ART Series Indicators

User Manual

ESİT

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User Manual

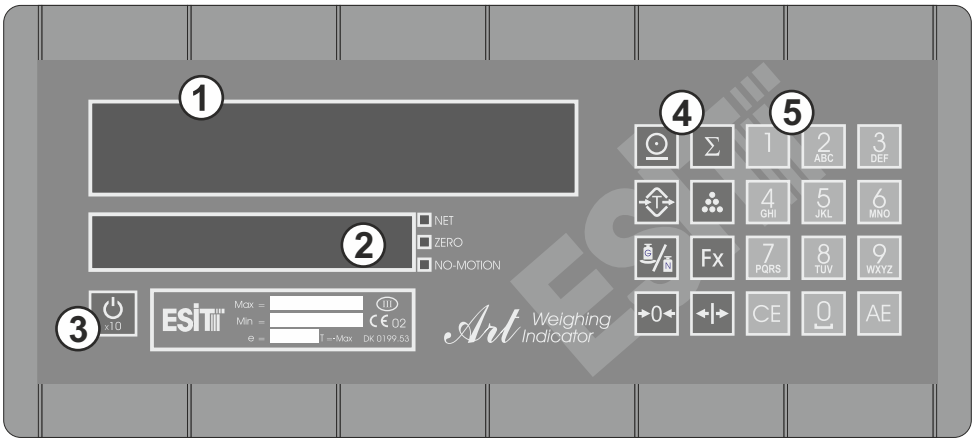
IMPORTANT NOTICE!

If this equipment is used for purchasing and selling purposes or determination of mass for the calculation of a penalty or a similar type of payment; Law No. 3516 on Measurement and Calibration states that; the scales must have a seal of approval for legal trade use. The scales must be verified and stamped every two years. Consult to ESIT for further information.

Table of Contents

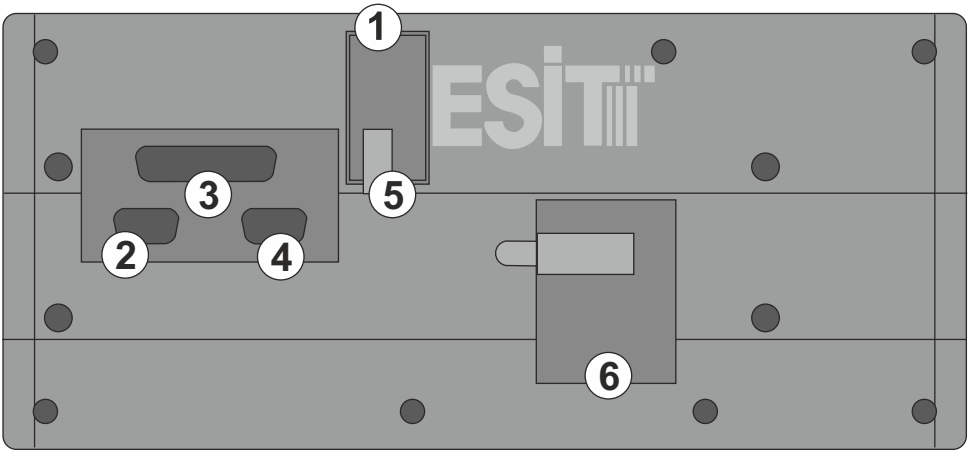
Overview

Front View



[1] Weight Display
[2] Operator Display
[3] Stand-by / x10 Resolution
[4] Keypad A
[5] Keypad B

Back View



[1] Case Sealing Screw
[2] Load Cell Input
[3] Parallel Printer
[4] Serial Communication
[5] Calibration Key Screw
[6] Cable, Fuse, Battery Entry

Keypad A


Printer


Tare


Gross / Net Toggle


Zeroise


Total


Part / Price Toggle


Functions


Arrows

Keypad B


1 : . , - + ?


2 A B C


3 D E F


4 G H I


5 J K L


6 M N O


7 P Q R S


8 T U V


9 W X Y Z


[CLEAR]


0 [SPACE] / = ( ) &


[ENTER]

Getting Started

During power-up, all segments are lit to show that all are working correct; the load cell excitation voltage is applied. After all segments are lit in groups, following sequence is visualized on the displays:

- ESIT logo
- Program version (and Check-sum)
- Maximum measuring capacity
- System date and time
- Indicator serial number

Within this period, Function key Fx is pressed to enter the calibration and parameter setting menus. Depending on the calibration key, some parameters can only be seen, but not changed.

Weight Measuring

After power up (if Fx key is not pressed) indicator enters the normal weighing mode. The 7-segment 6-digit display shows the gross weight value. The 8x8 dot-matrix display next to weight display shows the unit of measurement and the 15-segment 9-digit operator screen will show the current time. Until a valid key is pressed, the screens update themselves.

Indicator Information

During power up, C/CE key is pressed to show the information of the indicator. The displayed information is the serial number, weighing range, last calibration date and number of indicator calibrated. Each data stays on the display unless a key is pressed. When all are seen, the indicator restarts the weighing process.

Increased Resolution

The ART indicator is capable of showing the weight value in ten times increased resolution mode. In order to get into this mode, the indicator should be in normal weight display mode with taring and part counting mode inactive.

When x10 key is pressed, the weight indication is passed to increased mode with the decimal point increased by one (i.e. if the normal position of decimal point is 2 then, in increased resolution mode it is increased to 3.) The indicator will then show the weight by ten times increased resolution for 10 seconds. This mode timer will be refreshed every time the StandBy (x10) key x10 is pressed. When the Stand-by (x10) key x10 is pressed, the weight value shown

on the display will be transmitted regardless of the no-motion state with a preceding I (ASCII h49) character followed by six character value and a Carriage Return **CR** (ASCII h0d).

Tare

Tare key is pressed. The weight on the platform is set as the tare weight. Unless within 3 seconds no numeric key is pressed, the tare value is the weight on the platform. If a number key is pressed (1 to 9) the tare value that was previously stored is recalled.

If key is pressed within 3 seconds, the indicator will ask for the manual [TARE] value from the user. The value that is entered will be rounded according to the valid resolution value and will be used. When the interval is changed, the [TARE] value will be corrected again.
When TARE is first enabled, the display is in [NET] mode.

If the displayed value is [NET], then the [NET] anunciator [LED] is lit. Without disabling the [TARE] mode, by pressing the [GROSS/NET] key , the display may be switched between NET and GROSS mode.

The gross value that is being displayed is the addition of NET and TARE values.

If the tare value that is being displayed is to be stored in one of the 9 preset tare value locations, the relevant number is kept pressed for 3 seconds until a beep signal is heard. During this period, the right most digit dot flickers to show the key is seen but the time is not up yet.

When tare is active, the operator screen will display the tare value. If the value was recalled from the memory, or was stored to memory, storage number is seen.

In order to disable the TARE mode, TARE key is pressed once more.

If the weight on the platform should be tared, it should be positive and no-motion state must be achieved; otherwise the tare key is not functional, only allowing the preset tare values to be recalled. The right most digit dot flickers to show that the situation is not valid for a TARE value to be taken, but only the preset values can be recalled.

After the TARE is made active and a meaningful NET is displayed, TARE is disabled automatically when the platform is emptied.

Part Counting

In any point of weight display (either tare is active or not, gross or net mode), PART COUNT key is pressed to show the number of parts on the display. The Operator screen will show the weight value together with the unit of measurement, and the weight display will show the number of parts placed on the platform. After power-up, if a material was introduced to the

indicator, it will be seen directly on the display, otherwise the weight value will be seen without a decimal point and the increments will be one by one.

When a new material is to be introduced to the indicator, Function key Fx is pressed. The indicator will ask for the number of pieces placed on the platform. For the ease of the operator, 100 is brought automatically on the display. If any other value of pieces was placed on the platform, the number should be written. After the correct value is written, Enter key AE is pressed and the indicator will start showing the parts as it was written.

While the part count mode is active, the operator may place an empty container on the platform and press the TARE key. Then the indicator will pass to NET mode and this will be shown with the NET led.

To exit the part count mode, PART COUNT key is pressed once more.

If the counted parts should be printed, PRINTER key is pressed and a ticket is performed.

Storing the parts in the memory is also available. There are 9 locations to store. To store a material's unit weight value, after the counted parts placed on the platform and the value is written by Function key Fx , the number to store is pressed for 3 seconds (like storing TARE value). During this period, the right most digit dot flickers to show the key is seen but the time is not up yet.

When the time is up, the indicator will ask for the 9-digit name of the counted parts to store. By using the numerical keys, the name is written like entering names as in SMS message entry (see appendix) The name is stored after pressing Enter key AE .

In order to recall a previously stored part unit value, the relevant number key should be pressed within 3 seconds after pressing the Count key to enter the part count mode. If the recall process should be done while the part count mode is enabled, then the operator first should exit the mode and enter again.

Pricing

If enabled the indicator will start showing the total price of the material on the platform (either net or gross) on the operator display whereas the weight is still on the weight display.

The unit price that was last defined or recalled is effective until a new one is introduced.

If a new price is to be used, then Function key Fx is pressed. After entering the correct value, ENTER key AE is used to accept the value for the volatile memory.

During PRICE show mode, TARE acts in normal way.

If a printout will be taken, PRINT key is used for performing a ticket with all weighing data together with unit and total prices at the bottom.

The Unit price can be stored in one of the 9 memories with a name given to each. To do so, after entering the correct price value, the memory storage number is kept pressed for 3 seconds until a beep sound is heard. The indicator then will ask for the name of the material. Writing the name by using numeric keys as in a mobile phone, and pressing ENTER will finalize the storing process.

Recalling a price that was previously stored can be done within 3 seconds after enabling the Pricing key. The displays will show the name of the material recalled for about 1 second and start showing the weight and total price afterwards. Recalling another price can be done by first disabling pricing and enabling back.

Performing Ticket

During any time of weight measurement, either tare is active or not, PRINT key is pressed. The indicator will ask for the printer codes that were defined in the Printer set-up menu. At this point the indicator will show the name that was printed in the previous ticket, this name can be used by simply pressing the ENTER key AE or either the predefined names can be recalled by pressing the relevant numerical key (0 to 9), or after pressing the CLEAR key CE ,a new, un-stored name can be written. After all codes are written or if the names that were printed in the previous ticket will be used; after pressing the TICKET key , the indicator starts performing the ticket.

If multi-line ticket with the total at the end is desired, then the PRINTING TOTAL IN TICKET parameter should be selected as YES. The first line of the ticket is printed together with the header, time, date, serial no and the ticket codes. The following weight values are only printed in separate single lines by pressing the TICKET key . While having a multi-weight ticket, on the 9-digit operator screen, the total weight value is displayed rather than the time. After all weights are printed on the ticket, to get the total weight printed, TOTALIZE key Σ is pressed.

If single weight value is desired, the PRINTING TOTAL IN TICKET parameter should be selected as NO.

If the PRINTING TOTAL IN TICKET parameter was selected as YES, but single value should be printed, then TOTALIZE key should be pressed to finalize the printing.

Menu Operations

During normal operation, (when part counting is not enabled the operator may define printer codes and edit date and time. To do so, Function key Fx is pressed. When this key is first pressed, the first item, DEFINING NAMES to codes is seen. If ENTER KEY is pressed, then the operator may define names (10 names for each code, if during printer set-ups CODES are enabled). If the user wants to edit DATE and TIME, Arrow Key ←|→ is pressed.

Printer Parameters - Automatic Ticket

When this parameter is entered, first the user is asked whether automatic ticket performance is desired. If this parameter is set as YES, then when a weight is placed on the platform, after the no-motion state is achieved, a ticket is printed automatically.

Next parameter is the TOTALIZATION function in the ticket.

Defining Names to Codes

First the Group name of the first code is displayed. If the user wants to define names to any other code, then the relevant numeric key is pressed. i.e. if the user has defined CODE-2 as Material and wants to define a name to that group then 2 is pressed. The group name, MATERIAL, is displayed on the second line. ENTER key is pressed to edit a new name. MATERIAL switches up to first line and 1 is seen on the unit display, and previously defined name for this is seen on the second line. If the user wants to change this name, CLEAR key is pressed and the cursor starts blinking on the first character of the second line. The 9 character long name is entered with numeric keys as in an SMS messaging and ENTER key is pressed to store the value. The indicator switches back to the first step of defining names.

During this definition menu, if PRINT key is pressed, then all defined names of each group are printed out from the printer.

After all names are defined, FUNCTION key Fx is pressed again to go back to normal weight displaying mode.

Pricing Functions Settings

ART indicator has the pricing feature using the same key as part counting. To use this feature, PRICING parameter should be set enabled. By this way when key is pressed, the operator display will start showing the price of the material being weighed.

Pricing parameters also covers the decimal point to be used for price entry and the unit of the price (USD, EUR etc.). The total price will be displayed and printed with the entered decimal point and unit.

Date - Time Adjustment

After the FUNCTION MENU is entered, ARROW key is used to go into date-time adjustment operations.

The time is written in 24 hours mode. If a minute value of single digit is to be written then leading zero should be added.

After the correct time is written ENTER key is used to pass to year correction. The year is entered in 4 digits.

The third step is date entry. First the days and next months are entered. If the month and date are single digit values, then leading zeroes must be written. Invalid date values will not be accepted such as 35 January, 30 February, as well as 29 February except leap years.

The clock in the indicator is Y2K compatible. It will use 29 February on leap years and 28 otherwise. There will be no need to adjust date and time unless light saving time is started to be used. The year is kept on non-volatile memory and it will be corrected if the indicator is energized once in December.

Calibration, Printer and Parameter Settings

After the indicator is powered or stand-by key is pressed, by pressing the FUNCTION key Fx , set-up and calibration menus are reached. According to the calibration key at the back of the device, some parameters can be only seen, but not changed (affixed with). When the calibration key is disabled, the operator is warned about the changes that have been done were not accepted by the indicator and the next step is executed.

The settings and calibration are done under sub-menus of 4 main groups. They are in the order as:

- Parameter Settings
- Real Weight Calibration
- Communication Parameters
- Printer Parameters

In order to switch between the menus, ARROW key is used. To enter into the menu is done by the ENTER key AE . When selecting the parameters that are not numeric, ARROW key can be used, or relevant number key can be pressed.

When all is done with the parameters, CLEAR key CE or stand-by key is pressed to exit the calibration-parameter entry mode.

While there are menus on the screen if TOTALIZE key Σ is pressed, then the last calibration date and number of calibration can be viewed on the display. During this time, if TICKET is pressed, then all parameters and set-up values are printed out from the printer for future reference.

Certified Measurement

This parameter shows whether the indicator is subject to the regulations of weighing authorities. If YES is chosen, some parameters cannot be set or zeroing during weighing mode is not permitted over ±2% of the maximum value. (Factory default **YES**)

Digital Filter

This parameter enables the indicator to filter the values digitally to get rid of the small vibrations and changes on the display. By this way, the indicator will not show small flickerings on the display. The indicator is equipped with an average filtering of consecutive readings. To speed up the display renewing, the ambient vibration is chosen. There are four types to select from:

LOW (Vibration low, renews display with any small change in the reading)
MEDIUM (Vibration MEDIUM)
HIGH
ALWAYS (Continuous vibration, never disabled averaging).
(Factory default **MEDIUM**)

Decimal Point

When the display resolution needs decimal point for fractional values, it is possible to show it on the display. The decimal point can take a value from 0 (no decimal point) to 5.
The value next to DOT text shows where the decimal point will be. The weight values are shown as below:

Dot=0	5678	0
Dot=1	567.8	0.0
Dot=2	56.78	0.00
Dot=3	5.678	0.000
Dot=4	0.5678	0.0000
Dot=5	0.05678	0.00000

(Factory default **0**)

Weight Unit Selection

The user can select the unit of the measured value. The selectable units are kg, g, t, N, kN, lb, oz, m, ºC, ºF, l. If the indicator is configured as CERTIFIED, then the units can be selected only from kg, g, t, N, kN, lb and oz. (Factory default **kg**)

Scale Type

The indicator may be configured with two weighing ranges with two different weighing resolutions to enable higher accuracy readings in lower values. There are three different modes to select from:

- Single interval
- Multi-interval
- Multi-range

In single interval mode, there is only one range and one resolution; in the others there are two ranges and resolutions. (Factory default **Multi-interval**)

1. Interval Weight Value

In Multi-interval and Multi-range modes, this value is the value where the indicator changes the resolution value. In single-interval mode, this parameter will not be shown.

1.Interval Resolution

This value shows the resolution value to be used until the 1st interval weight value. It can take a value of 1-2-5-10-20-50-100-200-500. The value is not affected by the decimal points. The value is of the right-most three digits.

Indicator Maximum Allowable Weight

This value is the maximum value that the indicator may display. Exceeding this value more than 10 resolution values will cause the indicator to stop displaying the measured value. The indicator will then produce the error code OVER-LOAD (Err 01, if negative Err 02).

Resolution

This value is the resolution of the indicator when the value exceeds the 1st interval weight value in double range indicators and whole range in single interval mode. It can take a value of 1-2-5-10-20-50-100-200-500. The value is not affected by the decimal points. The value is of the right-most three digits.

Conversion Speed

According to the type of reading, relevant number of conversions can be selected. As the number is increased, the reaction will be faster and as the number is decreased, the stability will be higher. If high speed is not a must, it is better to keep the value at 12.(Factory default: **12**)

Power Up Zero

When this parameter is enabled, the indicator will accept the weight on the platform as ZERO as long as it is within 20% of the weighing capacity from the zero point during calibration.
(Factory default: **NO**)

Tare Key Enabled

When this parameter is enabled, the user may press the TARE key during weight measurement. Otherwise, the key is non-functional. (Factory default **YES**)

Automatic Tare Disable

When tare is enabled, the user may select the tare to be automatically disabled when a valid NET value is shown on the display (more than 2 step values with no-motion state). If this feature is wanted, YES is selected. When NO is selected, to disable the TARE, user must press the tare key again. (Factory default :**YES**)

Weight Calibration

Input Voltage

The ART indicator accepts analog input from 1mV/V to 80mV/V. The selectable values are 1, 2, 5, 10, 20, 40 and 80. The necessary point in selecting the voltage range is the utilization of the load cell(s). (Factory default: **1mV/V**) The indicator will produce the error code OVER-LOAD (Err05) if the input voltage is exceeded.

Zero Calibration

The indicator accepts the calibration with two points: one when the platform is empty, two with a known weight. When the indicator is in ZERO calibration step, on the screen the message LOAD is seen. If the user wants to see the internal count used by the indicator the GROSS/NET key is pressed, then on the operator display the raw value coming from the A/D circuit and on the weight display, the filtered and zeroed internal count are displayed. After the weight on the platform is removed ZEROISE key →0← is pressed.

Weight Calibration

The third step in weight calibration is introducing the value to the indicator by applying the load on the platform. The message LOAD is seen. At this point either the platform is kept empty and ZEROISE key →0← is pressed or the load with a known weight is placed on the platform, some time is passed to get the no-motion state and the value is written by the numeric keys. After the value is written ENTER key AE is pressed to finalize the calibration. The indicator uses the value at the time the first numeric key is pressed, not the ENTER key AE is pressed.

Communication Parameters

Communication Mode

The indicator can communicate with outside world through the serial line with different variations:

Mod 0 No transmission of weight
Mod 1 Continuous transmission of weight
Mod 2 Continuous transmission of weight if no-motion state
Mod 3 Transmission of weight on demand (by key or from serial line)
Serial Printer Mod 4 Comm port is dedicated to a serial printer. No connection to a PC.
Printer+PC Mod 5 Same data for the parallel printer is sent via the serial line. (If only PC transmission is wanted, short circuit pins 25 to 11 on parallel printer connection)

Communication Format (Scale Number)

When communication mode 3 is selected, then the indicator will ask for the NODE number of the scale. In order to make a communication with a computer system through the serial line, the master device should first send the wake-up code (Hex FF), and the node number. i.e. if the scale number is selected as 65 (Hex41), when it receives

Hex FF (Wake-up) 41 'A' transmits the weight information.

If the node number is selected as 00 then the indicator will not wait for the WAKE-UP code but transmits the information with any character received from the serial line. The address can take any value from 0 to 250. When there are more than one indicator, each should have unique node numbers. (Factory default: **49**)

Communication Format (Prefix Character)

When communication mode 3 is selected, the operator can demand the weight data from a remote device (by sending relevant codes) as well as send it via serial line by pressing the ENTER key. The weight data is sent in 6 digits following the user defined prefix character. The character is entered in decimal. (Factory default: **64 [@] Hex40**)

If the parameter is set to 255 then the indicator will transmit a status byte as the prefix. The status byte is defined as follows:

0	1	0	TARE ENABLED	NEGATIVE	ERROR	PRINTABLE	NO MOTION	HEX	ASCII	NEG/POS	ERROR	PRINT	NO-MOTION
0	1	0	0	0	0	0	0	40	@	POSITIVE	NORMAL	OK	NO-MOTION
0	1	0	0	0	0	0	1	41	A	POSITIVE	NORMAL	OK	X
0	1	0	0	0	0	1	0	42	B	POSITIVE	NORMAL	X	NO-MOTION
0	1	0	0	0	0	1	1	43	C	POSITIVE	NORMAL	X	X
0	1	0	0	0	1	0	0	44	D	POSITIVE	X	OK	NO-MOTION
0	1	0	0	0	1	0	1	45	E	POSITIVE	X	OK	X
0	1	0	0	0	1	1	0	46	F	POSITIVE	X	X	NO-MOTION
0	1	0	0	0	1	1	1	47	G	POSITIVE	X	X	X
0	1	0	0	1	0	0	0	48	H	NEGATIVE	NORMAL	OK	NO-MOTION
0	1	0	0	1	0	0	1	49	I	NEGATIVE	NORMAL	OK	X
0	1	0	0	1	0	1	0	4A	J	NEGATIVE	NORMAL	X	NO-MOTION
0	1	0	0	1	0	1	1	4B	K	NEGATIVE	NORMAL	X	X
0	1	0	0	1	1	0	0	4C	L	NEGATIVE	X	OK	NO-MOTION
0	1	0	0	1	1	0	1	4D	M	NEGATIVE	X	OK	X
0	1	0	0	1	1	1	0	4E	N	NEGATIVE	X	X	NO-MOTION
0	1	0	0	1	1	1	1	4F	O	NEGATIVE	X	X	X

Communication Format (Speed)

The number of communication bits sent per second is called BAUDRATE. The allowable values are: 1200, 2400, 4800, 9600. (Factory default: **1200**)

Communication Format (Number of Bits)

The number of bits that forms a communication byte is given with the bit (binary digit) variable. Can take 7 or 8. If 7 bits is chosen, then the wake-up character will be 7F rather than FF. (Factory default: **8**)

Communication Format (Parity Bit)

This parameter is used for transmission data control purposes. This is in fact a control bit within a character. It can be set as NO, ODD or EVEN. (Factory default: **NO**)

Communication Information

The information that will be sent via serial line is selectable by the user.
The available alternatives are:
GROSS weight (either TARE is active or not)
The DISPLAY value (NET value in net mode, GROSS otherwise)
ALL values (When TARE is active Gross, Tare and Net; otherwise only gross)
(Factory default: **DISPLAY**).

Decimal Point in Serial Communication

In a serial communication the decimal point (if any) may be sent in the message. This can either be disabled, or sent as a separate character or embedded in the byte itself.
Choices; No dot, Embedded in the character as the 8th bit, Dot, Comma.
(Factory default: **DOT**).

Remote Display Information

There exists a second serial output to be used for the connection of a remote display. The output can be configured as one of the two choices:
GROSS weight
DISPLAYed weight (NET value in net mode, GROSS otherwise)
(Factory default: **GROSS**)

Printers Parameters

Language Selection

Art indicator can be configured to display messages and print weighing tickets in any of the selectable 4 languages. The languages that can be set are English, Turkish, Bulgarian and Russian. (Factory default: **ENGLISH**)

Printer Selection

Art indicator can be connected to standard dot matrix parallel printers as well as thermal printers that can print barcodes. (Barcode printer option is not supported with Bulgarian and Russian languages). (Factory default: **DOT MATRIX [EPSON LX300]**)

Ticket Serial Number

Giving a unique and auto-incrementing number to each ticket performed is given with this value. The value written will be printed on the first ticket and it will be incremented. If this number is not wanted to be printed then this value should be set to 0.

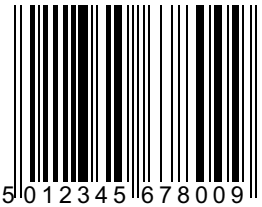
Paper Width

If printer was selected as a Barcode printer, then the operator should define the width of the paper to be used. The value is entered in millimeters. (Factory default: **70mm**)

Barcode Type

When a Barcode printer is selected, then the user selects which barcode type to be printed on a ticket. The choices are or NO barcode.

CODE39, 

Ean13 

(5 or 6 characters weight value)

(Factory default: **CODE-39**)

EAN13 Barcode Prefix Characters

When Ean13 was selected as the barcode to be printed, then the characters besides the weight should be defined. When 5 digits weight is selected 7 characters, when 6 digits weight is selected 6 characters should be defined. Each character can be defined as a fixed numeric character, the ticket serial number or the first characters of any code. If the first characters of any code are not numeric, then 0 (zero) will be used instead. If 3 digits of serial number are selected, then the rightmost digits of serial number are printed on the barcode. (Factory default: **fixed numbers 0000000**)

Printer Total in Ticket

While taking a ticket, the operator may choose to print a single weight value on a ticket or may have multiple weight values printed one under the other and the cumulative is to be written at the bottom, then this parameter should be set as YES. (Factory default: **NO**)

Number of Codes in a Ticket

On a weighing ticket there can be up to 7 codes that may be seen. The operator selects number of codes that will be used. If 0 is entered, then there will be no code. (Factory default: **2**)

Enlarged Characters in the Print-Out

If the headers and the weight values are desired to be enlarged characters, this parameter should be set to YES. (Factory default: **YES**)

Printer Code Names

The indicator will ask for the names of the ticket codes that will be printed on the ticket. The code names are 9 characters long and are entered as in SMS message entry.

Automatic Line Feed

Indicator ends a ticket with a “FF” Form Feed (Chr12h) character. Some printers perform a Form feed when this code is received. But in some cases, remaining number of Line Feeds (Chr10) should be sent after whole ticket is sent. (Factory default: **YES**)

Ticket Page Length

This parameter shows how many ticket lines exist in a ticket to perform the weighing tickets exactly on the same line on each ticket. (Factory default: **36**)

Number of Blank Lines on Ticket Header

In some tickets, user may prefer to use pre-printed tickets with their headers on. So the ART indicator may start printing after blanking some lines on top. (Factory default: **0**)

Ticket Header

On top of each ticket 2 lines of 25 characters each can be defined.
(Factory default: **ESIT LTD. WWW.ESITSCALE.COM**
ISTANBUL 90-216-3046400)

Name Of Ticket Counting Number

When a ticket is performed an incremental value is given to each one. The name appearing next to it may be changed is desired (like “coil no”, “bulk no”)
(Factory default: **Serial no**)

Part Counting Unit Name

The indicator will ask for the name that will be printed to the ticket next to the number of pieces, if part-counting mode is enabled. The name is 5 characters long and is entered as in SMS message entry. (Factory default: **PIECE**)

Print Date in Ticket

The user may select printing DATE on the ticket or not. (Factory default: **YES**)

Print Time in Ticket

The user may select printing TIME on the ticket or not. (Factory default: **YES**)

Appendices

Entering Names in SMS Message Entry

When a name is to be written, last written name comes to the operator display. If the length of the message is longer than 9, then only 9 of them is seen at a time.

AE will accept the written value and next process will be started.

CE clears all entry.

←|→ moves cursor one character to the direction of the arrow.

Fx changes the direction of the arrow key (default is to right).

If any number key is being pressed for the first time, then the numerical value comes to screen. If the same number is pressed within 3 seconds while the cursor blinks on the same character, then the next character shown above is displayed. The cursor will blink on the same digit after a key is pressed and blinking will pass to next digit after the time is up. If the characters, to be written one after the other, are on the same number key (like P and S), then the operator should wait until blinking passes to next digit.

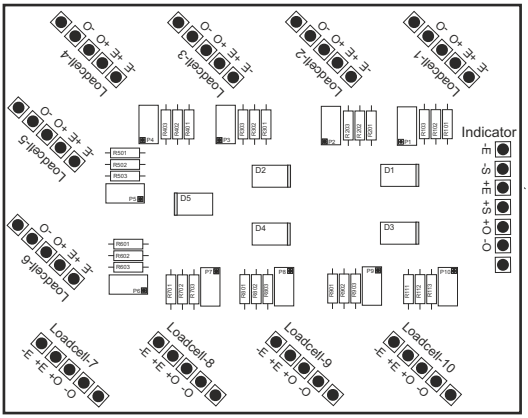
1	1	:	.	,	-	+	?
2 ABC	2	A	B	C			
3 DEF	3	D	E	F			
4 GHI	4	G	H	I			
5 JKL	5	J	K	L			
6 MNO	6	M	N	O			
7 PQRS	7	P	Q	R	S		
8 TUV	8	T	U	V			
9 WXYZ	9	W	X	Y	Z		
0 _	0	space	/	=	(	)	&

Cable Connections

Load Cell Cables to the Junction Box

Load cells are transducers, which convert weight to electrical signals to be used by the indicator. Their cables are formed mainly of 4 or 6 signal cables. These cables are composed of two excitation cables, two output cables and sometimes two sense cables. All these cables should be connected to the corresponding connection holes on the printed circuit board located inside the junction box.

The connection holes on the board are labeled with first letters of cable colors. These colors are for ESIT load cells.



The junction boxes may be used with other brand load cells. In this case the user must learn the cable colors.

Colors and explanation of signal cables of ESIT load cells are as follows:

LETTER		COLOR	EXPLANATION	
K	Kırmızı	Red	- Out	-O
B	Beyaz	White	+ Out	+O
Y	Yeşil	Green	+ Excitation, +Input	+E
S	Siyah	Black	- Excitation, -Input	- E
T	Toprak	Ground	Shield	

On the cable connecting the junction box to the indicator there may exist either four or six signal cables. If the load cell cable has six signal cables, the extra two wires for SENSE signals are connected on the junction box board next to excitation inlets. If the load cell cable has four signal cables, the SENSE connection is done on the connector to be plugged to the indicator.

CONNECTOR PIN ASSIGNMENT TO LOAD CELL CONNECTION OF ESIT INDICATORS

If 6 signal cable used

Pin number	Cable color	Explanation
1	Blendage	Blendage(shield)
2	NC	No Connection
3	White	+ Output
4	Black	- Excitation(Input)
5	Green	+ Excitation(Input)
6	Must be short circuit to pin1 externally	
7	Red	- Out
8	Orange	- Sense
9	Blue	+ Sense

! On the junction box, the letters of colors blue and orange do not exist. These cables are connected next to Green and black with respect to their polarity.

If 4 signal cable used

Pin	Cable color	Explanation
1	Blendage	Blendage (shield)
2	NC	No Connection
3	White	+ Output
4	Black	- Excitation (Input)
5	Green	+ Excitation (Input)
6	Must be short circuit to pin1 externally	
7	Red	- Out
8	Short circuit with Black	- Sense
9	Short circuit with Green	+ Sense

LOAD-CELL

1. Ground
2. NC
3. +Out
4. - Excitation
5. +Excitation
6. Short circuit to 1
7. - Out
8. - Sense
9. +Sense

(**9Dsub female connector)**

Serial Communication Connectors

The ART indicator has a serial communication connector with the following pin outputs:

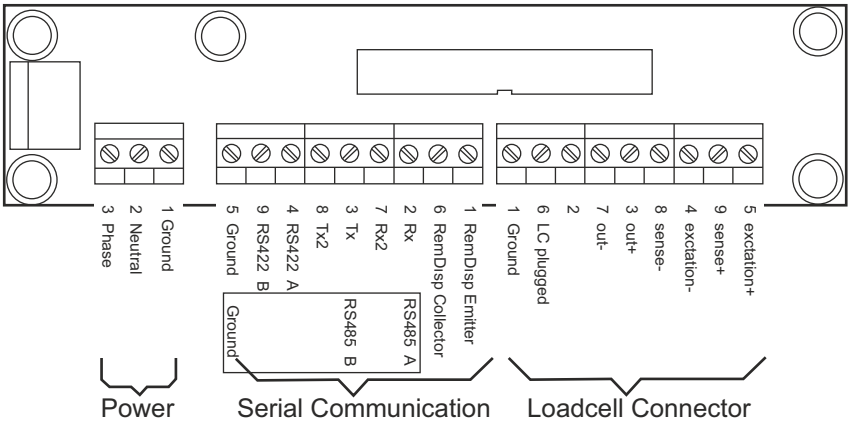
Pin no	Description		
2	Rx1 of RS232	A-1	
3	Tx1 of RS232	B-1	
5	Ground		**RS 232**
7	Rx2 (optional-second serial com)		
8	Tx2 (optional-second serial com)		

Pin no	Description	
2	A-1	**RS 485**
3	B-1	
4	A-1 (if RS232 exists)	
5	Ground	
7	A-2	**RS 422**
8	B-2	
9	B-1 (if RS232 exists)	

Pin no	Description	
1	Emitter output	
6	Collector output	**REMOTE DISPLAY**

Remote display output format: (1200 Baud, No Parity, 8 bit)

ART-S Screw Type Connection Diagram

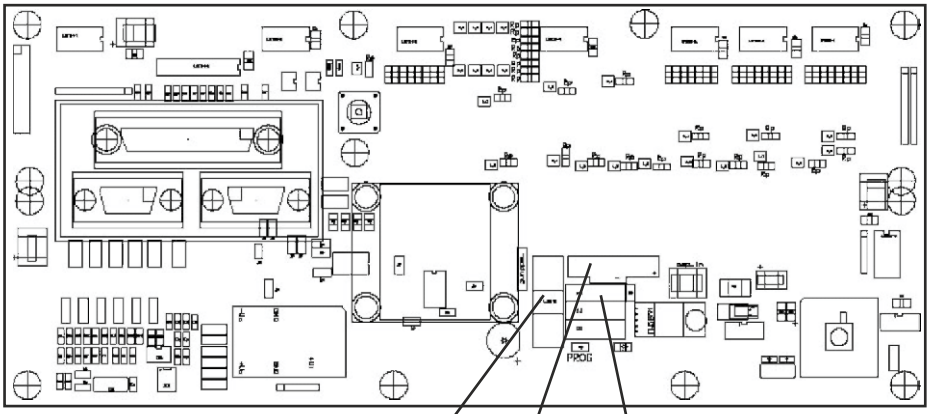


Parallel Printer Connectors

The ART indicator has a parallel printer output.

Pin no	Description	
1	Strobe	o
2	D0	o
3	D1	o
4	D2	o
5	D3	o
6	D4	o
7	D5	o
8	D6	o
9	D7	o
11	Busy	i
19-25	Ground	

Power Connector



The ART indicator has a power connector of screw type 3 pins

Fuse: 500 mA

Battery: CR 2032

Pin no	Description
1.	Ground
2.	Input -
3.	Input +

Error Codes and Solutions

No LC

If the Load cell cable is unplugged this message is seen.
☺ ***Plug the load cell cable. Short circuit pin 1 to pin 6 on the connector***

Err 01 / Err 02 Over Load

If the load on the platform exceeds the maximum allowable weight by 10 step values (Max+9e is the allowed), the display will not show the weight value any more.
☺ ***Remove the load from the platform.***

Err 05 Over Load

If the load on the platform exceeds the maximum allowable analog input range adjusted during calibration, the display will not show the weight value any more.
☺ ***Remove the load from the platform and perform a calibration.***

Calibration Key Disabled

During calibration and set-up parameter change menus, the unit display shows the state of the calibration key. If it is locked, the user can only see the values but cannot change them. If a value is tried to be changed, this message is seen.
☺ ***In order to change a value, calibration key must be ENABLED.***

Zeroing Not Allowed

If the scale is certified, then the operator cannot zero the system if the amount exceeds 4% of the maximum allowable weight. This value is calculated from the calibration zero, so cumulative zero value is checked.
☺ ***If zeroing must be done, perform a new calibration.***

Tare Active

When TARE mode is active, the user cannot use the ZEROISE key.
☺ ***Disable TARE mode to zero the platform.***

Part Mode

When PART mode is active, the user cannot use the ZEROISE key.
☺ ***Disable PART mode to zero the platform.***

Err 31 No Printer

An error during printing, the “READY” signal from the printer timed-out. The power may be unplugged, out of paper or OFF-LINE.
☺ ***Make the printer READY for printing and press ENTER key*** AE ***. In order to disable printing press CLEAR key*** CE ***.***

Err-22 Non-Volatile Memory Write Fault Error

If there occurs an error in writing to the non-volatile memory, this message is seen.
☺ ***Unplug the power from the system, wait for some time and re-plug the power. If the error continues, call service.***

A/D Error

The Analog to digital converter chip has no response.
☺ ***If the dot on the rightmost digit is flashing, then the indicator is initializing the chip and the weight will be displayed soon. Otherwise, call service.***

Platform Load Cannot be Entered as Tare

If the weight on the platform is negative or in motion (within 2 seconds, the display should not move more than 2 step values) the TARE key will not be accepted (only a click is heard) showing that only manually or pre-entered tare values can be recalled.
☺ ***If the platform weight is to be accepted as TARE, then stability or positive value must be reached.***

Printer Starts Printing by Itself

The indicator can be set to automatic printing mode. If this is not wanted, the parameter should be set to YES.
☺ ***If the platform weight is to be accepted as TARE, then stability or positive value must be reached.***

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