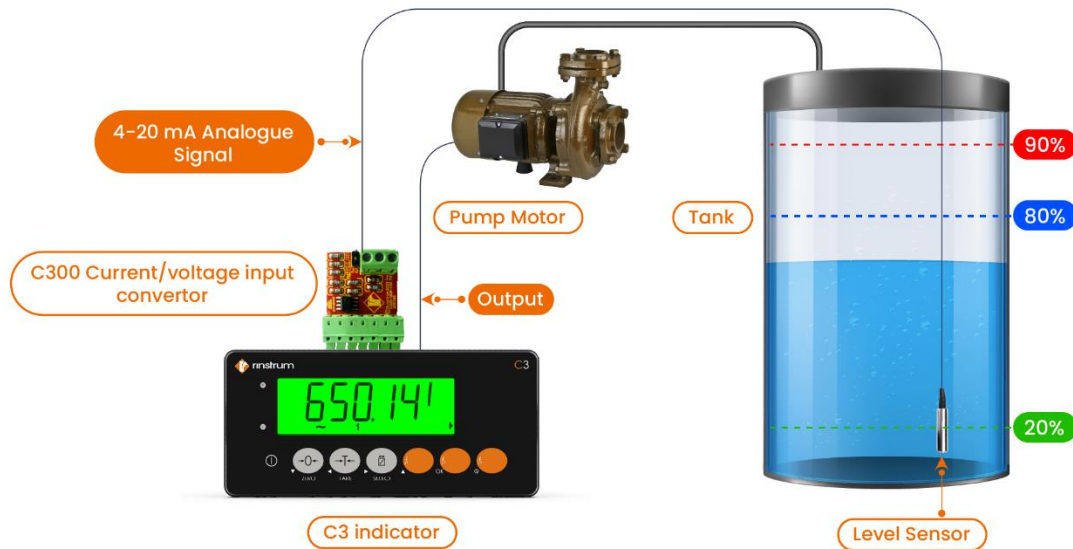


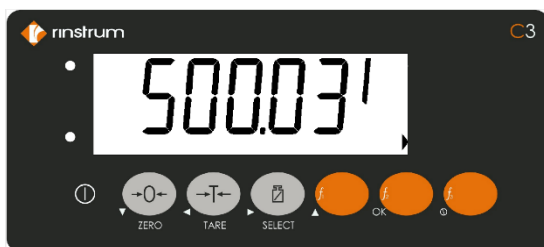
Application

The application utilizes a C320 to regulate tank filling, with a water level sensor connected via an M3902 0-10V/4-20mA converter on the load cell input. It employs a new weigh-in setpoint type for filling control. Setpoint 2 signals Setpoint 1 to reset if the tank overfills. The setpoints also switch the backlight colour when the motor runs for filling (Setpoint 1) and if an overflow occurs (Setpoint 2). Normal operation is neutral. A function key is setup for unit switching to litres. There are 8 units available on the C320 and three can be configured at any time.

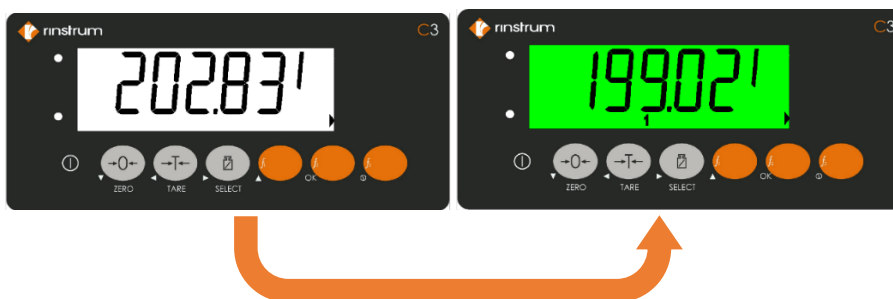


- Level sensor sends the respective **4-20 mA** analogue signal to the C300 current voltage input converter.
- C3 indicator gets the converted signal as the input and displays the calibrated volume.
- Function key 1 (**f1**) is set to be the UNITS key.
- Setpoints control the pump motor switching on-off operation.

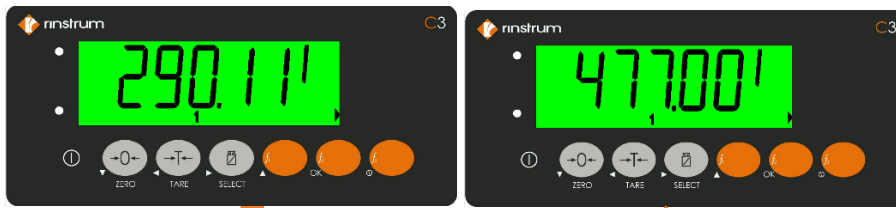
Operation



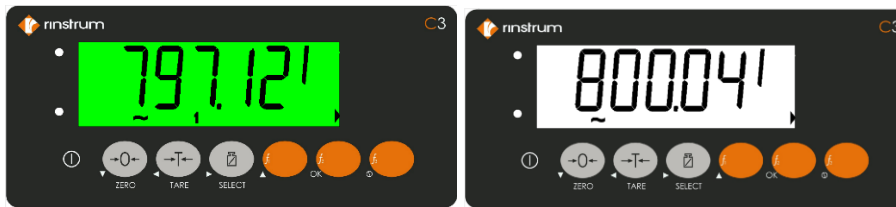
- The total capacity of the tank is 1000 l.
- Let's assume the initial volume as 50% of total capacity (500 l).
- And Water level is decreasing.



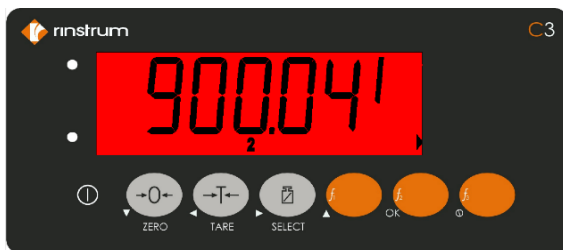
- The pump motor activates when the water volume drops below 200 litres.
- Indicator displays green colour when the motor is on.



- Water volume getting increased.
- Motor is on until water level reaches 800 litres.



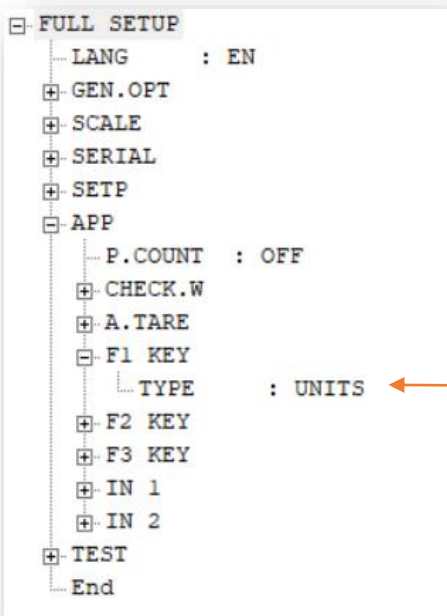
- Motor switches off when the water volume reaches 800 litres, which is 80% of its capacity.
- And the display colour switches to white.



- If the water level exceeds 90% (900 l) by any chance, Then the setpoint gets reset.
- Alarming starts to sign Over Filled situation.
- Display colour switches to red.

Configuration

1. Set *f1* key.



f1 key is set for Units.
Pressing F1 key displays the water volume in litres.

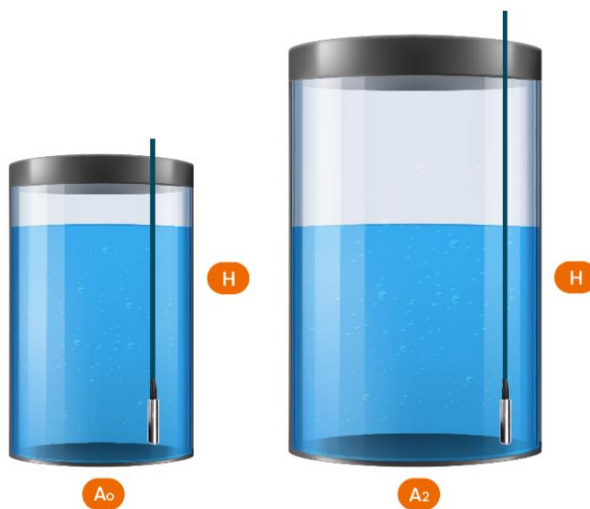
2. Set Scale Settings

```

FULL SETUP
  LANG      : EN
  GEN.OPT
  SCALE
    BUILD
      TYPE   : SINGLE
      DP1    : 0000.00
      CAP.1  : 1000.00
      E1     : _1_
      P.UNIT :
      UNIT.2 : CUSTOM
      UNIT.3 : OFF
      D.UNIT : L
      U.NAME :
      FACTOR : 1.000
      HI.RES : OFF
    OPTION
    CAL
    GRAVITY
    QA
  SERIAL
  SETP
  APP
  TEST
  End
    
```

- Keep Default
- Keep Default
- Set Capacity
- Keep Default
- Select None/ Space
- Select Custom
- Keep Default
- Choose Litres
- Keep Default
- Set Factor
- Keep Default

Factor is adjustable respect to the capacity of the tank. Water level sensor is sensitive to the height of the Water volume. When the tank size varies the water volume is also varying with the height.



$$V_2 = \frac{A_2 \times H}{A_0} \times V_0$$

$$V_0 = A_0 \times H$$

$$V_2 = \frac{A_2}{A_0} \times V_0$$

↑
Factor

Denotations :

V -Volume

A -Cross Area

H-Water Level Height

- After calibrating for a tank, we can use the setup for a different sized tank simply setting the factor.
- Then, pressing **f1** key will display the existing water volume in litres.

3. Set Setpoint 1

```

FULL SETUP
  LANG      : EN
  GEN.OPT
  SCALE
  SERIAL
  SETP
    SETP1
      TYPE      : W.IN
      LOGIC     : HIGH
      TIMING    : LEVEL
      TARGET    : 800.00
      FLIGHT    : 0.00
      HYS       : 600.00
      ALARM     : NONE
      B.LIGHT   : GREEN
      SOURCE    : GROSS
      RESET     : IN 2
      NAME      : low
    
```

Weight IN sets the setpoint to be active till target weight is reached. Weight should be incremented till the target value is reached.

- Select Weight In
- Select High
- Select Level
- Set to 800 (80%)
- Keep Default
- Set to 600 (60%)
- No Alarm
- Display Green
- Select Gross
- Select Input 2
- Type as required

4. Set Setpoint 2

```

FULL SETUP
  LANG      : EN
  GEN.OPT
  SCALE
  SERIAL
  SETP
    SETP1
    SETP2
      TYPE      : OVER
      LOGIC     : HIGH
      TIMING    : LEVEL
      TARGET    : 900.00
      FLIGHT    : 0.00
      HYS       : 0.00
      ALARM     : DOUBLE
      B.LIGHT   : RED
      SOURCE    : GROSS
      RESET     : NONE
      NAME      : Ofild
    SETP3
    SETP4
    SETP5
    SETP6
    SETP7
    SETP8
  APP
  TEST
  End
    
```

Setpoint 2 activates the OUT 2 terminal in C3. Reset functionality is achieved by connecting the OUT 2 and IN 2 terminals with a wire.

- Select Over
- Select High
- Select Level
- Set to 900 (90%)
- Keep Default
- Keep Default
- Set Single/ Double
- Display Red
- Select Gross
- Keep Default
- Type as required

Cable Connection

