DIN 3

SERVICE MANUAL

Contents:

1. INTRODUCTION

The DIN 3 indicator provides an accurate, fast and versatile series of general purpose weighing indicator with counting and check-weighing functions.

All the keypads are sealed color-coded membrane switches and the displays are 1" large LED display for easy reading.

All units include automatic zero tracking, audible alarm for pre-set weights, automatic tare, and an accumulation function that allows the individual weights to be stored and recalled as an accumulated total.

SPECIFICATIONS

Model	DIN 3
Zero range	0mV~8mV
Max input	15mV
ADC	Σ - Δ
Internal Resolution	999,999 Counts
External Resolution	1/30,000
Interface	RS-232C
Stabilisation Time	1 Seconds typical
Operating Temperature	0°C - 40°C / 32°F - 104°F
Power supply	AC adapter or built in Rechargeable Battery 6V1.3AH.
Display	6 digits 1"LED digital display.
Housing	Stainless steel
Load cell driven voltage	Max 5V/150mA
Other function	Real-time clock and units conversion, customized unit setting
Load cells	Up to four 350 ohms cells

2. INSTALLATION

The weighing indicator should be sited in a location that will not degrade the accuracy.

Avoid extremes of temperature. Do not place in direct sunlight or near air conditioning vents.

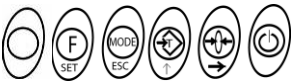
Avoid unsuitable tables. The tables or floor must be rigid and not vibrate. Do not place near vibrating machinery.

Avoid unstable power sources. Do not use near large users of electricity such as welding equipment or large motors.

Keep the weighing indicator clean.

Verify the voltage showing on the label matches the voltage in your area.

3. KEY FUNCTIONS



Power on/off Key

Turn the power of indicator on or off.

Zero Key

(1) Set the new zero point. This usually is only necessary when the platform is empty.
(2) At self-checking, press “ZERO” key to enter parameter setting
(3) Set the zero point for all-subsequent weighing. Zero the indicator.
(4) Move the cursor to change the digit when setting parameters or other functions.
(5) At self-checking, press “ZERO” key to enter fast calibration.

TARE key

(1) Tare the indicator. Stores the current weight in memory as a tare value. At weighing, subtracts the tare value from the weight and shows the results. This is the net weight. Enter a value by using the keypad, this will store that value as the tare value. The TARE light will be on to show the indicator is now in tare mode. To clear the Tare, empty the platform and press the “TARE” key, TARE light will be turned off.
(2) Function and Parameter setting mode: Cycle through the functions and sub function or incrementing the active digit when setting a value for parameters or other functions.

MOD / ESC Key

(1) Enter / Cancel the counting mode from weighing mode.
(2) "Hold" Function keep and cancel.
(3) Reduce the value as tare which is set in advance.
(4) Accumulate and print.
(5) IN Function/Parameter Setting Mode: To Cancel or to Quit from the operations.

"FUN" key

Used to select or enter the function and save the setting values for parameters. Secondary function:

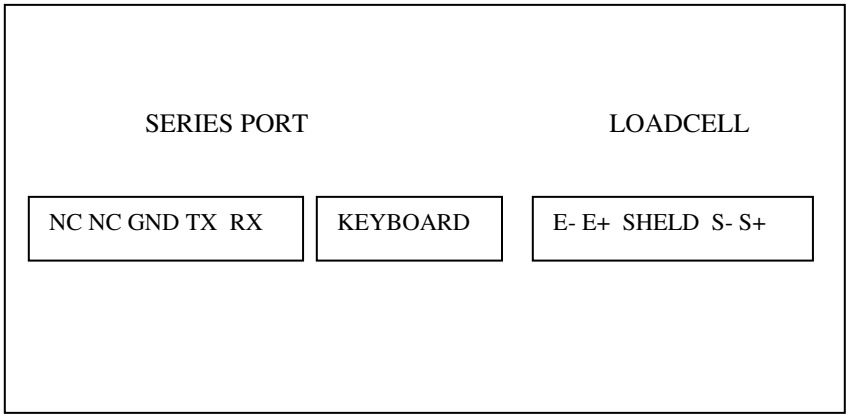
a) Weighing Mode: Press to view the Gross / Net Weight.
b) Counting Mode: Shift unit weight, counts and total weight.

Accumulation Mode: Press to Store the Weight Value by adding it and view the Accumulated Total weight.

UNIT Key

Switch unit from KG to LB/U1/U2 or LB/U1/U2 to KG.

CONNECTIONS:



4. OPERATIONS

Check-Weighing

Check weighing is a function to cause an alarm to sound when the weight on the scale meets or exceeds values stored in memory. The memory holds values for a high limit and a low limit.

Check a range:
Set a range of hi-limit and low-limit, hi-limit value must be larger than low-limit.
Check one key point:
Set hi-limit and low-limit to a same value.
Check mode:
Set the parameter, select ”F4 CHK” to enter check mode. Press “FUN” key, and select “bEEP 1, bEEP 2 or bEEP 3”; Press “FUN” key, indicator will show “XXXXXX”. Then begin to set high-limit, press “FUN” key to set low-limit.

BEEP=1, never beep whether it is eligible or not;
BEEP=2, Beep when it is eligible;
BEEP=3, Beep when it is not eligible.

NOTE: The weight must be greater than 9 scale divisions for the check weighing to operate. To disable the Check-Weighing function enter zero into both limits. Press the “FUN” key, when the current limits are shown then press “ZERO” key to store the zero values. “F4 CHK” will be locked if “P13 UT” is not set to KG.

Customized Unit Conversion

Turn off then turn on the indicator. Press “Unit” key at self-checking time. Display will show “Set U1”. Press “FUN” key, display show “XXXXXX”. Enter your value of the unit related to kilogram KG for U1.
For example: 1 KG = 35.2740 U1 (U1 = 1 oz)
Then change the display from “XXXXXX” to “35.2740”. Press “FUN” key to save and escape.
Do the same procedure for “Set U2”. Go to “P13 UT” to turn on U1/U2 for conversion from KG to U1/U2.
U1 and U2 can be set for two different unit conversions besides “kg ” to “lb”.

In weighing mode,
Press “Unit” key to convert Kg to Lb; U2 light will be on.
Press “Unit” key to convert Kg to U1; HI light will be on.
Press “Unit” key to convert Kg to U2; LO light will be on.

Accumulation

Turn on the Indicator then press “Zero” key to enter parameter setting. Press “TARE” key to cycle, when display show “F3 KEY”, press “FUN” key, display will show “KEY X”, press “TARE” key to cycle from “KEY 1” to “KEY 4”, select “KEY 2” and press “FUN” key to save then press “MODE” key to escape. Now the indicator is ready for Accumulation.

Accumulation of the Weight

When weighing, press “FUN” key for Accumulation. Place the goods on platform, when stable and STABLE light is on, press “MOD” key and the weight value will be stored in the memory and the display will show the accumulation number. Then display will go to normal weighing mode. Does other subsequent weighing by the same procedure as above. This Indicator will store up to 200 numbers of Accumulation in the memory.

View the Accumulated total Weight

Empty the platform, when zero, press “FUN” key to display the No. of Weights “Accumulated” and then Total weight.
To clear the Accumulated weight from Memory press “ZERO” Key during display the no. of weights while in “View the Accumulated total Weight” will clear the Accumulated weight from Memory.

The accumulation function is only available in weighing mode. It is disabled in parts counting. In this mode you may accumulate 2 different weights.

Parts Counting

Tare the weight of container that will be used, leave the empty container on the platform. Place the samples on the platform. The number should match the options for parts counting, 10, 20, 50, 100 or 200 pieces.

Sample: Press the MOD key, the indicator will show "P 10" for a sample size of 10 parts. To change the sample size, press the TARE key. It will cycle through 10,20, 50, 100, and 200 then back to 10.

Counting: Press the FUN key to save the piece weight when the number matches with the sample size. Remove the sample form the container and place the desired parts for counting purpose, display will show the number of parts in pcs.

To View Piece Weight, Counts & Total Weight:

Press "FUN" key to cycle through Piece Weight, Number of Counts and Total Weight. (Note: The piece Weight will show in Gram g)

Press the MOD key to return to normal weighing.

Print

Go to "F7 CAL", then "P10 PS". Select "RS Prt" for use with the Serial Printer. Select LAB 1 or LAB 2. Set "F3 KEY" to K = 2.
When weighing, press "Mod" key to print.
When weighing, press "FUN" key to accumulate and print.

RS-232C

This indicator has an optional RS-232 output.
data 9600 bos 1 stop bit 8 data bits No Parity

Mode 1: continue output

ST, GS 0.119 kg ST for stable; US for unstable; GS for gross weight; NT for net weight; 0.119 for weighing value; kg for unit (kg, lb, u1, u2); HEX 0d and HEX 0a: HEX for hex; 0d for enter; 0a for next line

Mode 2: Automatic output

Automatic output Mode is same as continue output. The only difference is after weighing, take away the goods, the display returns to zero, then transfers data.
There are two formats for print. Examples:

```
2000/02/11   21:21:58
No.   TARE      NET       GROSS     TOTAL
-------------------------------------------------
001   0.000U1   0.034U1   0.034U1   0.034U1
```

```
DATE  2000/02/11
TIME   21:26:56
NO.       001
TARE    0.000kg
NET      0.076kg
GROSS  0.076kg

DATE  2000/02/11
TIME   21:27:41
NO.       002
TARE    0.125kg
NET      0.035kg
GROSS   0.160kg
----------------
NO.       002
TOTAL   0.111kg
```

User can only select either “Print” or “Parts Counting”.

BATTERY

This indicator is powered by battery. The battery life is approximately 20 hours. When the battery is running low the display will be flashing. It means the battery needs to be charged. Apply the AC adapter to recharge the battery immediately. Failure will cause unrecoverable damage to the battery. Or switch off the indicator to protect the battery.

The battery should be charged for 8~12 hours for full capacity. Battery charge status red LED light will be on to indicate the battery is charging. When the LED becomes green the battery has a full charge. If it is Red the battery is nearly discharged and should be recharged.

5. SET UP FUNCTIONS AND PARAMETERS

To enter the set up mode, turn off the indicator, then turn on indicator, while the scale is in the power-up self-test mode, press “ZERO” key. The scale then enters the setup and calibration modes. The display will now show “F1 CLK”. F1 to F7 are 7 functions.

Functions:

F1 CLK	Time and date setting
F2 LP	Sleep time setting, auto off function
F3 KEY	MOD key setting
F4 CHK	Check weighing setting
F5 INP	Display internal counts
F6 BAT	Battery and voltage revised
F7 CAL	Calibration of the indicator

"F1 CLK": Date and Time Setting

When display "F1 CLK" press "FUN" key to enter time and date setting,
"YY-MM-DD" "MM-DD-YY" "DD-MM-YY" using:
"ZERO" key to move from digit to digit
"TARE" key to change value
"MOD" key to cancel and escape
If display "ERR 1", time exceed the range, redo it.
If display "ERR 2", date exceed the range, redo it.
Press "FUN" key to save and return to higher menu.
Press "TARE" key to advance to F2.

"F2 SLP:" Sleep setting

"SLP no" do not sleep
"SLP 3" If 3 minutes no action, go to Sleep.
This Sleep mode have two options, "oFF" & "dot", to select press "FUN" key.
When display "SLP 3".
For "oFF" will cut off the power, left "zero" on.
For "dot" will set off display, and display a dot at the last digit.
Weight changes or key operation will wake up indicator.
SLP 5: Same as above, but 5 minutes go to sleep.
SLP 10: Same as above, but 10 minutes go to sleep.
SLP 15: Same as above, but 15 minutes go to sleep.
Press "FUN" key to save and return to higher menu.
Press "TARE" key to advance to F3.

"F3 KEY": "Mod" key setting

KEY 1	Counting, Gross/Net Display Change
KEY 2	Accumulation, Print (RS232)
KEY 3	Hold the Weight Value (press "MOD" key to hold)
KEY 4	TARE (set the tare value in advance)

Press “FUN” key to save and return to higher menu.
Press “TARE” key to advance to F4.

“F4 CHK”: Check Weighing setting

bEEP 1	No beep
bEEP 2	Beep when the weight is with in the preset range
bEEP 3	Beep when the weight is outside the preset range

Press “FUN’ to enter, “Hi limit setting”: ”HI” light is on.
To enter Hi-limit, using
“ZERO” key to move from digit to digit
“TARE” key to change value
“MOD” key to cancel and escape
“FUN” key to save and escape
“UNIT” key to Zero
For “Low limit setting”, “LO” light is on. (same as above)
Press “FUN” key to save and return to higher menu
Press “TARE” key to advance to F5.

“F5 INP”: Display the Internal Counts

Used to check the connection of load cell and working status of ADC circuit.
Press “TARE” key to escape

“F6 BAT” Battery and Voltage Revised

To use an adjustable DC instead of battery
(A) Display the voltage of indicator
(B) If need to revise, press ”FUN”, Press “ZERO” to ESC
(C) Press “FUN” key, display “1 XXXX”. Now DC power supply is 6V. When stable, press “FUN ” key.
(D) Display “2 XXXX”. Now DC power supply is 7V. When stable, press “FUN ” key.
(E) Finish revising

“F7 CAL” Calibration of the Indicator

Press ”FUN” key to enter **“**PN**”** for setup Parameters.
Press “UNIT”, ”ZERO”, and ”TARE” right away as the password. Key Interval must not exceed 2 seconds. If procedure is correct, it displays “P1 SP”; if procedure is wrong, it returns back to weighing mode.

“P1 SP”: A to D Speed Setting

This parameter is used to set the speed to optimize the performance of the indicator and to reduce the noise and vibration errors, to get the optimum result according the

environmental conditions.
Press “FUN” and “TARE” key to select 1, 2, 3, 4 or 5.
Press “FUN” key to save and return to higher menu.
Press “TARE” key to advance to P2.

“P2 AUT”: Power up Zero Traction

Press “FUN” key then “TARE” key to select 0, 2, 5,10, or 20% of the Capacity
Press “FUN” key to save and return to higher menu.
Press “TARE” key to advance to P3.

“P3 RAN”: Manual Zero Traction

Press “FUN” key then “TARE” Key to select 2, 4, 10, 20, 50 or 100% of the Capacity
Press “FUN” key to save and return to higher menu.
Press “TARE” key to advance to P4.

“P4 AZ”: Auto ZERO Traction

Press “FUN” key then “TARE” key to select 0.5d, 1d, 2d, or 4d
Press “FUN” key to save and return to higher menu.
Press “TARE” key to advance to P5.

“P5 DEC”: Decimal point Position

Press “FUN” key then “TARE” key to select 0, 0.0, 0.00, 0.000 or 0.0000
Press “FUN” key to save and return to higher menu.
Press “TARE” key to advance to P6.

“P6 CAP”: Capacity Setting

Press “FUN” key the display will show xxxxxx; press “ZERO” key to position the digit; then press “TARE” key to change the value.
Calibration capacity is in “KG” only. When use test weight in “LB”, divided by 2.20463, then enter this value for calibration capacity.
Press “FUN” key to save and return to higher menu.
Press “TARE” key to advance to P7.

“P7 INC”: Increment Setting

Press “FUN” key and Press “TARE” Key to select 1, 2, 5, 10 or 20.
Press “FUN” key to save and return to higher menu
Press “TARE” key to advance to P8.

“P8 CAL”: Calibration

After completion of all necessary parameter settings above the indicator is ready for calibration.
Press “FUN” Key, display shows “noLoAd” Empty the platform, when STABLE then press “FUN” Key to save ZERO point.
Display now shows “XXXXXX”. This value must match the test weights (in KG) to be placed on the platform. If test weights are in LB, then divide by 2.20463. Enter this value for calibration.
Press “ZERO” key to change the position of winking digit.
Press “TARE” key to change the value of winking digit.
After the display value matches the test weights value, press “FUN” key to confirm.
Display shows “LoAd”. Place the test weights on the platform.
When STABLE press “FUN” Key to confirm.
The calibration is now done, and indicator is in weighing mode.

“P9 INT”: Initialize the memory

“P10 rS”: Communication Mode

This option is used for the RS232C serial port mode setup. Options are:
“RS Cot” for continuous Data Transmission.
“RS Prt” for use with the Serial Printer.
“RS Aut” for use with transmission after every weighing.
Press “FUN” key at “P10 rS”. Press “TARE” key to select “RS Cot”, “RS Prt” or “RS Aut”.
When use series printer, select LAB 1 for print format 1, LAB 2 for print format 2.
Press “FUN” key to save and return to higher menu.
Press “TARE” key to advance to P11.

“P11 FL”: weight adjusting for gravitational constant.
Press “FUN” key to save and return to higher menu
Press “TARE” key to advance to P12.

“P12 KB”: Beep of Keypad

“ON ” is for sound when pressing keypad
“Off ” is for silence when pressing keypad
Press “FUN” key to save and return to higher menu
Press “TARE” key to advance to P13.

"P13 UT": This option is used for switching unit on or off. For example:
"Lb on" enables to switch from kg to lb or from lb to kg
"Lb off" disables to switch from kg to lb or from lb to kg
When in "Lb" mode, "Hi" light will be on.
"U1 on" enables to switch from kg to U1 or from U1 to kg
"U1 off" disables to switch from kg to U1 or from U1 to kg
When in "U1" mode, "Lo" light will be on.
"U2 on" enables to switch from kg to U2 or from U2 to kg
"U2 off" disables to switch from kg to U2 or from U2 to kg
When in "U2" mode, "U2" light will be on.

Set UT = KG, LB, U1 or U2, unit will be KG, LB U1 or U2 when power up.

Fast Calibration

If need to calibrate without changing parameters, press "TARE" key at power up self-checking. Display will show "Pn". Then press "UNIT", "ZERO", "TARE" in order as the password. If procedure is correct, it will show "Unload". Continue the steps as on **"P8 CAL"** above**.**

At any step, press "MOD" key to cancel and exit.

6. ERROR CODES

ERROR CODES	DESCRIPTION	RESOLUTION
- - OL --	Over Load	Remove weight
Err 4	Zero Setting Error	The scale was outside the normal zero setting range either when it was turned on or when the ZERO key was pressed. Remove weight from the scale and try again. Use the TARE key to set the display to zero value.
Err 1 Err 2	Date and Time incorrect	Reset again