SWIFT: CHECK-WEIGHER APPLICATION EXAMPLE

The SWIFT's check-weigher application is specially designed for industrial dynamic weighing processes.

To make the start-up of the device, the first step is configuring SWIFT's basic parameters like scale's definition, device's options and scale's calibration. To use SWIFT in check-weigher mode, choose the Check-weigher option on the application menu and choose the way to start the application: by weight detection or by presence detection through an external sensor.

TRIGGER BY WEIGHT WITH SWIFT (StArt: nEt)

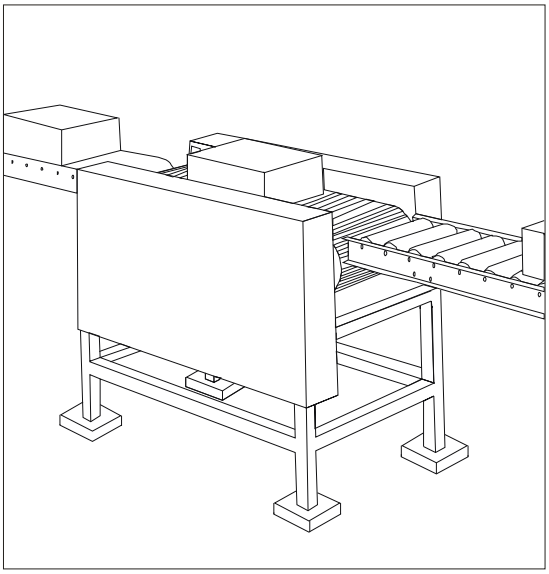
Allows to automatically start a check-weigher process when the weight is above the programmed value on the tr 199Er parameter. Configuring the bAnd parameter allows programming the Weight level to reload the check-weigher process once it's finished.

EXAMPLE:

An industrial production line with transporting belts needs to perform a quality control by weight. The product to check is 20 kg boxes. The maximum capacity of the scale is 30 kg with a minimum division of 20 g. The installed load cell is a 5 kg capacity load cell.
The dEF menu will be configured as follows:

SCALE CONFIGURATION VALUES

CAP	30 kg (Maximum capacity of the scale)
d 1	20 (Value of the scale division)
dP	0,020 (Decimal point position)
0-trACk	0,5d (Zero follower band)
0-toP	1,9 (Limit allowed for the key)
0-StArt	OFF (Auto zeroes when it is turned on))
UndErL	-20d (Lower range equal -20 divisions)
Un It	kg (Units)



Check-weigher application.

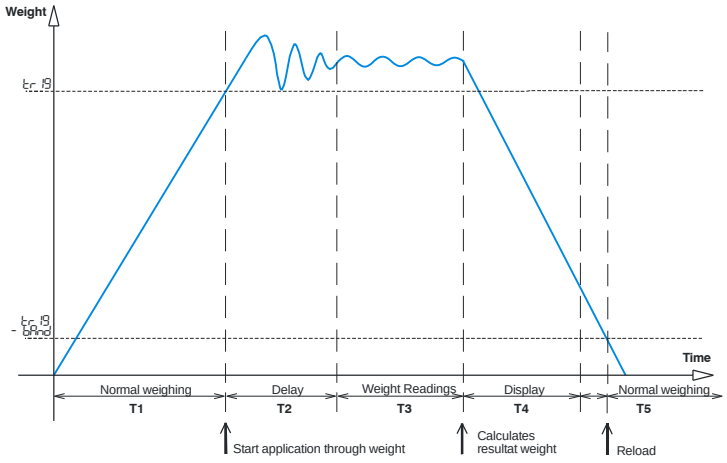
CHECK-WEIGHER APPLICATION CONFIGURATION (APPL 1)

Option	Value
APP	CHECK
StArt	nEt
tr 19	5 000
bAnd	1 000
t_dEL	0 200
t_ACC	0 800
t_d 15	1 500
CAnCEL	oFF
totAL	oFF
PC	r5-232

PROCESS DESCRIPTION

The application will trigger when the Weight on the scale is above 5 kg, it will wait 0,2 seconds (t_dEL) to assure the box is ready for weighing. When waiting time has ended, the device will acquire weighings during 0,8 seconds (t_ACC). When this time has ended the device will calculate the average of the accumulated weighings and send the result through the serial port. Finally, it will show the result on the display during 1,5 seconds (t_d 15). The application will not be allowed to initialize a new weighing process until the weight is below 4 kg (tr 19 - bAnd). While the device is out of the check-weigher process, it shows the present value of the scale.

The following figure shows the different steps of the process:



T1: SWIFT is in *normal weighing* mode. When Weight is above 5 kg (tr 19 parameter) *waiting* phase starts.

T2: When waiting time of 0,2 seconds has finished (t_dEL parameter) starts the *reading* phase.

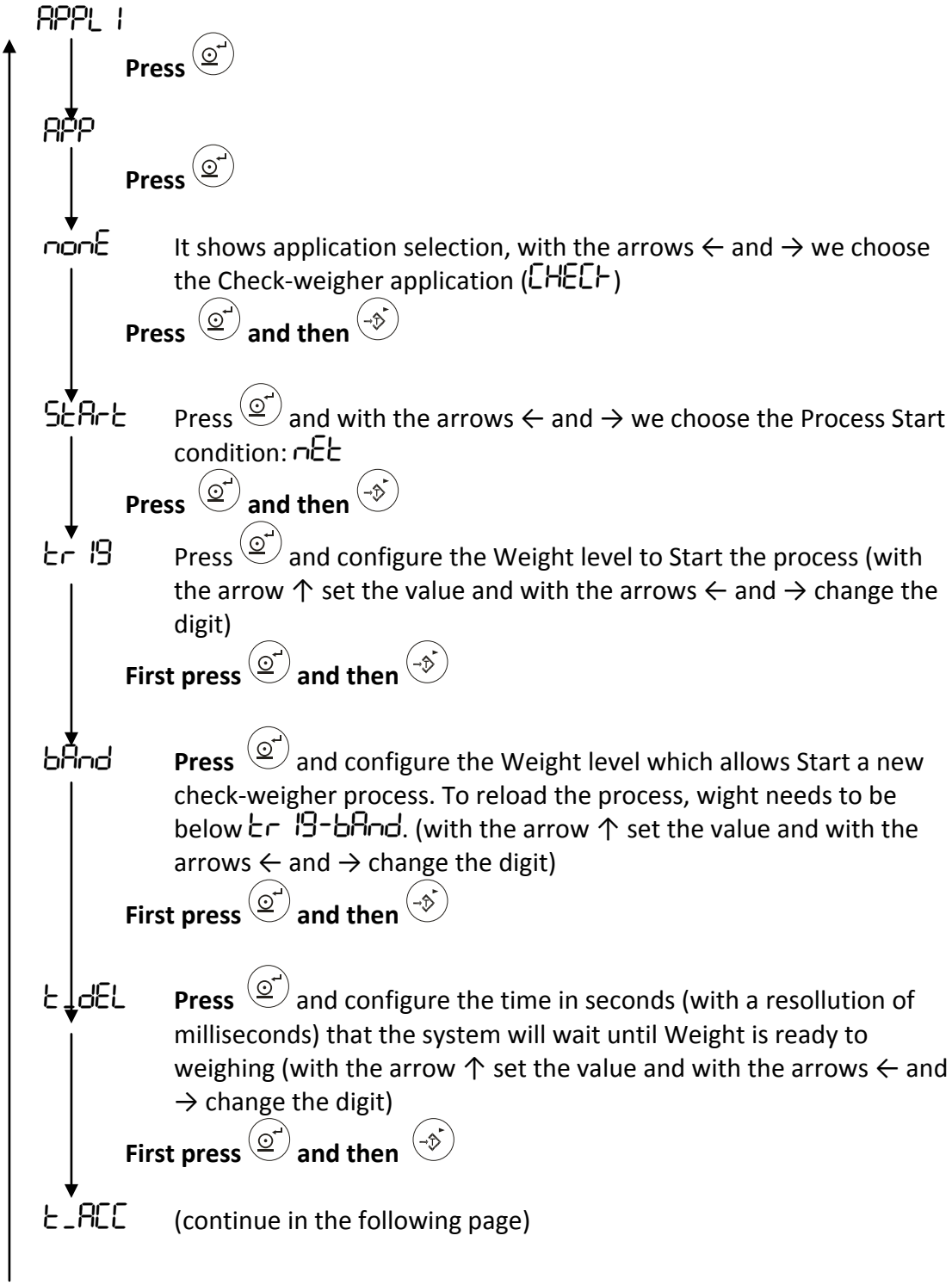
T3: Ending weight reading phase of 0,8 seconds (parameter t_ACC) the weight is calculated and *displayed*.

T4: Ending the 1,5 seconds of displaying weight phase (parameter t_d 15). The device returns to *normal weighing* phase, displaying the present weight on the scale.

T5: When weight is below the trigger value less the band value (parameters tr 19 and bAnd) (5kg - 1 kg = 4 kg) the system reload to makes possible to start a new weighing cycle. If the reload value is not reached a new weighing will not start although the weight is above 5 kg (tr 19).

APPLICATION CONFIGURATION

Press EXIT + →0← (first press EXIT and hold and press →0←) the device will ask for the PIN code, is not necessary to introduce PIN code because we will not change protected parameters, press ↵ and accede into the configuration menu, then press **2** times → key, now we are on APPL 1 menu.



t_ACC **Press** and configure the time in seconds (with a resollution of milliseconds) that the system will be acquiring weights to calculate the average and obtain the result (with the arrow ↑ set the value and with the arrows ← and → change the digit)

First press **and then**

tYd 15 **Press** and configure the time in seconds (with a resollution of milliseconds) that the system will be showing the resultant on the display (with the arrow ↑ set the value and with the arrows ← and → change the digit)

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First press **and then**

CAnCEL **Press** and with the arrows ← and → we choose to not allow to cancel the process: oFF

First press **and then**

totAL **Press** and with the arrows ← and → we choose to not totalize the results: oFF

First press **and then**

PC **Press** and with the arrows ← and → we choose to send data through rS-232 serial port. **Press**

Press 3 times to get out from the configuration menu.

Weight mode

TRIGGER BY PRESENCE DETECTION WITH SWIFT (StArt: inP)

Allows to start a check-weigher application when the external sensor detects the presence of a product for weighing.

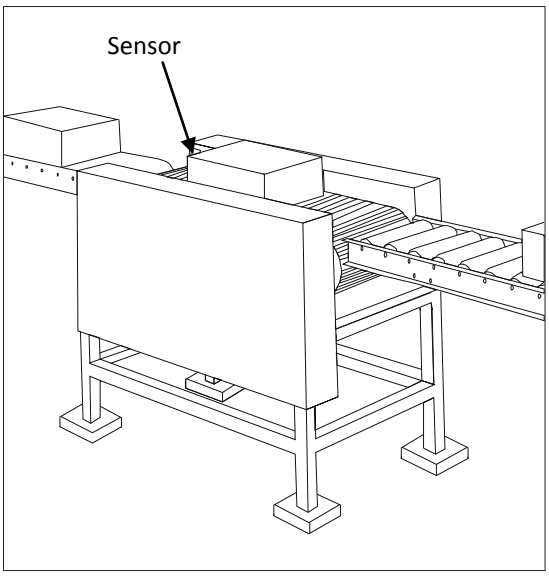
EXAMPLE:

An industrial production line with transporting belts needs to perform a quality control by weight. The product to check is 20 kg boxes. The maximum capacity of the scale is 30 kg with a minimum division of 20 g. The installed load cell is a 5 kg capacity load cell. The detection system is performed by a photo-sensor that will trigger when the box cross the sensor activation ratio. In this example, the sensor will always send an activation signal (SWIFT's digital input receives a logic value of '1') and when a box is detected the sensor will deactivate the signal (SWIFT's digital input receives a logic value of '0'). This performing is important for configuring FUnC parameter of the digital input d_ In as "High" or "Low".

The dEF menu will be configured as follows:

SCALE CONFIGURATION VALUES

CAP	30 kg (Maximum capacity of the scale)
d 1	20 (Value of the scale division)
dP	0,020 (Decimal point position)
0-trACk	0,5d (Zero follower band)
0-toP	1,9 (Limit allowed for the key)
0-StArt	OFF (Auto zeroes when it is turned on))
UndEr L	-20d (Lower range equal -20 divisions)
Un It	kg (Units)



Check-weigher application.

CHECK-WEIGHER APPLICATION CONFIGURATION (APPL 1)

Opción	Valor
APP	CHECk
StArt	inP
t_dEL	0 200
t_ACC	0 800
t_d 15	1 500
CAnCEL	oFF
totAL	oFF
PC	r5-232

PROCESS DESCRIPTION

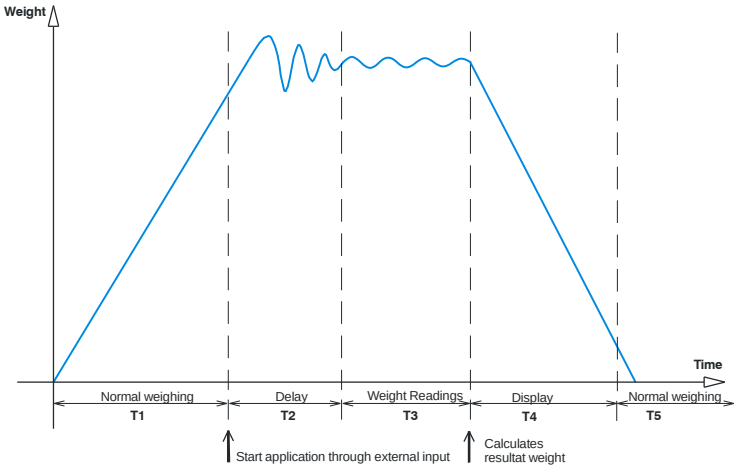
The application will trigger when the sensor detects that there is a box on the scale. In that moment check-weigher application will trigger, it will wait 0,2 seconds (t_dEL) to assure the box is ready for weighing. When waiting time has ended, the device will acquire weighings during 0,8 seconds (t_ACC). When this time has ended the device will calculate the average of the accumulated weighings and send the result through serial port. Finally, it will show the result on the display during 1,5 seconds (t_d 15). The application will be waiting until another signal in the digital input to start check-weigher again.

The following figure shows the different steps of the process:

T1: SWIFT is in *normal weighing* mode. The sensor triggerscaused by a box detection and starts *waiting* phase.

T2: When waiting time of 0,2 seconds has finished (t_dEL parameter) starts the *reading* phase.

T3: Ending weight reading phase of 0,8 seconds (parameter t_ACC) the weight is calculated and *displayed*.

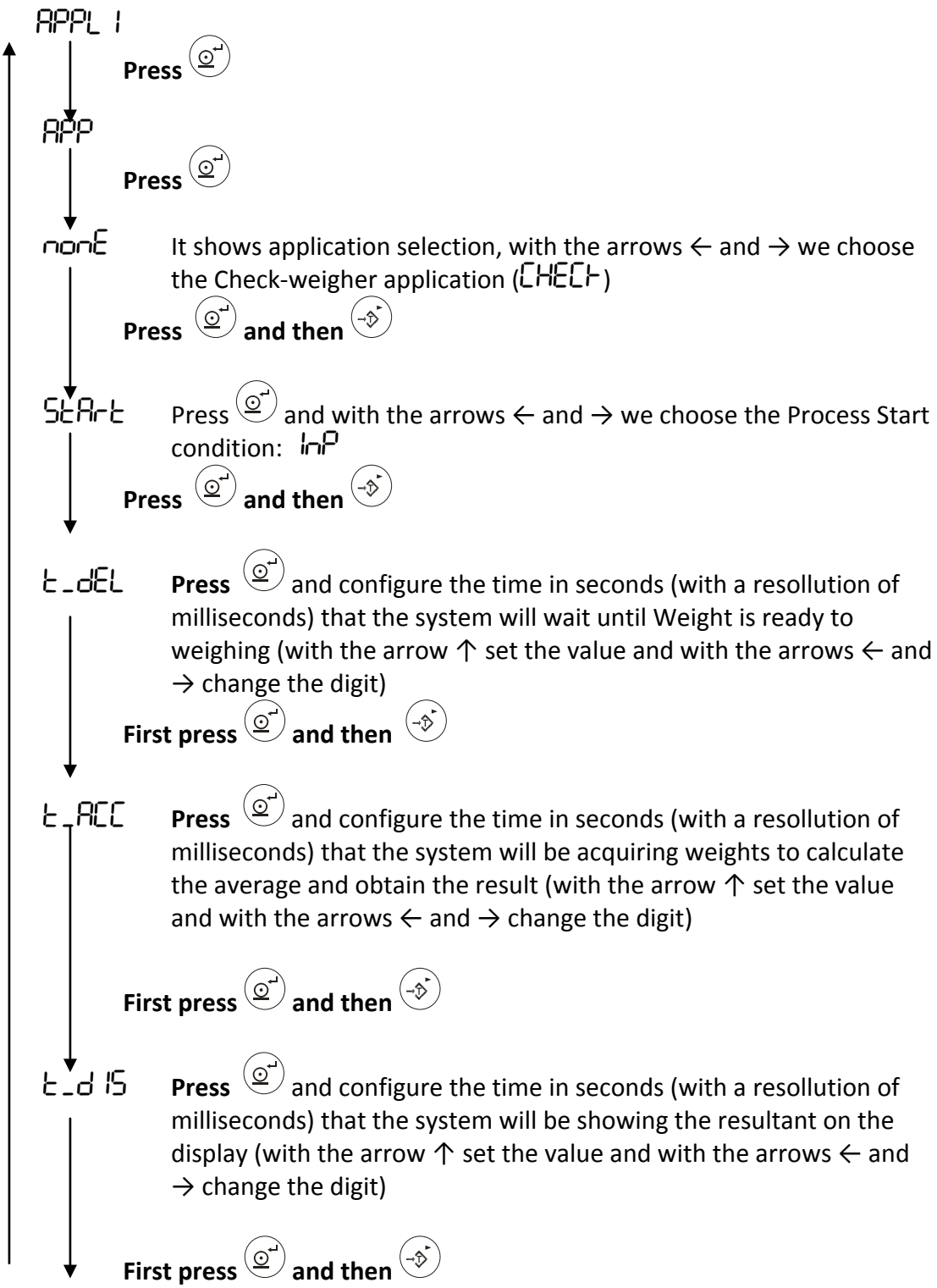


T4: Ending the 1,5 seconds of displaying weight phase (parameter t_d 15). The device returns to *normal weighing* phase, displaying the present weight on the scale.

T5: The device will be waiting for the detection of another box by the sensor to start a news check-weigher cycle.

APPLICATION CONFIGURATION

Press EXIT + →0← (first press EXIT and hold and press →0←) the device will ask for the PIN code, is not necessary to introduce PIN code because we will not change protected parameters, press ↵ and accede into the configuration menu, then press **2** times → key, now we are on APPL 1 menu.



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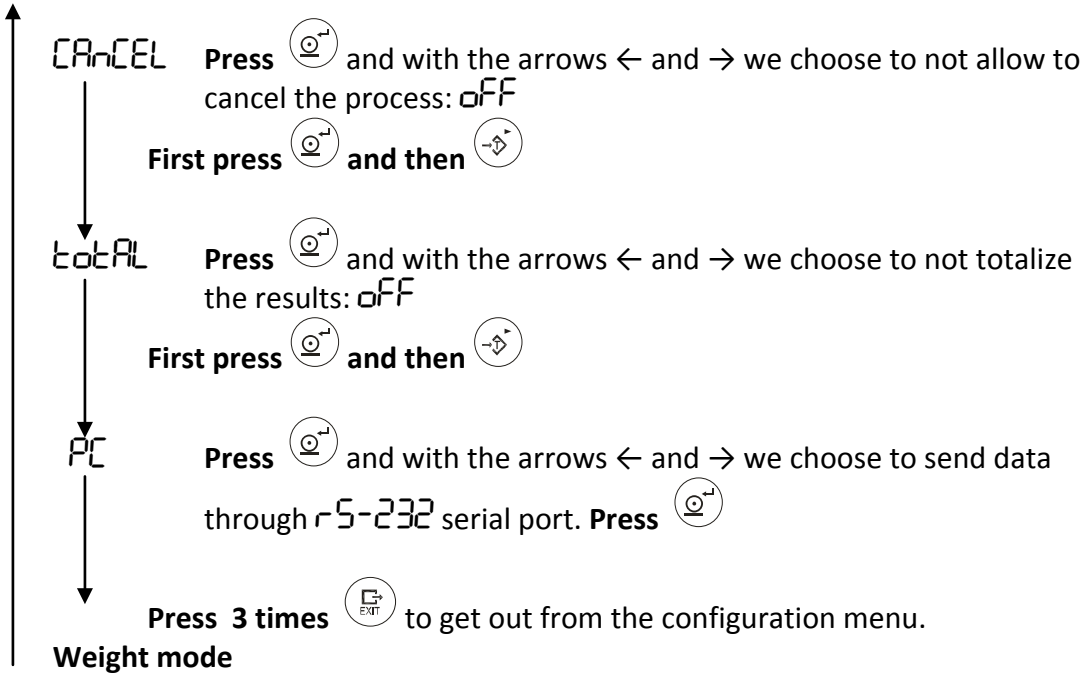

VALUES THAT WE SHOULD SET IN THE D_IN (digital inputs) TO PERFORM TRIGGER OF THE APPLICATION BY AN EXTERNAL SENSOR

d_In n	1
tYPE	StArt
FUnC	H

D_IN's CONFIGURATION MENU

Press EXIT + →0← (first EXIT and hold and then press →0←)the device will ask us for the PIN code, to set that menu is not necessary to introduce the PIN code, because we are not going to change any protected parameter, press ↵ and go into the configuration menu, press → **7** times and now we are on **D_IN** menu.

D_IN

↓ **Press** ↵

D_IN no

Press ↵

1,2 or 3…….. It shows the input number we want to configure, from 1 to 3, with the arrows ← and →we will choose the input to be configured. Select: 1

Press ↵ to go back to D_IN no

D_IN no

Press →

TYPE (1,2 or 3)…….. Press ↵ to configure the input action type. Select: StArt

First press ↵ **and then** →

FUNC (1,2 or 3)…….. Press ↵ to configure the input action mode. Select: H

First press ↵ **and then** →

D_IN no

Press twice EXIT to go out from the configuration menu

Weight Mode