ipp
IRISH POWER & PROCESS
The Brennan & Co Group

HOW TO USE A CONDUCTIVITY TRANSMITTER AS A CONCENTRATION TRANSMITTER

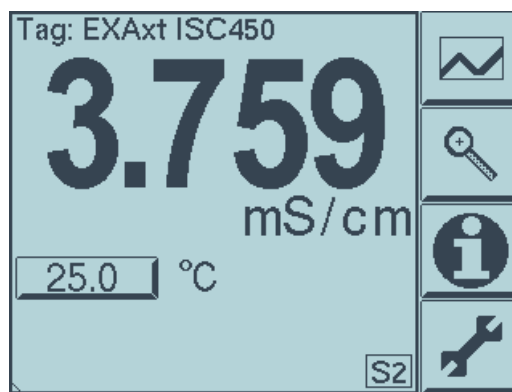### ISC450 – Programming Percent Concentration Preprogrammed Curves

There are two choices for programming the ISC450 for Percent Concentration measurement. The simplest, is to select one of the "built-in" tables already provided in the ISC40. However, if none of these Tables meet the application requirements, then the second option of creating your own Table specific to your needs can be used.

This Application Note is designed to guide you through the programming steps required for both options. All of the steps you will follow are in your ISC450 Instruction Manual, but we have pulled out just those steps that deal with setting up percent concentration using one of the "built-in" tables.
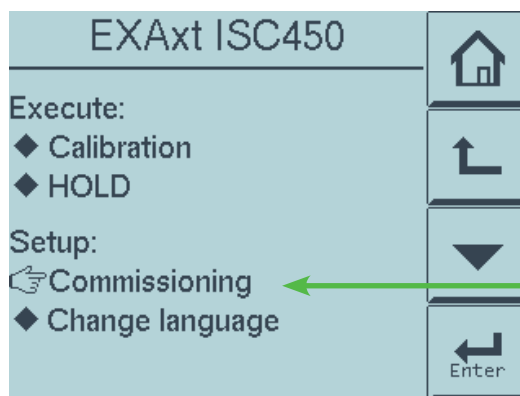
You will be programming the Analyser to display in "Percent Concentration"; Selecting the desired Percent Concentration Matrix; Setting your 4-20 mA output and finally, setting (or turning off your alarm contacts to eliminate any error codes being displayed.
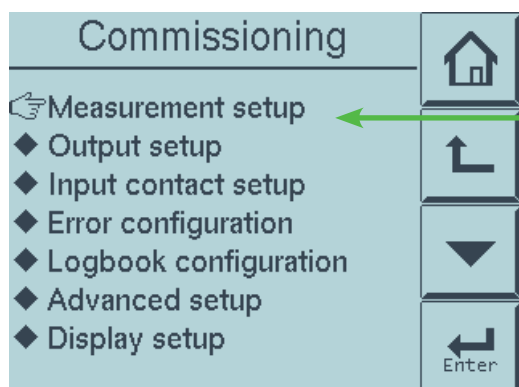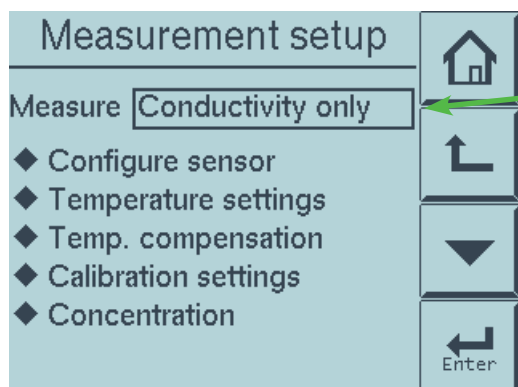
APPLICATION NOTE

Tag: EXAxt ISC450

3.759
mS/cm

25.0 °C

S2

At the opening Screen –
Press the WRENCH Key

EXAxt ISC450

Execute:
◆ Calibration
◆ HOLD

Setup:
☞ Commissioning
◆ Change language

Enter

Press the
Commissioning diamond

Commissioning

☞ Measurement setup
◆ Output setup
◆ Input contact setup
◆ Error configuration
◆ Logbook configuration
◆ Advanced setup
◆ Display setup

⌂
↰
▼
↵ Enter

Press the
Measurement setup
diamond

Measurement setup

Measure [Conductivity only]
◆ Configure sensor
◆ Temperature settings
◆ Temp. compensation
◆ Calibration settings
◆ Concentration

⌂
↰
▼
↵ Enter
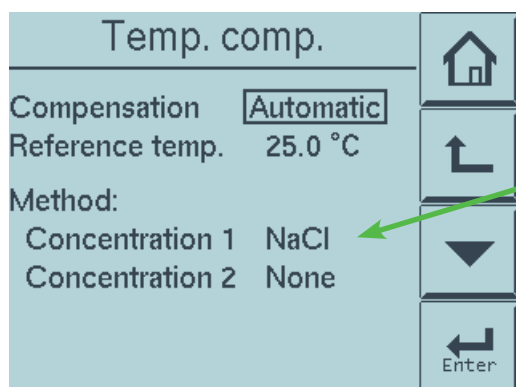
At the Measurement setup screen
you will see that **Conductivity only** is
displayed. Press the dropdown box to
reveal the other options.

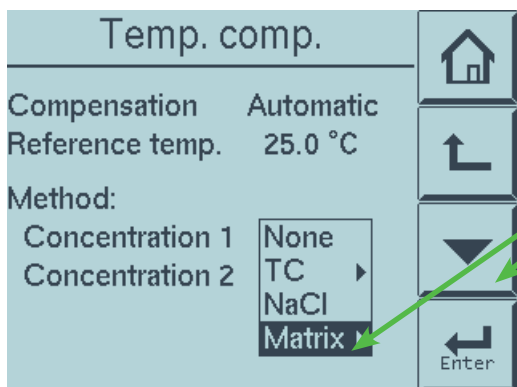## Measurement setup

Measure [Conductivity only]
◆ Config [Concentration only]
◆ Tempe [Conduct.+Concentr.]
◆ Temp. compensation
◆ Calibration settings
◆ Concentration

⌂
↰
▼
↵ Enter
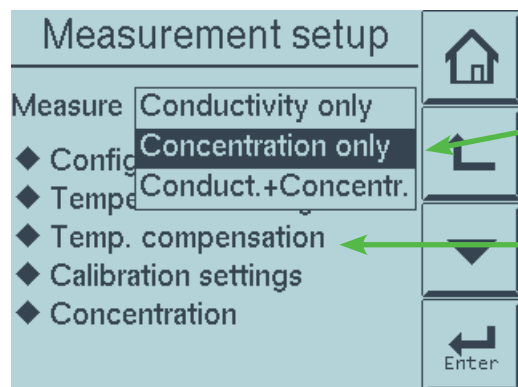
Using the Down Key,
select **Concentration only**

Then. . .

Press the
Temperature compensation
diamond

Temp. comp.

Compensation   [Automatic]
Reference temp.   25.0 °C

Method:
 Concentration 1   NaCl
 Concentration 2   None

⌂
↰
▼
↵ Enter

Press **NaCl** (next to Concentration 1)
and a drop down menu will appear.

Temp. comp.

Compensation   Automatic
Reference temp.   25.0 °C

Method:
 Concentration 1   None
 Concentration 2   TC   ▶
                     NaCl
                     Matrix ▸

Using the **Down** Key select **Matrix** and then press the **Enter** Key.

Matrix 1

Select matrix
Sulfuric acid 1..5%

Define matrix:
 ◆ User defined 1
 ◆ User defined 2

Press the **Drop Down** box

Matrix 1

Select matrix
HCl   0..18%
HCl   24..44%
HNO3   1..5%
HNO3   0..25%
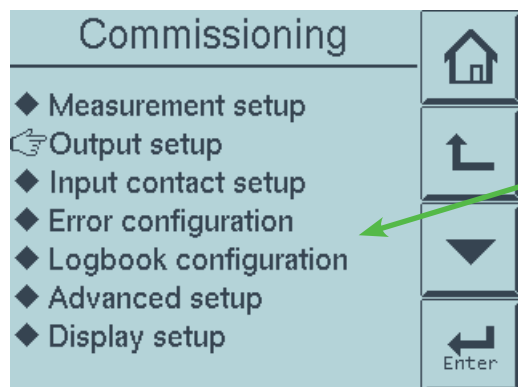HNO3   35..80%
NaOH   1..5%
NaOH   0..15%
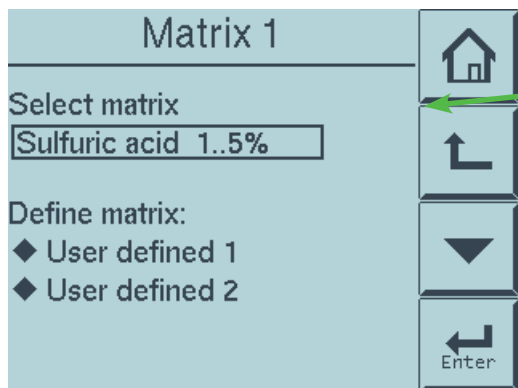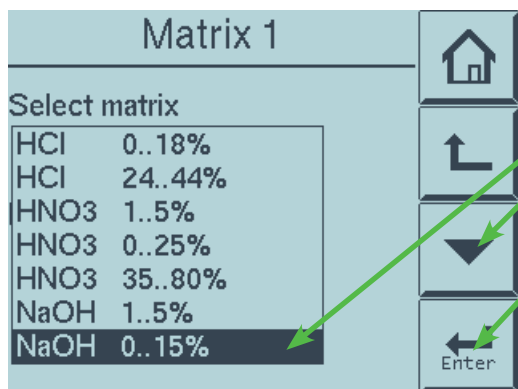
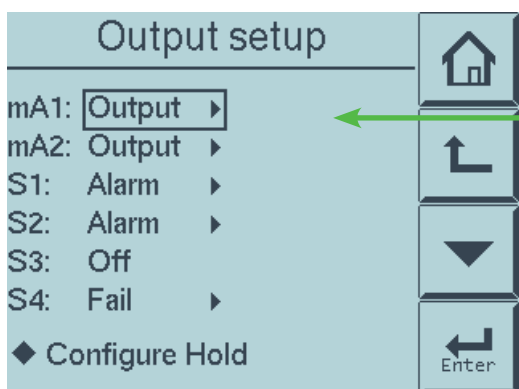Using the **Down** Key, go to **NaOH 0. . 15%**

Then. . . Press **Enter**

You have now selected the "built-in" Conductivity versus Percent Concentration Matrix for 0-15% NaOH.
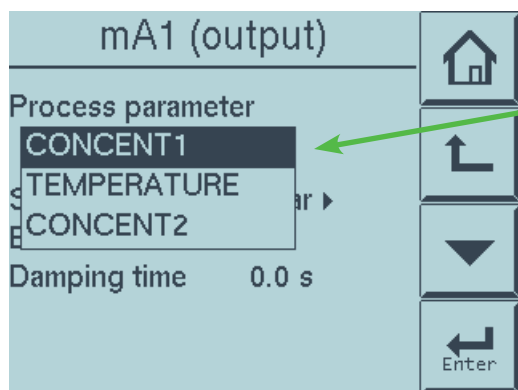
NOW. . . Press the **RETURN** Key (3 times) until the **Commissioning** screen comes up again.
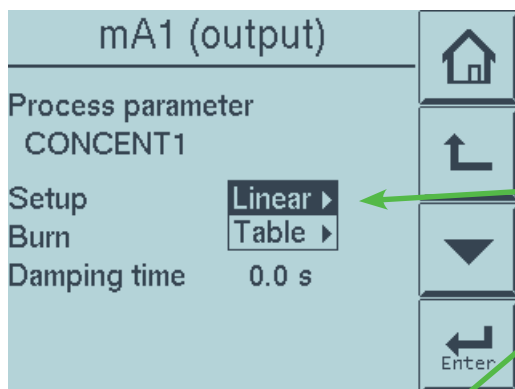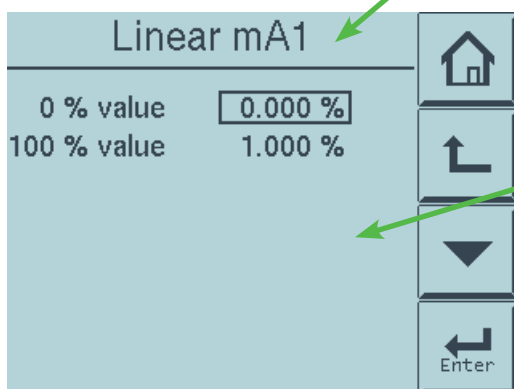
Commissioning

 ◆ Measurement setup
 ☞ Output setup
 ◆ Input contact setup
 ◆ Error configuration
 ◆ Logbook configuration
 ◆ Advanced setup
 ◆ Display setup

Press the **Output setup** diamond.

Output setup

mA1: Output ▶
mA2: Output ▶
S1: Alarm ▶
S2: Alarm ▶
S3: Off
S4: Fail ▶

◆ Configure Hold

Select **Output** on mA1 and
then Press **Enter**

mA1 (output)

Process parameter
CONCENT1
TEMPERATURE
CONCENT2
Damping time   0.0 s

Press Drop Down Menu and select
CONCENT1

mA1 (output)

Process parameter
 CONCENT1
Setup   Linear ▶
Burn   Table ▶
Damping time   0.0 s

Press **Linear** in Drop Down box so that
the **Linear mA1** menu appears.

Linear mA1

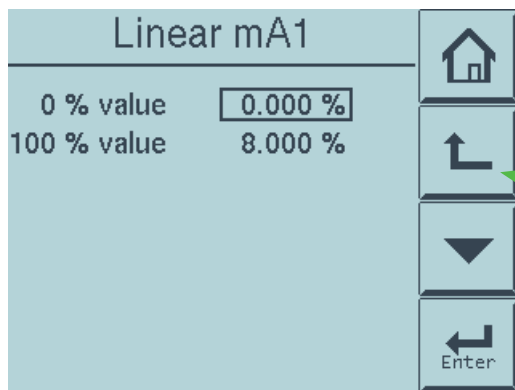0 % value   0.000 %
100 % value   1.000 %

The **0% value** is equivalent to 4 mA and
the **100% value** is equivalent to 20 mA.
So, if your 4-20 mA range is to be 0-8%
NaOH, leave the **0% value** as it is.

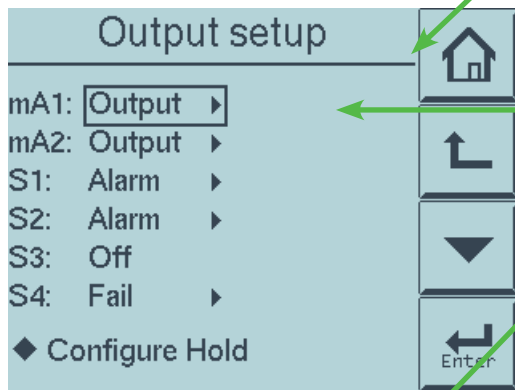Press the **100% value** window to bring
up the Key pad.

New value: 8   %

Units 0-9	7	8	9
.	4	5	6
0	1	2	3
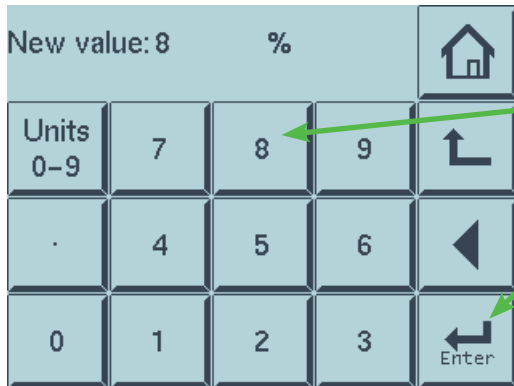
Enter

Using the Numeric Pad, enter 8.00 and Press the **Enter** Key.

Linear mA1

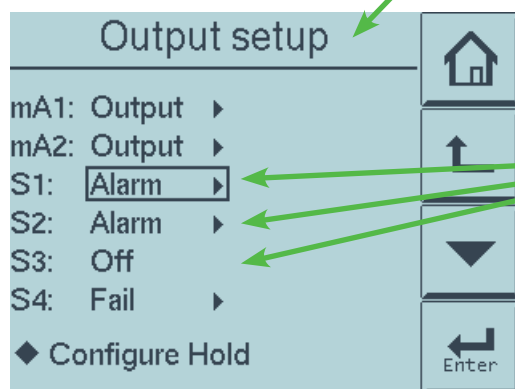0 % value   0.000 %
100 % value   8.000 %

Enter

Now the 4-20 mA on 1 of the Analyser is set for 0-8% percent concentration.

Now. . . Press the **RETURN** Key until the **Commissioning** screen comes up again.

Output setup

mA1: Output ▶
mA2: Output ▶
S1: Alarm ▶
S2: Alarm ▶
S3: Off
S4: Fail   ▶
◆ Configure Hold

Enter

Press the **Output setup** diamond.

Output setup

mA1: Output ▶
mA2: Output ▶
S1: Alarm ▶
S2: Alarm ▶
S3: Off
S4: Fail   ▶
◆ Configure Hold

Enter

Now you can set up your Alarms (**S1, S2**, and **S3**) if you desire. If you are NOT using them, Press the Drop Down Menu and select **OFF**. This will eliminate any setup errors being displayed on the Main Menu.

Output setup

mA1: Output ▶
mA2: Output ▶
S1: Control ▶
S2: Alarm ▶
S3: Hold
S4: Fail ▶
    Simulate ▶
◆ Co Off   d

⌂
⌐
▼
↵ Enter
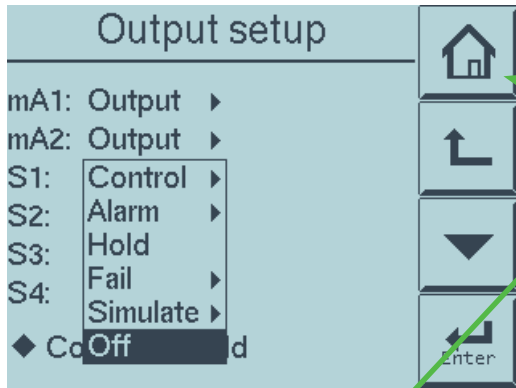
When you are finished,
Press the **Home** Key

Tag: EXAxt ISC450

0.072
%

25.0 °C

HOLD