

Application



A scale with a C320 instrument fitted is used to control a two-speed filling machine. The final target weight of the bag is 25kg. The filling machine has two separate flow gates for coarse and fine fill.

Setpoint outputs on the C320 control the flow gates of the filling machine through a relay circuit. There is a micro-switch fitted on the access door to enable the filling once the door is closed.

An emergency stop push button is fitted in line with the power supply to the C320

setpoint outputs. This allows for the power to the setpoint outputs to be cut without cutting power to the indicator.

W.IN type Setpoints are used in this application:

Set Point 1: W.IN Course Fill Control – when active, output 1 opens the Course Flow Gate. Setpoint 1 is active until the fill target of 20 kg is reached and then the Course Flow Gate is closed.

Set Point 2: W.IN Fine Fill Control – when active, output 2 opens the Fine Flow Gate. Setpoint 2 is active until the fill TARGET of 25kg less the FLIGHT setting is reached before closing the Fine Flow Gate.

Note Setpoint 1 and Setpoint 2 drive outputs 1 and 2 on the C320 indicator.

RESET is controlled by Input1 which is wired to a micro-switch fitted to the access door of the machine in such a way as it is HIGH(ON) state once the door is open and LOW (OFF) when the door is closed.

Auto TARE - To allow for varying bag weights (tare weight) the auto TARE function is used to automatically tare the scale at the start of the fill. When the operator places the bag on the scale the C320 will tare automatically when the weight is stable.

Once the filled bag is later removed the C320 will automatically return to Gross weight.

Programmable function key - can be assigned to Target to allow the operator to view and edit the Course and Fine Setpoint targets.

Function Enable – A function key can be assigned to suspend the auto functions. While its assigned, user can temporarily terminate all automatic system by pressing relevant function key and it will be released one pressed again.

Configuration

```

FULL SETUP
  LANG      : EN
  GEN.OPT
  SCALE
  SERIAL
  SETP
    SETP1
      TYPE      : W.IN
      LOGIC     : HIGH
      TIMING    : LEVEL
      TARGET    : 20.000 kg
      FLIGHT    : 0.000 kg
      HYS       : 0.000 kg
      ALARM     : NONE
      B.LIGHT   : AMBER
      SOURCE    : NET
      RESET    : IN 1
      NAME     : COARSE
    
```

COARSE (Output one) is HIGH(ON) until fill the 20kg, then COARSE will be close.

To indicate the Filling in process. Sets the backlight color to display when the setpoint is active.
Options: NONE (Default), RED, GREEN, BLUE, ORANGE, PURPLE, TEAL, AMBER

To deactivate the Setpoint. (While Door open)

```

SETP2
  TYPE      : W.IN
  LOGIC     : HIGH
  TIMING    : LEVEL
  TARGET    : 25.000 kg
  FLIGHT    : 0.300 kg
  HYS       : 0.000 kg
  ALARM     : NONE
  B.LIGHT   : AMBER
  SOURCE    : NET
  RESET    : IN 1
  NAME     : FINE

```

Fine (Output two) is HIGH(ON) until TARGET (25kg) minus FLIGHT (0.3kg) is exceeded.

To compensate for the material still in free fall after the Fine Fill is closed.

Can be used in setpoint 1 also but since filling is not completed and Fine is still open, it serves no practical purpose so can be left at 0.

```

SETP3
  TYPE      : ON
  LOGIC     : HIGH
  TIMING    : LEVEL
  ALARM     : NONE
  B.LIGHT   : GREEN
  RESET    : IN 1
  NAME     : READY

```

To indicate the Setpoints one & two are inactive.

When filling is completed, display colour will be green.

Note the Backlight colour is set in priority order setpoint 1 to 8. At start, even though all 3 setpoints are active only the colour of setpoint 1 will show. Also, remote 'are' after 1&2.

For above situation when setpoints are active B. Light order will be **AMBER, AMBER, GREEN**

```

+ SETP4
+ SETP5
+ SETP6
+ SETP7
+ SETP8
- APP
  P.COUNT : OFF
+ CHECK.W
- A.TARE
  A.TARE : ON.AUTO
  CLR.DLY : 0.0 s
  THRESH : 0.500 kg
- F1 KEY
  TYPE : FUNC.EN
- F2 KEY
  TYPE : TARGET
+ F3 KEY
+ IN 1
+ IN 2
+ TEST
  End
    
```

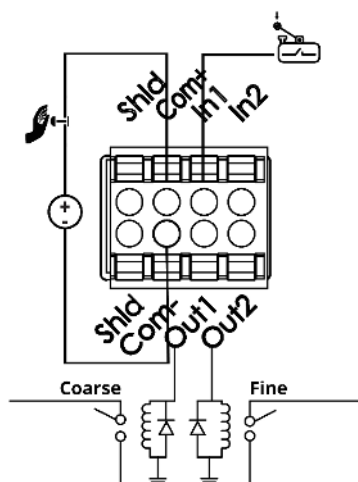
- To auto tare the Bag or Basket weight.
- Delay before returning to gross weight when inside the zero band.
Range: 0.0 to 10.0s
Default: 1.0s
- Here the threshold average bag weight set as 0.5kg. A bag must be greater than this to trigger the auto Tare.
- To suspend the auto functions. Here when it's enabled, if user pressed F1 both outputs will be off, and it'll be resume when F1 pressed again.
- To enable Operator access to Targets. Note that this key can be controlled with Operator PIN code if required. See settings in GEN.OPT.

Outputs

The output drivers for the instrument are high side isolated transistor drives that are capable of driving up to 400mA each. This configuration allows for the direct drive of many types of relays, contactors and valves. There are also compatible with most types of PLC. The voltage applied to the COM+ terminal appears on the output lines (i.e., OUT1 and OUT2) when the outputs are active. The COM+ and COM- can be independent to the power supply of the C320.

In this example COM+ was connected to the 12V through the Emergency Push Button as a safety override.

The Function Enable feature allows the instrument to be temporarily deactivated. Both the auto-tare and filling functions are suspended in this mode.



To drive external loads (e.g., relays), connect the one side of the relay coil to the output line. Connect the other end of the relay coil to the negative supply.

It is recommended that flyback diodes or transient suppressors be fitted across relay coils to limit switching noise.

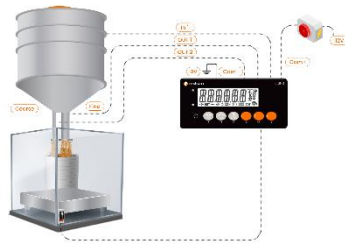
Operation



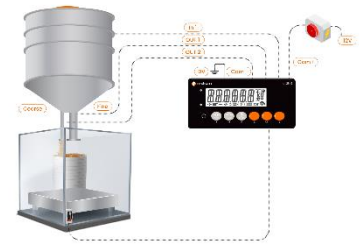
1. The empty bag placed on the scale and the bag weight automatically tared off.



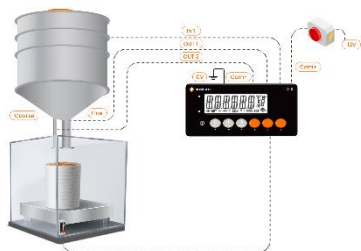
In this example auto tare threshold is set as 0.5kg. Any weight above 0.5kg will be auto tared.



2. FINE and COARSE outputs are active until the COURSE target of 20kg is reached.



3. Once 20kg is reached, COARSE output turns off and FINE output remains until the final target reached.



4. Since the FLIGHT is set to 0.3 kg, the FINE will be closed when the bag reaches 24.7kg, and the final weight will settle at 25 kg.

