	1	1	1	1	1	1	1
6-pos and 3,81 mm pitch black plug for RS 232C&RS 485 and I/O	1	1	1	1	2	2	2
8-pos and 3,81 mm pitch green plug for I/O	1	1	1	1	-	-	-
Installation CD (IndFace1X setup, user manual and technical documents)	1	1	1	1	1	1	1

Table 2.1 - Accessories supplied with instrument

2.6 Accessories sold separately

The following accessories can be supplied from BAYKON.

	BX11	BX11 AN	BX11 MB	BX11 EN	BX11 PB	BX11 PN	BX11 CO
RS-232C cable for PC connection (3 meter)	√	√	√	√	√	√	√
Junction box for load cell connection	Refer to junction box catalog						
Open end load cell cable 6 wire (0.22 cm^2 each)	Maximum 200 meter length						

Table 2.2 - Accessories supplied separate

3. INSTALLATION

PRECAUTION: *Please read this section carefully before installation of the instrument. Applying the recommendations in this section will increase your system reliability and long term performance.*

3.1 Recommendations

Control Cabinet Design

Warning: *Please care the following warnings for designing the control cabinet which will increase your system reliability.*

The control cabinet should be designed so that Analog Digitizer can operate safely. The panel should be placed clean area, not getting direct sun light if possible, with a temperature between -10 ºC and +40 ºC, humidity not exceeding 85% non-condensing. All external cables should be installed safely to avoid mechanical damages.

BX11 instruments are very low level signal measuring instruments. To avoid electrical noise, BX11 should be separated from the equipments that produce electrical noise. Preferable use metal cabinet against radio frequency interference and the cabinet shall be connected to ground against the electromagnetic disturbances. Load cell cable trays must be separated from others, if possible. If there are noise-generating equipments such as heavy load switches, motor control equipments, inductive loads etc., please be careful against the EMC interference in the cabinet. If possible protect BX11 instruments with the faraday cage or install them in separate section or install them far a way from this kind of equipments. Connect parallel reverse diodes to the DC inductive loads like relays, solenoids etc. to minimize voltage peaks on the DC power lines.

Cabling

All cables coming to the control cabinet shall be shielded. Please use separate cable tray for these low signal level cables. Distance from load cell cables, interface cables and DC power supply cables to power line cables shall be minimum 50 cm.

Warning: *Please always remember that BX11 instruments are very low voltage measuring instruments. Your control cabinet design and proper installation increases reliability and performance of the instrument. Please do not forget that the instrument must be powered off before inserting or removing any peripheral connector.*

3.2 How to install the instrument and Scale ?

Please folow the installation and commissioning steps described below carefully to prevent unwanted results after installation.

Step 1. Mechanical Installation

Take care to the housing dimensions and the suggested panel hole dimensions given in the *Page 4*. Install the indicator on the panel with its panel fixing accessories. Be sure, all mechanical installation of your mechanical system and panel are finalizing before starting the next step.

Step 2. Load Cell Connection

Warning: *After load cell connection to the instrument, the welding on the mechanical constriction is not recommended. Disconnect all connectors from indicator before welding on the mechanical hardware.*

Load cell connection detail is shown in Figure 3-1. In 4-wire installations the sense and excitation pins with the same polarity **should be short circuited** at the connector side. If you have junction box, use 6 wire cable between BX11 and the junction box, and short circuit these pins at junction box for better performance.

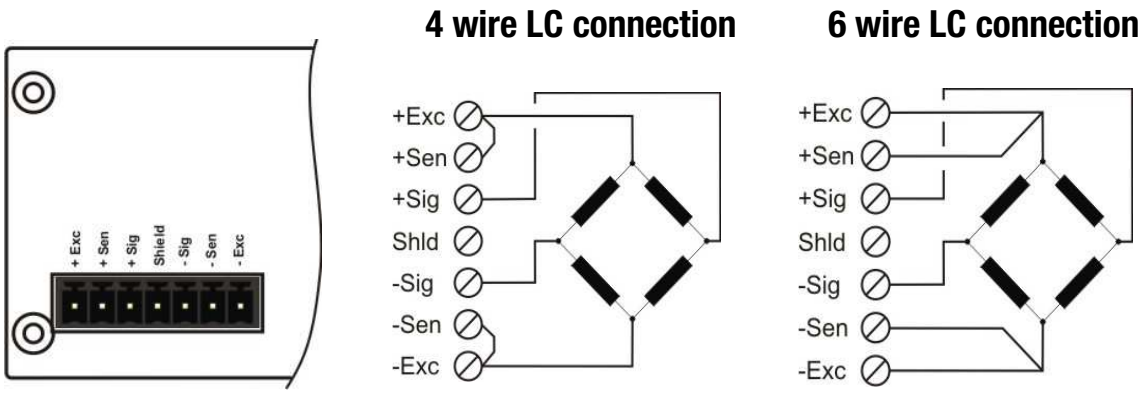


Figure 3-1 - Load cell connections

Warning: *Always connect Sense pins to Excitation pins for 4 wire connection. Non-connected sense pins may cause the wrong Excitation voltage measurement and create an accuracy problem.*

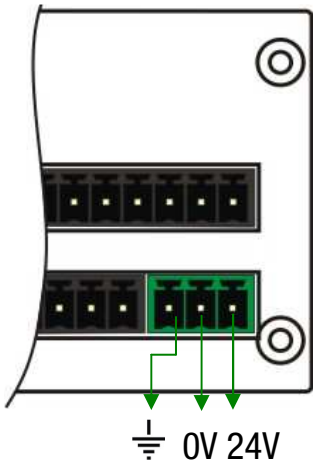
Warning: *Connect the load cell cable shield to the reference ground or shield pin of the load cell connector.*

Step 3. Power Supply Connection and Grounding

The quality of the instrument's ground will determine the accuracy and the safety of your measuring system. A proper ground connection is needed to minimize extraneous electrical noise affects on the measurement. A poor ground can result in an unsafe and unstable operation. It is important that the instrument should not share power lines with noise-generating parts such as heavy load switching relays, motor control equipments, inductive loads, etc. If the condition of the power line in the plant is poor, prepare a special power line and grounding.

Power supply voltage of the instrument shall be between 12 VDC and 28 VDC. The pin configuration of the 24 VDC power supply connector located right - bottom of the instrument is shown in

Figure 3-2 below. Be sure, the power supply is switched of before connection.



The pin layout of the 24 VDC connector of BX11 Series

(rear view)

Figure 3-2 - The pin layout of 24VDC connector

Warning: *Before interfering the instrument, turn off the power and wait at least for 30 seconds.*

Warning: *Connect the grounding ⏚ pin to the reference ground.*

Step 4. Energize the instrument

Check the mechanical installation, grounding, load cell connection and power supply connection to be sure the correct electrical installation before energizing the instrument. If before steps are done properly energize the instrument.

Step 5. Set the calibration switch to programming and calibration

Warning : *If the scale is sealed before, call the authorized person before interfaring the scale.*

If there is a DIP switch on BX11's rear side and its position should be "ON" (downward) to change the metrological related parameters including calibration. No need to open the housing to change the position of this DIP switch.

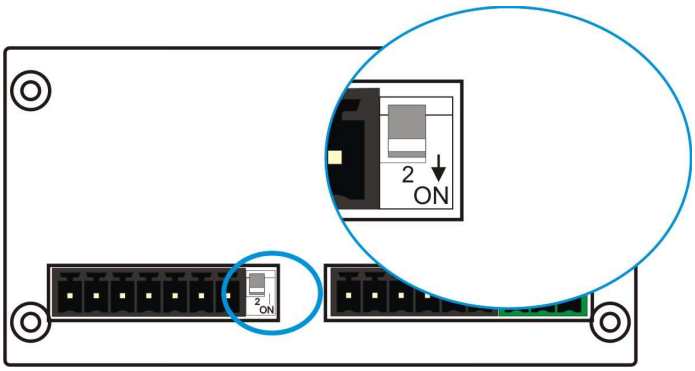


Figure 3-3 - The location of calibration DIP switch

Step 6. Programming

You will program the instrument according to your application in this step. Adjust;

- Interface parameters in block [**00-**] RS232 and [**01-**] RS485 serial ports,
- Configuration parameters in block [**1--**] for scale functions related with application like saving tare before power off and restart in Net mode and digital I/O related entries.
- Set up parameters to set up the scale in block [**2--**] like zeroing range. Please remember these parameter values are restricted for scale usage in trade. You have to enter the scale capacity and devision values in this block.

Warning: *The programming and parameter descriptions are referred in Page 17. We recommend you to save these parameters before next step against to lost the adjustments in this step if calibration can not performed somehow.*

Step 7. Calibration

You will calibrate the scale after programming the parameters. You may follow one the calibration methods below.

- eCal Electronic calibration without test weight need via IndFace1x or fieldbus. Refer to *Page 21*
- Full calibration via keys on the instrument by using test weight. Refer to *Page 21*.
- Zero adjustment and span adjustment in sequence via keys or fieldbus. Span calibration is needed test weight. You may save the zero adjustment before starting span adjustment. Refer to *Page 23*.
- Zero adjustment and span adjustment under load in sequence via keys if the scale cannot be emptied when the span adjustment is performed. Need test weight for span calibration. Refer to *Page 24*.

You may access to the calibration menu from operation menu by following the description in fast access to the calibration section (*Page 23*). After the calibration go back to the operation menu after saving adjustment (Refer to *Page 17*)

Remember: *You may use parameter 905 to follow the load cell output voltage on loading, if you can not perform the calibration.*

Step 8. Testing the scale performance

You have to check your scale performance by testing the scale eccentricity, scale linearity at loading until maximum loading value and unloading, repeatability etc. before using it. If testing results are not in your limits recheck the steps above and your hardware to find the error source.

Step 9. Bring the DIP switch to up position to unlock the scale adjustment

If the DIP switch is bring to the downward position for programming, push it to the upward position to lock the scale adjustment against interfaring the un-autorized persons in to the scale. If the scale is used in non-trade industrial weighing, this step is not must.

Warning: *If the scale is used in trade, the scale should be sealed after bringing the DIP switch to the upward position sealed before. Call the authorized person for sealing the scale, if need be.*

Step 10. Peripheral related parameters programming, if any

If you will connect any peripheral to the instrument, you have to set the related parameters up. Refer to *Page 11* for digital input/output, *Page 24* for analog output programming and technical manual for fieldbus interfacing.

Step 11. Peripheral connections

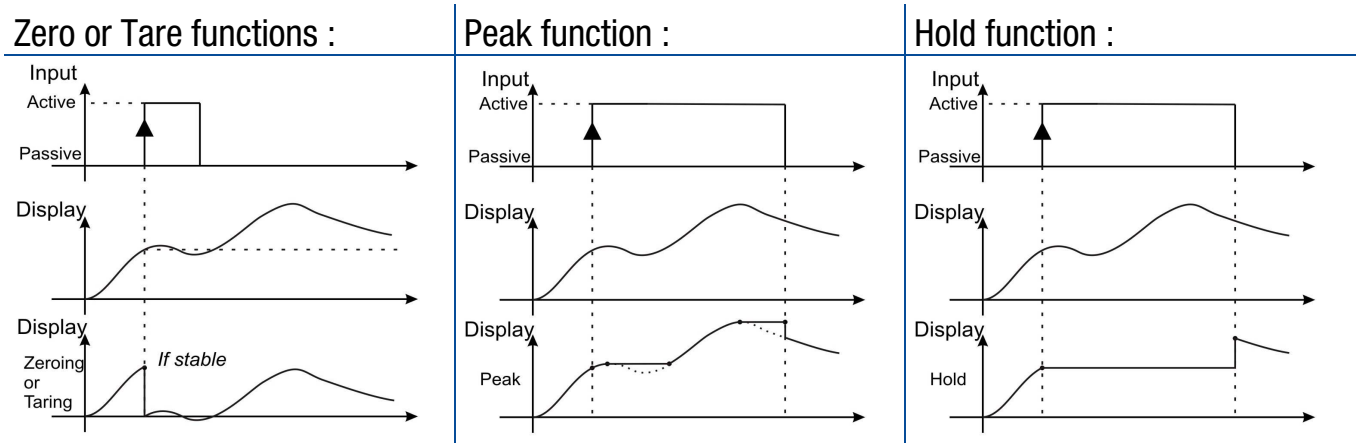
If you will make any peripheral connection like digital input, digital output, RS232, RS485 and fieldbus etc. switched off the power supply and connect you peripheral as described below and in the related section of this manual. You will find detailed description on the peripheral connection and interfacing details in the BX11 technical manual.

Important : *Powered off the instrument before any connector installing to the instrument.*

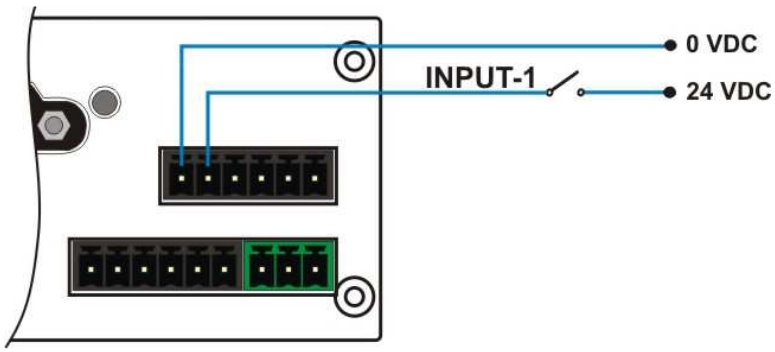
Digital Input Connection

BX11 inputs which are independently programmable for zeroing, taring, clear, print, key lock, peak, hold, and as a fieldbus input port. If the input is programmed as a fieldbus input port, the input status is transferred to the PLC by fieldbus command.

Inputs are 12~28 VDC,10 mA.



Inputs connection diagram is shown in Figure 3-4.



BX11 PB, BX11 PN,
BX11 CO

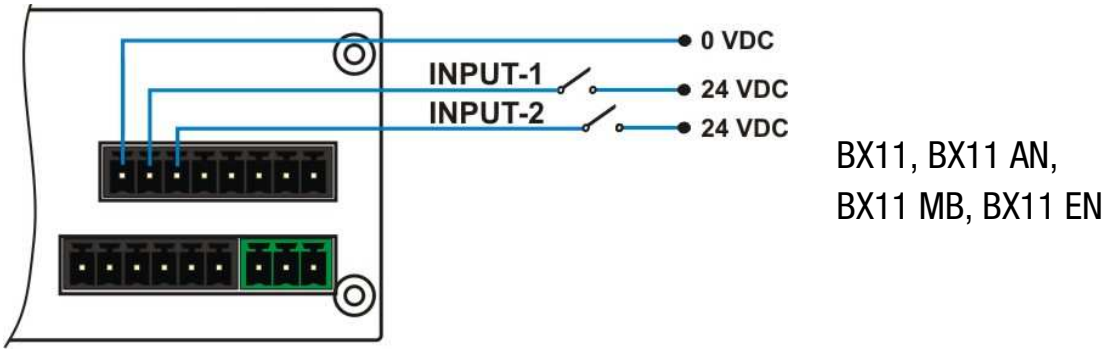


Figure 3-4 - BX11 Inputs connection diagram

Digital Output Connection

BX11 instruments digital outputs are can be used as a standard, threshold and window. Threshold and window outputs are also programmable positive or negative polarity. Digital outputs of BX11 are also programmable as a fieldbus port to control them with a fieldbus commands. Refer to parameter [**130**] and [**70-**].

Outputs are 250 VAC or 30 VDC, 1A. Outputs connection diagram is shown in Figure 3-5.

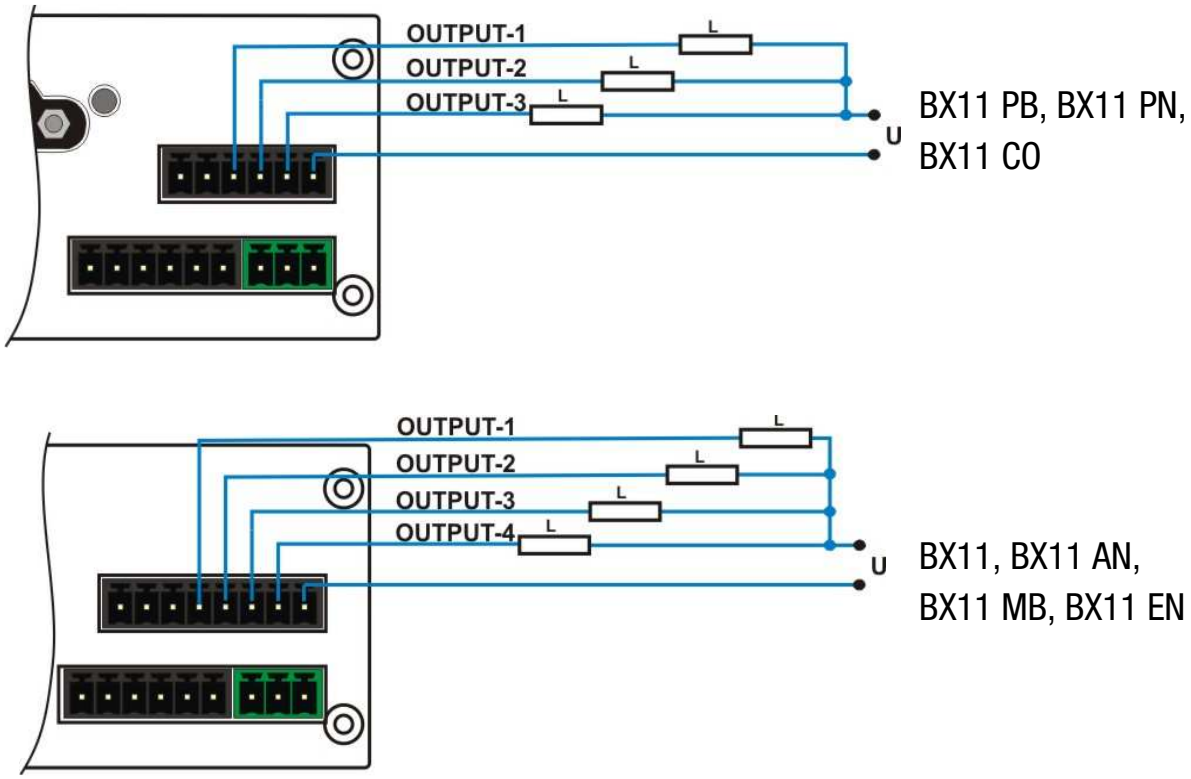
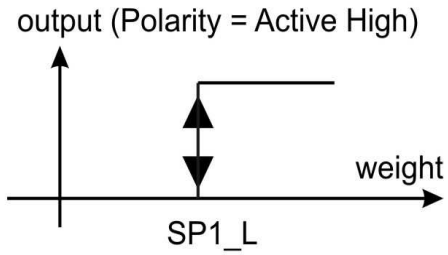
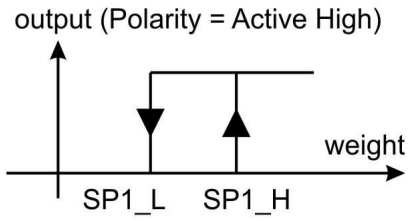
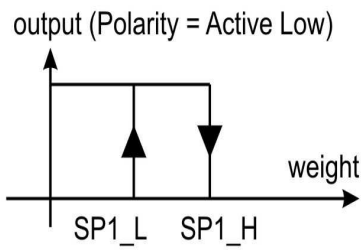
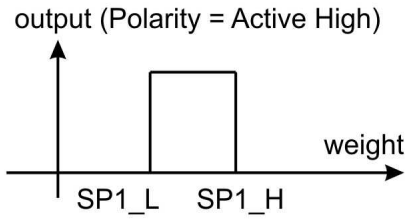
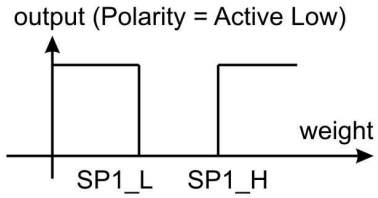


Figure 3-5 - BX11 Outputs connection diagram

Standard Output: Only one set point value is entered. The output state is forced active high when the weight is higher than SP1, else the output is passive. Refer to parameter [**130**].		
Threshold Output: 2 set point values are entered. SP1 is the point that the output goes active when the weight increased from SP1_H. SP1_L is the point that the output drops to passive state when the weight decreased to SP1_L. Inverse function is available. Refer to parameter [**7--**].		
Window Output: 2 set point values are entered. The output is active when the weight is between SP1_L and SP1_H. Inverse function is available. Refer to parameter [**7--**].		

RS 232C Connection

RS 232C port usage and specifications are shown in the table below.

Usage	Interfacing with PC or PLC, remote display connection, programming via IndFace1X
Data formats	Continuous, Fast Continuous, Printer Format, BSI Protocol, Modbus-RTU High-Low, Modbus-RTU Low-High (*Parameter* [**000**])
Baud rate	1200 / 2400 / 4800 / 9600 (Default) / 19200 / 38400 / 57600 / 115200 bps (*Parameter* [**001**])
Length and parity	8 bit no parity (Default), 7 bit odd, 7 bit even (*Parameter* [**004**])
Start/ Stop bits	1 start bit and 1 stop bit

RS 232C serial connection is done with three wire as indicated below in Figure 3-6.

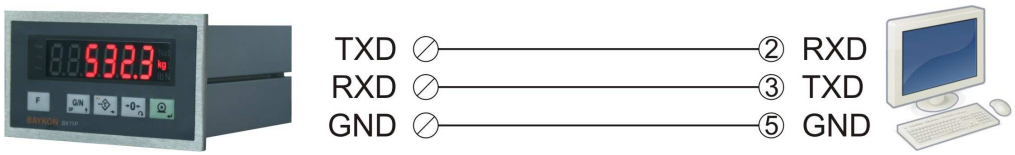


Figure 3-6 - RS 232C serial interface connections

Warning: *Connecting the shield to the reference ground will protect your weighing system against EMC disturbances.*

RS 485 and Modbus-RTU Connection

RS 485 port usage and specifications are shown in the table below.

Usage	Interfacing with PC or PLC, remote display, programming via Indface,
Data formats	Continuous, Fast Continuous, Printer Format, BSI Protocol, Modbus-RTU High-Low, Modbus-RTU Low-High (*Parameter* [**010**])
Baud rate	1200 / 2400 / 4800 / 9600 (Default) / 19200 / 38400 / 57600 / 115200 bps (*Parameter* [**011**])
Length and parity	8 bit no parity (Default), 7 bit odd, 7 bit even (*Parameter* [**014**])
Start / Stop bits	1 start bit and 1 stop bit

RS 485 serial connection is done with three wire as indicated below in Figure 3-7. Line termination resistors (110 ohm) are needed both ends of the RS 485 line.

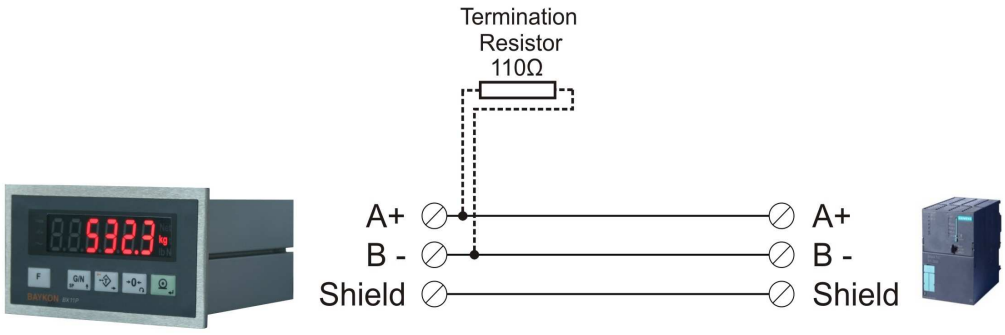


Figure 3-7 - RS485 serial interface connections

Warning: *Connect the shield to the reference ground.*

Warning: *Disconnect IndFace1X PC software before starting Modbus-RTU interfacing.*

Analogue Output Connection (only BX11 AN)

BX11AN is programmable to 4 – 20 mA, 0 – 20 mA, 0 – 5 V or 0 – 10 V analogue output types.

Analogue connections are done as indicated below in Figure 3-8 and Figure 3-9**.**

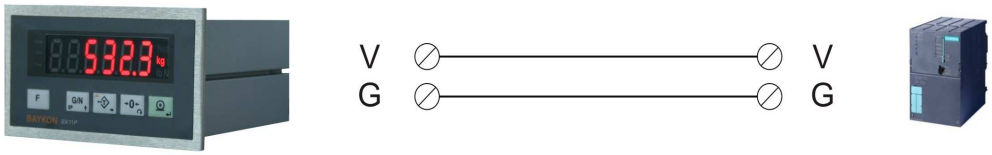


Figure 3-8 – BX11 AN Voltage output connections

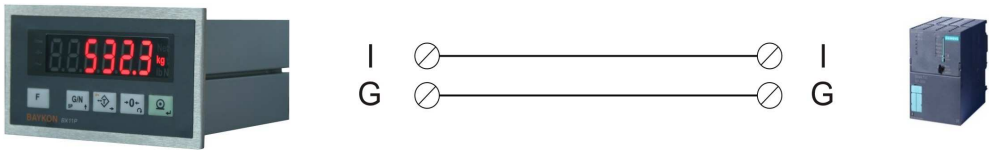


Figure 3-9 - BX11 AN Current output connections

Profibus, Profinet, Ethernet TCP/IP, Modbus TCP, CANopen Connections

If your will make any fieldbus connection you will find detailed information on connection and data interfacing in technical manual you will find in the instrument box or www.baykon.com.

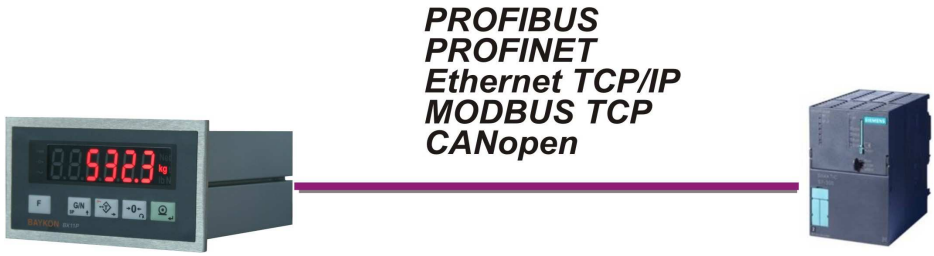


Figure 3-10 – Serial interface connections

PROFIBUS Connector pin configuration (DB9F)

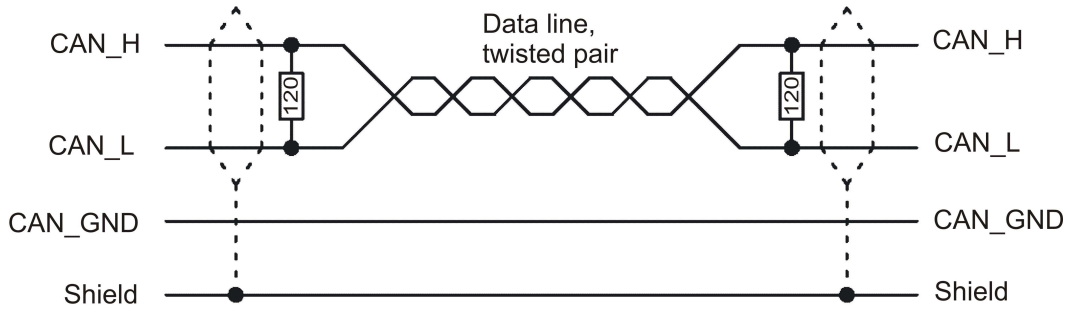
Pin	Signal	Description
1	-	-
2	-	-
3	B Line	Positive RxD / TxD, RS-485 level
4	RTS	Request to send
5	GND Bus	Ground (isolated)
6	+5V Bus Output	+5V termination power (isolated)
7	-	-
8	A Line	Negative RxD / TxD, RS-485 level
9	-	-
Housing	Cable Shield	Ground

PROFINET and Ethernet Connector pin configuration (RJ45)

Pin	Signal	DIR	Description
1	TX+	Out	Differential Ethernet transmit data +
2	TX–	Out	Differential Ethernet transmit data –
3	RX+	In	Differential Ethernet receive data +
6	RX–	In	Differential Ethernet receive data –
4	Not used		Terminated
5	Not used		Terminated
7	Not used		Terminated
8	Not used		Terminated
	Shield		Chasis ground

CANopen Connector pin configuration (DB9M)

Pin	Signal	Description
1	-	-
2	CAN_L	-
3	CAN_GND	-
4	-	-
5	CAN_SHIELD	-
6	-	-
7	CAN_H	-
8	-	-
9	-	-
Housing	Cable Shield	-



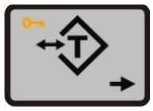
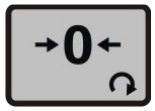
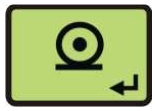
Step 12. Peripheral connections testing

Test your peripheral connections. You may change the related parameters in your testing for better performance, if need be.

You may use also main parameter group [**9--**] for RS232, RS485, and digital In / Out testing.

4. PROGRAMMING AND CALIBRATION

The signs those take place on the lower right corner of the keys indicate the function of the keys in programming menu. The basic meanings of these keys are given the table below.

				
• Return to main block • Exit without saving	Advancing next parameter	Select the digit will be changed	Changing parameter value or increasing the blanking digit	• Go to the next parameter • Enter • Save and Exit

4.1 Entering the Programming and Calibration

Follow the steps below to enter programming and calibration menus.

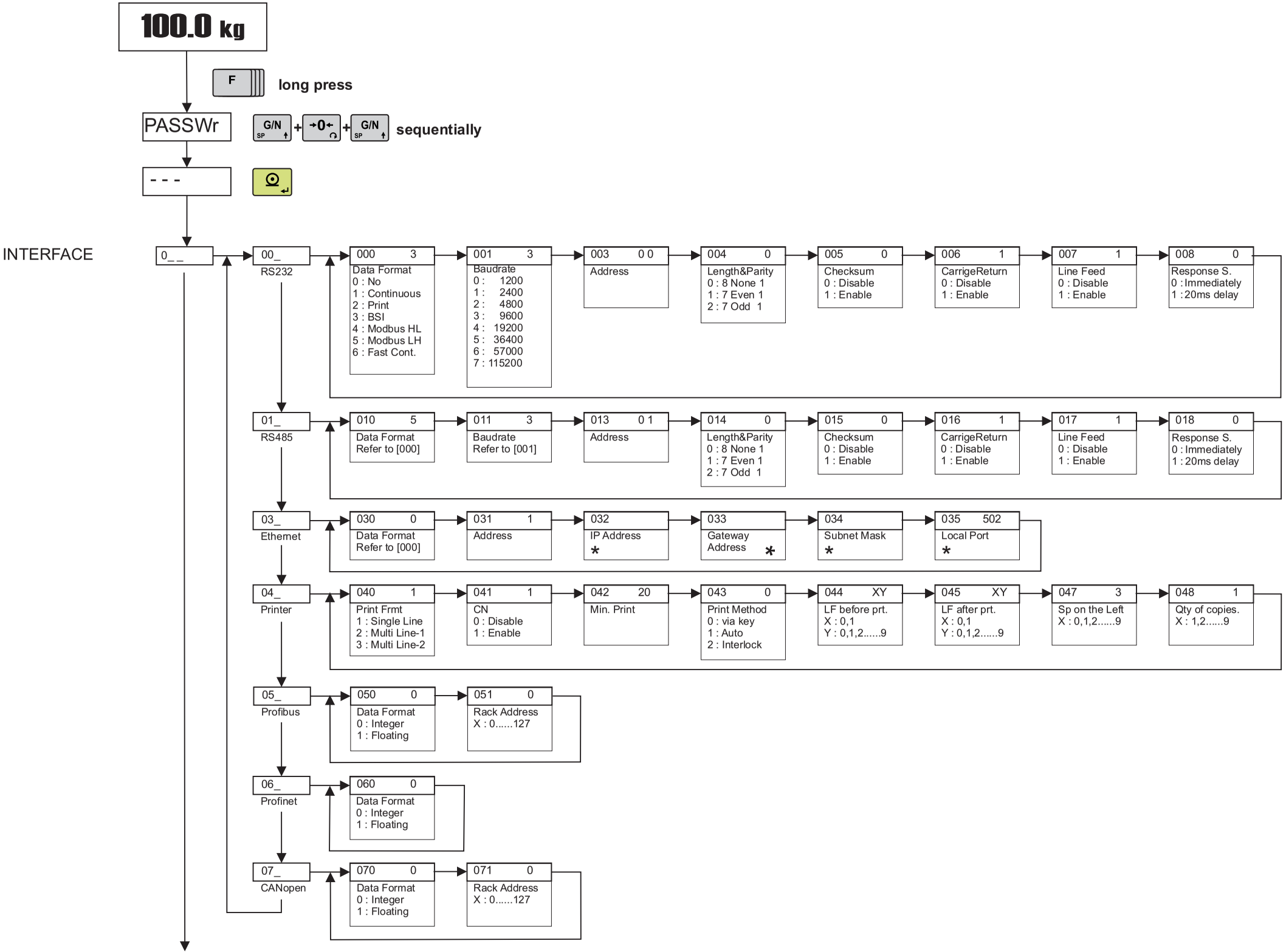
Display	Operation
[**123.456** kg]	Press  key until [**PASSWr**] prompts seen.
[**PASSWr**]	Press  +  +  keys sequentially.
[**---**]	Press  key for confirm.
[**0--**]	First block of Programming menu.

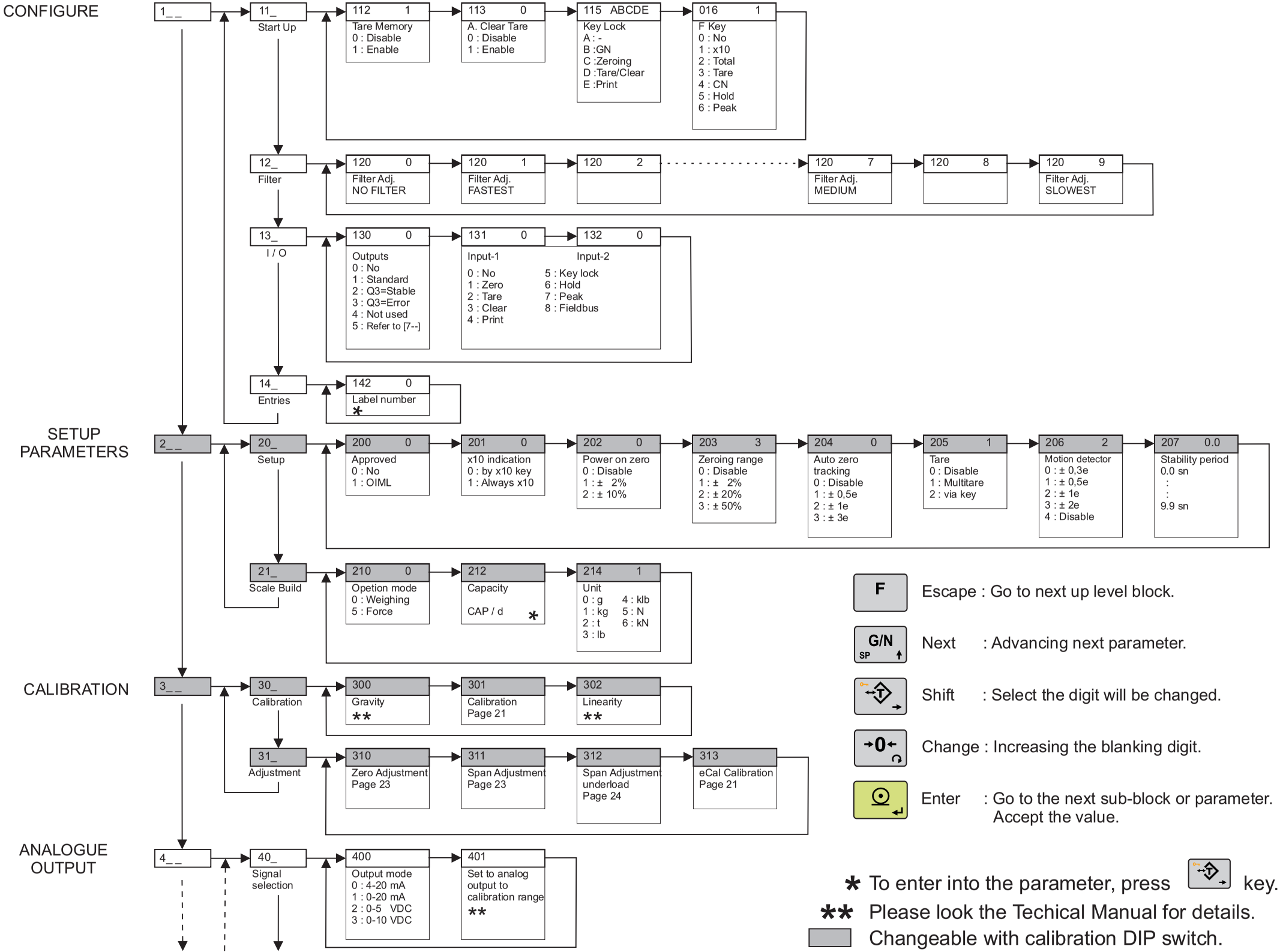
Programming and Calibration menu consist of main blocks which are shown as [**X--**] and sub-blocks. By using < ↑ > key you can reach next main blocks. After reaching the desired main block, you can get in by pressing < **Enter** > key. As you enter the block you will reach the first sub-block in that main block. The sub-block address will be seen on the display as [**X0-**]. You can also search between the sub-blocks by using < ↑ > key and reach the first parameter of the sub-block seen on the display by pressing < **Enter** > key. The number of the parameter comes on display as [**XY0**]. Again you can search between parameters by < ↑ > key. For entering numerical value in the parameters, press the < **Tare** > key to select the digit and press the < **Zero** > key the change the value.

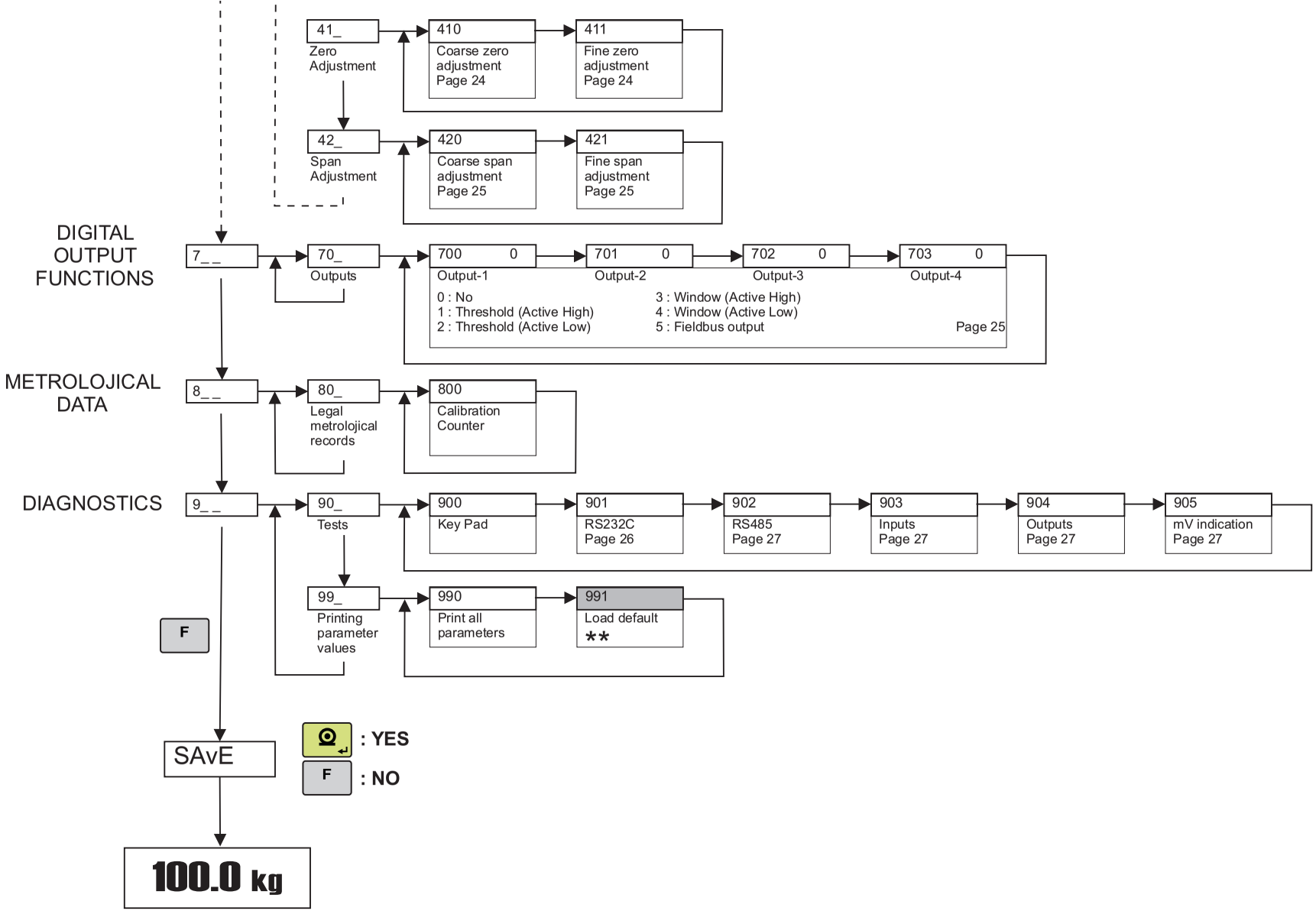
You may adjust your parameters and calibrate the scale by using the diagram below:

4.2 Exiting the Programming and Calibration

If you press < **F** > key sequentially at any parameter, you reach the next up level blocks the [**SAvE**] message appears after main block. Press < **Enter** > key to save, or you can press < **Tare** > key to store the changes until the power goes off, or you can press < **F** > key to abort changes. [**Wait**] message will be seen on the display for a little while, and automatically go back to the weighing operation.


100.0 kg
F
long press
PASSWr
G/N SP
→0←
G/N SP
sequentially
- - -
INTERFACE
0_ _
00_
RS232
000 3
Data Format
0 : No
1 : Continuous
2 : Print
3 : BSI
4 : Modbus HL
5 : Modbus LH
6 : Fast Cont.
001 3
Baudrate
0 : 1200
1 : 2400
2 : 4800
3 : 9600
4 : 19200
5 : 36400
6 : 57000
7 : 115200
003 0 0
Address
004 0
Length&Parity
0 : 8 None 1
1 : 7 Even 1
2 : 7 Odd 1
005 0
Checksum
0 : Disable
1 : Enable
006 1
CarrigeReturn
0 : Disable
1 : Enable
007 1
Line Feed
0 : Disable
1 : Enable
008 0
Response S.
0 : Immediately
1 : 20ms delay
01_
RS485
010 5
Data Format
Refer to [000]
011 3
Baudrate
Refer to [001]
013 0 1
Address
014 0
Length&Parity
0 : 8 None 1
1 : 7 Even 1
2 : 7 Odd 1
015 0
Checksum
0 : Disable
1 : Enable
016 1
CarrigeReturn
0 : Disable
1 : Enable
017 1
Line Feed
0 : Disable
1 : Enable
018 0
Response S.
0 : Immediately
1 : 20ms delay
03_
Ethernet
030 0
Data Format
Refer to [000]
031 1
Address
032
IP Address
*
033
Gateway
Address
*
034
Subnet Mask
*
035 502
Local Port
*
04_
Printer
040 1
Print Frmt
1 : Single Line
2 : Multi Line-1
3 : Multi Line-2
041 1
CN
0 : Disable
1 : Enable
042 20
Min. Print
043 0
Print Method
0 : via key
1 : Auto
2 : Interlock
044 XY
LF before prt.
X : 0,1
Y : 0,1,2.....9
045 XY
LF after prt.
X : 0,1
Y : 0,1,2.....9
047 3
Sp on the Left
X : 0,1,2.....9
048 1
Qty of copies.
X : 1,2.....9
05_
Profibus
050 0
Data Format
0 : Integer
1 : Floating
051 0
Rack Address
X : 0.....127
06_
Profinet
060 0
Data Format
0 : Integer
1 : Floating
07_
CANopen
070 0
Data Format
0 : Integer
1 : Floating
071 0
Rack Address
X : 0.....127


CONFIGURE
1_ _
11_
Start Up
112 1
Tare Memory
0 : Disable
1 : Enable
113 0
A. Clear Tare
0 : Disable
1 : Enable
115 ABCDE
Key Lock
A : -
B :GN
C :Zeroing
D :Tare/Clear
E :Print
016 1
F Key
0 : No
1 : x10
2 : Total
3 : Tare
4 : CN
5 : Hold
6 : Peak
12_
Filter
120 0
Filter Adj.
NO FILTER
120 1
Filter Adj.
FASTEST
120 2
120 7
Filter Adj.
MEDIUM
120 8
120 9
Filter Adj.
SLOWEST
13_
I / O
130 0
Outputs
0 : No
1 : Standard
2 : Q3=Stable
3 : Q3=Error
4 : Not used
5 : Refer to [7--]
131 0
Input-1
0 : No
1 : Zero
2 : Tare
3 : Clear
4 : Print
5 : Key lock
6 : Hold
7 : Peak
8 : Fieldbus
132 0
Input-2
14_
Entries
142 0
Label number
*
SETUP
PARAMETERS
2_ _
20_
Setup
200 0
Approved
0 : No
1 : OIML
201 0
x10 indication
0 : by x10 key
1 : Always x10
202 0
Power on zero
0 : Disable
1 : ± 2%
2 : ± 10%
203 3
Zeroing range
0 : Disable
1 : ± 2%
2 : ± 20%
3 : ± 50%
204 0
Auto zero
tracking
0 : Disable
1 : ± 0,5e
2 : ± 1e
3 : ± 3e
205 1
Tare
0 : Disable
1 : Multitare
2 : via key
206 2
Motion detector
0 : ± 0,3e
1 : ± 0,5e
2 : ± 1e
3 : ± 2e
4 : Disable
207 0.0
Stability period
0.0 sn
:
:
9.9 sn
21_
Scale Build
210 0
Opetion mode
0 : Weighing
5 : Force
212
Capacity
CAP / d
*
214 1
Unit
0 : g
1 : kg
2 : t
3 : lb
4 : klb
5 : N
6 : kN
CALIBRATION
3_ _
30_
Calibration
300
Gravity
**
301
Calibration
Page 21
302
Linearity
**
31_
Adjustment
310
Zero Adjustment
Page 23
311
Span Adjustment
Page 23
312
Span Adjustment
underload
Page 24
313
eCal Calibration
Page 21
ANALOGUE
OUTPUT
4_ _
40_
Signal
selection
400
Output mode
0 : 4-20 mA
1 : 0-20 mA
2 : 0-5 VDC
3 : 0-10 VDC
401
Set to analog
output to
calibration range
**
F
Escape : Go to next up level block.
G/N
SP
Next : Advancing next parameter.
Shift : Select the digit will be changed.
Change : Increasing the blanking digit.
Enter : Go to the next sub-block or parameter.
Accept the value.
* To enter into the parameter, press key.
** Please look the Techical Manual for details.
Changeable with calibration DIP switch.


41_
Zero Adjustment
410
Coarse zero adjustment Page 24
411
Fine zero adjustment Page 24
42_
Span Adjustment
420
Coarse span adjustment Page 25
421
Fine span adjustment Page 25
DIGITAL OUTPUT FUNCTIONS
7_ _
70_
Outputs
700 0
Output-1
701 0
Output-2
702 0
Output-3
703 0
Output-4
0 : No
1 : Threshold (Active High)
2 : Threshold (Active Low)
3 : Window (Active High)
4 : Window (Active Low)
5 : Fieldbus output
Page 25
METROLOJICAL DATA
8_ _
80_
Legal metrolojical records
800
Calibration Counter
DIAGNOSTICS
9_ _
90_
Tests
900
Key Pad
901
RS232C Page 26
902
RS485 Page 27
903
Inputs Page 27
904
Outputs Page 27
905
mV indication Page 27
99_
Printing parameter values
990
Print all parameters
991
Load default
**
F
SAvE
: YES
F
: NO
100.0 kg

Calibration with test load:

Access to the parameter 301 and follow the steps below to calibrate the scale.

1. Press < **Enter** > at the [**301**] prompt to start the calibration.
2. At the [**ZEro.CA**] prompt, remove any weight on the platform, then press < **Enter** >.
3. The terminal automatically starts to capture zero and the [**WAıt**] message indicating the operation is in progress.
4. After the [**Load**] prompt, the test weight value will be used for the calibration seen on the display as [**XXXXXX**] . If the value of the test weights that will be used is different from the value shown on the display, type the new value via < **Tare** > and < **Zero** > keys. A minimum of 20% of scale capacity is necessary for calibration; BAYKON recommends 50 to 100%. A calibration error will result if insufficient weight is used.
5. Place the test weights or another practical weight on the scale.
6. Press < **Enter** > to start span calibration. [**WAıt**] message will shown on the display 10 seconds while span calibration is being performed.
7. At the [**SAvE**] prompt press < **Enter** > key to continue to the next parameter or press < **F** > key to exit without saving the calibration.

Note: *Refer to Technical manual for multipoint calibration to correct the linearity.*

eCal Electronic Calibration without test load:

Warning: *The scale capacity and increment shall be entered before performing eCal.*

This parameter lets you to perform calibration without using any test weights. BX11 A/D coefficients are adjusted in production for increasing eCal accuracy. The calibration coefficients are calculated by scale capacity, total load cell capacity, load cell full scale output, and estimated dead load.

Access to the parameter 313 and enter the values below as;

[LC.CAP]

[XXXXXX]

Enter total load cell capacity via < **Tare** > and < **Zero** > keys and press < **Enter** > key to go to the next step.

Example : If the weighing system has 4 pcs 1000 kg load cell, enter 4000.

[LC.oUt]

[XXXXXX]

Enter load cell output in mV/V via < **Tare** > and < **Zero** > keys. If the weighing system has more than one load cell, calculate the mean value of load cells outputs mV/V indicated on the certificates of the load cells. Press < **Enter** > key to go to the next step.

Example: If load cell outputs are LC1: 2.0010, LC2: 1.9998, LC3:1.9986 and LC4:2.0002, the mean value will be

Mean of LC outputs = (2.0010 + 1.9998 + 1.9986 + 2.0002) ÷ 4 = 1.9999 mV/V.

[ZEr.AdJ]

[XXXXXX]

If the scale is empty and you want to make automatic zero adjustment instead of entering estimated dead load (look next step), press < **Enter** > key appears [**Zero.CA**] and press < **Enter** > key for starting zero calibration. The display will show [**WAıt**] message during zero adjustment. In this while the scale must be unloaded and stable. Approximately 10 seconds later display will prompt you to save the calibration by [**SAvE**] message below.

If the scale is not empty or you prefer to enter estimated preload value, press the up < **G/N** > key.

[PrE-Ld]

[XXXXXX]

Enter the dead load value of the weighing system in current unit by using < **Tare** > and < **Zero** > keys. Press the < **Enter** > key to go to the next step.

[SAvE]

Save your eCal calibration by pressing < **Enter** > key or press < **F** > key to go out without saving your eCal calibration.

Note: *If you want to make zero adjustment after entering estimated preload value, empty the scale, change the preload value as (estimated value + display value at empty scale) or enter parameter [* ***310*** *] for zero adjustment.*

4.3 Fast Access to the Calibration

The instrument has fast access calibration feature to earn time to the service technician. If only the calibration adjustment is needed, follow the steps below to access the calibration parameters fast.

Display	Operation
[**123.456** kg]	Press F key until [**PASSWr**] prompts seen.
[**PASSWr**]	Press →0← + →0← + →0← keys sequentially.
[**---**]	Press ⊙↵ key for confirm.
[**310**]	Zero Adjustment parameter.
"Calibration"	Press ⊙↵ key to start zero adjustment. Or press G/N SP key to access span calibration without zero adjustment.

[31-] Adjustment

In this sub-block you can only perform zero adjustment or span adjustment without full calibration operation.

[310] Zero Adjustment

This parameter is only being used for refreshing the zero level of the scale to prevent wrong weightings from zero drifts.

1. Press < **Enter** > at the [**310**] prompt to start the zero adjustment.
2. At the [**ZEro.CA**] prompt, remove any weight on the platform, then press < **Enter** >.
3. The terminal automatically starts to capture zero and the [**WAıt**] message indicating the operation is in progress.
4. Press < **Enter** > to start zero adjustment. [**WAıt**] message will shown on the display nearly 10 seconds.
5. At the [**SAvE**] prompt press < **Enter** > key to continue to the next parameter or press < **F** > key to exit without saving the calibration.

[311] Span Adjustment

This parameter lets you to perform span adjustment.

1. Press < **Enter** > at the [**311**] prompt to start the span adjustment.
2. At the [**XXXXXX**] prompt, the test weight value will be used for the calibration seen on the display. If the value of the test weights that will be used is different from the value shown on the display, type the new value via tare and zero keys. A minimum of

20% of scale capacity is necessary for calibration; BAYKON recommends 50 to 100%. A calibration error will result if insufficient weight is used.

3. Place the test weights or another practical weight on the scale.
4. Press < **Enter** > to start span calibration. [**WAıt**] message will shown on the display 10 seconds while span calibration is being performed.
5. At the [**SAvE**] prompt press < **Enter** > key to continue to the next parameter or press < **F** > key to exit without saving the calibration.

[312] Span Adjustment Under Load

This parameter is being used to perform span adjustment of a scale without lifting the load on it. This operation especially used for span adjustment for filled tanks. You can make span adjustment without emptying the tank.

1. Press < **Enter** > at the [**312**] prompt to start the span adjustment under load.
2. [**P.ZEro**] prompt appears on the display to indicate the scale load will be determined as temporary zero.
3. Press < **Enter** > key and the display will show [**WAıt**] message during temporary zero adjustment.
4. At the [**LoAd**] a little while and then [**XXXXXX**] prompt, the test weight value will be used for the calibration seen on the display. If the value of the test weights that will be used is different from the value shown on the display, type the new value via < **Tare** > and < **Zero** > keys.
5. Place the test weights or another practical weight on the scale.
6. Press < **Enter** > to start span calibration. [**WAıt**] message will shown on the display 10 seconds while span calibration is being performed.
7. At the [**SAvE**] prompt press < **Enter** > key to continue to the next parameter or press < **F** > key to exit without saving the calibration.

Analogue Output (Only BX11 AN)

The calibration of the analogue output is performed automatically after calibration the scale. If you want to adjust the analog output manually access to the parameters below as seen at the in the programming parameters flow diagram (*Page 18*) and follow the descriptions below.

[410] Coarse Zero Adjustment

Press < **Zero** > key one after another to increase the analogue signal level or press < **Tare** > key to decrease the analogue signal level.

[411] Fine Zero Adjustment

Press < **Zero** > key continuously one after another to increase the analogue signal level or press < **Tare** > key to decrease the analogue signal level.

[420] Coarse Span Adjustment

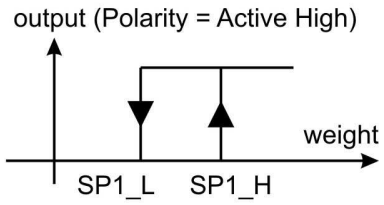
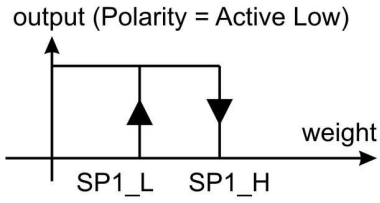
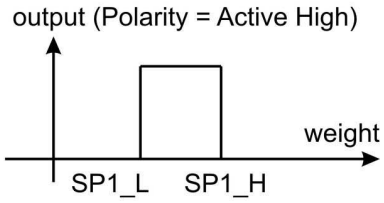
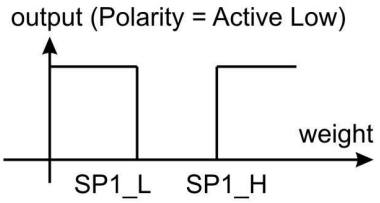
Press < **Zero** > key continuously one after another to increase the analogue signal level or press < **Tare** > key to decrease the analogue signal level by taking the full capacity value as reference without placing any weight.

[421] Fine Span Adjustment

Press < **Zero** > key continuously one after another to increase the analogue signal level or press < **Tare** > key to decrease the analogue signal level by taking the full capacity value as reference without placing any weight.

[70-] Digital Output Functions

In this block, the digital outputs are programmed for the functions indicated in the table below.

Threshold Output : 2 set point values are entered. SP1 is the point that the output goes active when the weight increased from SP1_H. SP1_L is the point that the output drops to passive state when the weight decreased to SP1_L. Inverse function is available.		
Window Output: 2 set point values are entered. The output is active when the weight is between SP1_L and SP1_H. Inverse function is available.		

Tablo 4.1 - Digital output functions

[700 0] Output 1

Refer to Tablo 4.1 to select the output function.

0 : No function on output 1
1 : Threshold (Active High)
2 : Threshold (Active Low)
3 : Window (Active High)
4 : Window (Active Low)
5 : Fieldbus output

[701 0] Output 2

Refer to Tablo 4.1 to select the output function.

0 : No function on output 2
1 : Threshold (Active High)
2 : Threshold (Active Low)
3 : Window (Active High)
4 : Window (Active Low)
5 : Fieldbus output

[702 0] Output 3

Refer to Tablo 4.1 to select the output function.

0 : No function on output 3
1 : Threshold (Active High)
2 : Threshold (Active Low)
3 : Window (Active High)
4 : Window (Active Low)
5 : Fieldbus output

[703 0] Output 4 (only BX11, BX11 AN, BX11 MB and BX11 EN)

Refer to Tablo 4.1 to select the output function.

0 : No function on output 4
1 : Threshold (Active High)
2 : Threshold (Active Low)
3 : Window (Active High)
4 : Window (Active Low)
5 : Fieldbus output

Diagnostics

The tests and measurings below are available to find the error source.

RS 232C Serial Interface testing

Short circuit the RXD and TXD pins of the RS232 serial port. Access to the parameter [**901**]. The characters in the alphabet will be seen double on the display by pressing < **Zero** > key sequentily.

RS 485 Serial Interface testing

Access to the parameter [**902**].The characters in the alphabet will sequentially be transferred from RS 485 serial interface port by pressing < **Zero** > key one after another. Received numerical data is also seen on display.

Parallel Inputs

Access to the parameter [**903**]. The prompt [**I X Y**] appears on the display.

To perform parallel input test, enter the number of parallel input to Y digits via < **Zero** > key. X shows the logical condition of that input.

Parallel Outputs

Access to the parameter [**904**]. The prompt [**o X Y**] appears on the display.

To perform parallel output test, enter the number of parallel output to Y digits via < **Zero** > key. To change the logical condition of that output via < **Tare** > key and X shows the logical condition of that output.

Load cell output level in mV

Measuring load cell signal value is very difficult after installation the system. You can measure the load cell signal value at parameter [**905**] without disconnecting the load cell connector.

5. ANALOGUE (ONLY BX11 AN)

BX11 AN is programmable to 4 – 20 mA, 0 – 20 mA, 0 – 5 V or 0 – 10 V analogue output types. Analog output is automatically adjusted to the weighing range after the calibration. The mid value of the analog output is set to zero load at bipolar usage. The manual analog output adjustment is available in parameter group [**4--**] (Refer to *Page 24* and technical manual).

The analogue output is related with the gross load of the scale. The analog output signal operates as described next.

Under Zero	When the gross indication drops below zero, the analog output reduces the analog output to 0mA or - 4 V to indicate error on the analog output.
Normal Range	The analog output will reflect the gross value to the programmed analog output 4 – 20 mA, 0 – 20 mA, 0 – 5 V or 0 – 10 V.
Over High Limit	When the gross value exceeds the high limit, the analog signal increase to approximately 24 mA or 11 V and remains there until the weight display is no longer blanked or the analog signal returns to within range.

The following table indicates the analog output value when the gross indication is out of the range and if there is any error indication on the display.

Condition (On Display)	**4-20 mA output**	**0-20 mA output**	**0 – 5 V output**	**0 – 10 V output**
The weight is more than the range (Over)	24 mA	24 mA	6 V	11 V
The weight is under the zero range (Under)	0 mA	0 mA	-4.0 V	-4.0 V
Error [Err XX]	24 mA	24 mA	6 V	11 V
ADC is out of operating range [Adc Out]	24 mA	24 mA	6 V	11 V

The error data indicated above can be used to follow the errors at PLC.

6. RS232C AND RS485 DATA OUTPUTS

In this section, you will find the data structure of different type of the data outputs via these serial ports.

6.1 Continuous Data Output

Continuous data output of the instrument is transmitted in the following data structure. The serial ports of BX11 are suitable for bi-directional communication. If, you transmit ASCII codes of P(print), Z(zero), T(tare) or C(clear) letters to the serial port of BX11; the indicator will act like the related keys are pressed. Details are in the technical manual. The data format is;

	Status			Indicated						Tare								
STX	STA	STB	STC	D5	D4	D3	D2	D1	D0	D5	D4	D3	D2	D1	D0	CR	LF	CHK

The including of the status bytes STA, STB and STC are ;

Definition Table for Status A (STA)									
Bits 0, 1 and 2				Bits 3 and 4			Bit 5	Bit 6	Bit 7
0	1	2	Decimal point	3	4	Increment size	Always 1	Always 1	X
0	0	0	XXXX00	1	0	X 1			
1	0	0	XXXXX0	0	1	X 2			
0	1	0	XXXXXX	1	1	X 5			
1	1	0	XXXX.X						
0	0	1	XXX.XX						
1	0	1	XX.XXX						
0	1	1	X.XXXX						
1	1	1	.XXXXX						

Definition Table for Status B (STB)		
Bit 0	0 = Gross	1 = Net
Bit 1	0 = Weight positive	1 = Weight negative
Bit 2	0 = No Error	1 = Error
Bit 3	0 = Stable	1 = Unstable
Bit 4	Always = 1	
Bit 5	Always = 1	
Bit 6	0 = Not power on zeroed	1 = Zeroed with power on zero
Bit 7	x	

Definition Table for Status C (STC)		
Bit 0	Always 0	
Bit 1	Always 0	
Bit 2	Always 0	
Bit 3	Always 0	
Bit 4	Always 1	
Bit 5	Always 1	
Bit 6	Always 0	
Bit 7	x	

CHK (Checksum) = 0 – (STX + STATUS A + ... + LF)

Error Messages: UNDER, OVER, A.OUT, L-VOLT, H-VOLT, are represented in Indicated data fields.

Note: *The weight data is represented with right aligned, error messages are represented with left aligned.*

Note: *The continuous data is started to send after 20 seconds after power-on. This property helps to connect IndFace1X on RS 485 bus.*

Important : *The CR and LF shall be enabled for Baykon remote display interfacing.*

6.2 Fast Continuous Data Output

Fast continuous "indicated weight" data output can be used only for the instruments which can communicate fast. The output rate is related with the baud rate. Use higher baud rate for faster data rate. Received ASCII codes of P(print), Z(zero), T(tare) or C(clear) letters, the indicator will act like the related keys are pressed. CR and LF can be enabled in the related parameter.

The data format of the fast continuous data output is;

[STX][STATUS][SIGN][WEIGHT VALUE][CR][LF]

Examples :

☻S+000123.4	(weight is stable and 123.4)
☻D+000123.4	(weight is dynamic and 123.4)
☻+	(Over load)
☻-	(Under load)
☻O	(ADC out error

6.3 Print Mode

The format of the data output in Print mode can be selected in 3 different type forms in the parameter group [**04-**] . Only continuous format is available more than one interface.

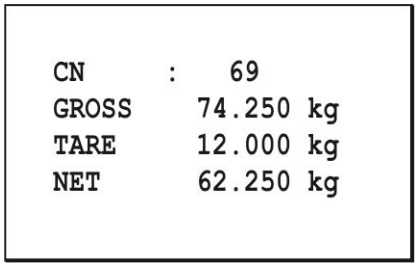
Single Line

You can send the data in single line like below by pressing < **Enter** > key as;

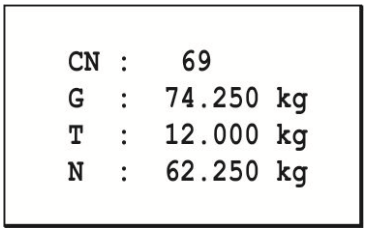
```
CN:    21   G:    3.000kg   T:    1.000kg   N:    2.000kg
```

Multi Line

You can send the data in multiple lines as seen in the label given below by pressing < **Enter** > key. The data output structure can be programmed with printer parameters.



Multi Line-1 Format



Multi Line-2 Format

6.4 BSI Data Structure

BSI data format gives the reliable and speedy interface advantages with communicating PLC or PC for process control or transactional applications. This interfacing is recommended especially at PC interfacing. Details can be seen in the technical manual.

Command Table:

A	Read all weight data immediately
B	Read Gross weight value immediately
C	Clear the tare memory
G	Read voltage value of DC power supply
I	Read current weight (indicated) value immediately
P	Print: Read the current stable weight value
Q	Load set points
R	Read set points
S	Read Status
T	Tare
U	Read digital inputs
V	Read digital outputs
W	Set/Reset digital outputs
X	Read current weight value in increased resolution immediately
Z	Zero

7. TECHNICAL SPECIFICATIONS

Common Specifications	
A/D Converter:	
A/D converter type:	24 bit Delta-Sigma radiometric with integral analog and digital filters
Conversion rate:	Up to 1600 measurement values per second
Input sensitivity:	0.1 µV/e (non approved)
Analog input range:	0 mV to +18 mV (unipolar) ; - 18 mV to +18 mV (bipolar)
Internal resolution:	up to 16 000 000
External Resolution:	
Display resolution	up to 999 999 increment
Scale Calibration and Functions:	
Calibration:	Calibration is performed with or without test weights (eCal)
Digital filter:	10 steps programmable adaptive filter
Weighing functions:	Taring, zeroing, auto zero tracking, motion detection, auto zero at power up, net indication at power on, increased resolution
Linearity:	
	Within 0.0015% FS, ≤ 2 ppm/°C
Load cells:	
Excitation:	5 VDC max. 300 mA
Number of load cells:	Up to 8 load cells 350 Ω or 18 load cells 1100 Ω in parallel
Connection:	4- or 6-wire technique. Cable length: maximum 250 m/mm² for 6-wire connection
Communication:	
RS-232:	1200 to 115200 baudrate, 8N1 / 7E1 / 7O1
Response speed:	Up to 4 ms. response delay after read/write commands
Digital Inputs and Outputs:	
Digital Inputs	1 optoisolated digital input at BX11 PB, BX11 PN, BX11 CO, 2 optoisolated digital inputs at BX11, BX11 AN, BX11 MB, BX11 EN, 12 to 28 VDC, 10mA
Digital Outputs	3 free relay contact at BX11 PB, BX11 PN, BX11 CO, 4 free relay contact at BX11, BX11 AN, BX11 MB, BX11 EN, 250 VAC or 30 VDC , 1A
DC Power supply:	
	12 to 28 VDC max. 300 mA
Environment and Enclosure:	
Operation temp.:	-10 °C to +40 °C; 85% RH max, non-condensing
Enclosure	Panel type, front panel and rear panel are stainless steel; Aluminum body.
Protection	Front panel IP67

BX10 MB Modbus-RTU	
Communication:	
RS-485:	1200 to 115200 baudrate, 8N1 / 7E1 / 7O1
Response speed:	Up to 4 ms. response delay after read/write commands
Max Stations:	Up to 31 stations per segment
Digital I/O Ports:	
	2 ports can be programmed as digital input or digital output, non-isolated.

BX11 AN Analogue	
Communication:	
Voltage output:	0-5 VDC, 0-10 VDC
Current output:	4-20mA, 0-20mA
D/A Converter:	16 bit
Max. cable length:	300 meter
Max. load resistance: (current output)	500 Ω

BX11 MB Modbus-RTU	
Communication:	
RS-485:	1200 to 115200 baudrate, 8N1 / 7E1 / 7O1
Response speed:	Up to 4 ms. response delay after read/write commands
Max Stations:	Up to 31 stations per segment

BX11 PB Profibus DPV1	
Communication:	
Data rate:	Up to 12000 kbit/s with automatic baud rate detection
GSD file	Generic GSD-file provided
Topology:	Depending on physical media RS-485: segmented line topology without stubs
Installations:	Shielded twisted pair cable Line length depending on physical media and transmission speed
Max. Stations:	Up to 32 stations per segment, up to 126 stations per network
Isolation:	Galvonically isolated bus electronics
Response speed:	Up to 4 ms. response delay after read/write commands

BX11 PN Profinet	
Communication:	
Data rate:	100 Mbit/s, full duplex
GSDML file:	Generic GSDML-file provided
TCP/IP settings:	DHCP or manual IP assign over EtherX PC Software. Device identity customization
Topology:	Line, Bus, Star or Tree topology depending on physical media
Installation:	Switched Ethernet transmission with shielded twisted pair cables and RJ-45 connectors.
Isolation:	Galvonically isolated bus electronics
Response speed:	Up to 4 ms. response delay after read/write commands.

BX11 EN Ethernet	
Communication:	
Transmission rate:	10 Mbit/s, half duplex
TCP/IP settings:	Manual IP assign over EtherX PC Software
Installation:	Switched Ethernet transmission with shielded twisted pair cables and RJ-45 connectors.
Web client:	Available
Response speed:	Up to 4 ms. response delay after read/write commands

BX11 CO CANopen	
Communication:	
Data rate:	10 kbit/s – 1 Mbit/s (selectable) kbit/s
ESD file	Generic EDS-file provided
Topology:	Line with Trunkline, Dropline structure and Termination at both Ends Line length depending on baudrate 25 – 500 meter.
Installation:	2 wires shielded twisted pair cable. Alternatively 4 wire with 24 Volt power over the bus
Max. Stations:	Up to 127 stations per network
Isolation	Galvonically isolated bus electronics
Response speed:	Up to 4 ms. response delay after read/write commands

8. TROUBLE SHOOTING

BX11 weighing indicator had been designed as a very reliable and virtually error free instrument. However if there is an error occurs, do not attempt to repair the equipment before understanding what caused the error. Note the problems you have with your instrument and the error messages shown on the display. Then try to solve the problem according to the error table given below.

ERROR CODE	DESCRIBTION	THINGS TO DO
Under	Weight is too low	- Check the load - Load cell or instrument could be broken.
Over	Over Load	- Check the load - Load cell or instrument could be broken.
ADC Out	Load exceeds the operation range	- Check the load - Check the calibration - Load cell or instrument could be broken.
Err 1	ADC error	- Re-energize indicator - Call BAYKON
Err 2	ADC error	
Err 3	Indicator can not be calibrating	- Check load cell cable and load then start calibration again
Err 10	EEPROM error	- Configure the instrument - EEPROM broken
Err 20	Calibration error	- Calibrate the indicator..
Err 21	Configuration error	- Configure the indicator.
Err 22	Tare, CN, Total weight and the SP in use error	- Check SP, PT and ID entries. - Check Tare, CN and Total weight
Err 26	Set point error	- Reload Set points.
Err 27	Indicator is not calibrated	- Calibrate the indicator
Err 30	Processor Error	- Call BAYKON
Err 34	Indicator can not be calibrating	- Load cell signal is negative, very low or too high
Err 35	Calibration Error	- Calibration loading is not enough. - Check test weight loading.
Err 36	Calibration load value entry Error	- Test weight is too small. Increase the test weight.
Err 37	Scale unstable	- Wait until scale become stable. - Check grounding wiring.
Err 47	Main pcb info error	- Call BAYKON
Err 61	Eeprom is not installed or broken	- Call BAYKON
E XXXX	Hardware error	- Call BAYKON

9. FREQUENTLY ASKED QUESTIONS

Question	:	My PC could not interface with BX11. How can I check the com port?
Answer	:	– Connect the instrument to the PC and run Hyper Terminal. – Check com ports as described in The Diagnostic Test section on *Page 26*.
Question	:	IndFace1X installation needs restart every time. How can I install it?
Answer	:	– Read and follow the installation notes in the installation directory. – Update your computer (visit http://update.microsoft.com).
Question	:	IndFace1X could not connect to instrument. What can I do?
Answer	:	– Check the power, data cabling and PC port setting. – Remove other connections. Re-energize the BX11 instrument and then make connection.
Question	:	My PC doesn't have any COM port. How can I connect instrument to my PC?
Answer	:	You can use RS-232 / USB converter for serial interfacing via USB port. And select com port with Connection Settings menu.
Question	:	My PC have a COM port but I couldn't see COM port in Connection Setting menu. How can I solve that problem?
Answer	:	Another software may be connected to that COM port. Close all applications before running IndFace1X.
Question	:	My PC could not interface with BX11. How can I check the com ports?
Answer	:	Short circuit your com port RXD and TXD pins. Check if the sending data is received or not by using any terminal software. You may test also BX11 com ports as described in The Diagnostic Tests section on *Page 26* by short circuiting RXD and TXD terminals.
Question	:	I need very fast interfacing. What is the response delay time of BX11?
Answer	:	BX11 response delay is max. 4 milliseconds for weight data. Extremely fast interfacing.
Question	:	What is the external conversion rate of BX11?
Answer	:	Only continuous data output rate might be called as an external conversion rate which is depend on the baud rate and data length and up to 65 conversion/second.
Question	:	How can I check Ethernet connection?
Answer	:	– BX11EN has a dummy web page. You can easily open web page with any browser installed on any PC in network.
Question	:	EtherX is searching but it could not find any instrument over Local Network Area.
Answer	:	– Check the Exceptions tap in Windows firewall settings. EtherX should be marked. – Check the firewall of Anti-virus program, If you have.
Question	:	I done crossover connection with BX11 EN but EtherX could not find it.
Answer	:	– Check the Internet Protocol (TCP/IP) Properties in Local Area Connection of Windows. IP address blocks and gateway address of BX11 and PC should be the same in cross connection.

BAYKON
Industrial Weighing Systems

DECLARATION OF CONFORMITY

We;

BAYKON ENDÜSTRİYEL KONTROL SİSTEMLERİ SAN. VE TİC. A.Ş.

Kimya Sanayicileri Organize Sanayi Bölgesi Organik Cad. No:31

34956 Tepeören Tuzla/İSTANBUL

To which this declaration relates, is in conformity with the following standard(s) or other normative document(s).

EC Directive:	Applicable Standards:
Low Voltage Directive (LVD): (2006/95/EC)	EN 60950-1
Electromagnetic Compatibility (EMC): (2004/108/EC)	EN 61326-1

Baykon, March 2013

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