FIELD MOUNTED
BATCH CONTROLLER
MODEL 214D

$C\varepsilon$

CONTENTS

1. INTRODUCTION

The Model 214Di Batch Controller is a microprocessor based instrument which accepts a frequency or pulse input from a wide range of flowmeters
and automatically controls the batching of fluids via a one stage or two stage control valves. The instrument displays the Preset value, a Resettable
Batch Total and an accumulated Total directly in engineering units.

The Batch Controller is intrinsically safe and can be used in hazardous areas provided it is connected as directed to approved flowmeters and control solenoids.

The Model 214Di is fully programmable from the front panel; the user
can program scaling factors, decimal point positions, valve delays and signal timeouts.

The instrument is compatible with a wide range of flowmeters. Links on the
input board enable the circuit to be configured for millivolt signals, reed switches, Namur proximity switches and most other signal types.

The instrument is housed in an attractive polycarbonate enclosure which
is completely watertight.   A universal bracket is supplied as standard for
wall mounting while optional pipe or panel mounting brackets are also
available.

The Model 214D is an upgraded version of the Contrec Model 214. The following improvements have been made in the Model 214D:

- The voltage drop across the solenoid outputs in the 214D is only 0.8 Volts.
- The voltage supply for the DC input can go as low as 9 Volts.
- The 214D has an overall lower current consumption than the previous
  model with an improved battery life - the battery life in the new model is typically 5 years regardless of the time the unit spends in totalising or batching modes.
- The millivolt input can accept signals as low as 15mV P-P.
- The 214D has a wide frequency range - 0Hz to 10kHz.

2   Introduction

The Model 214Di Rate Totaliser conforms to the EMC-Directive of the Council of European Communities 2014/30/EU, the LVD directive 2014/35/EU and the following standards:
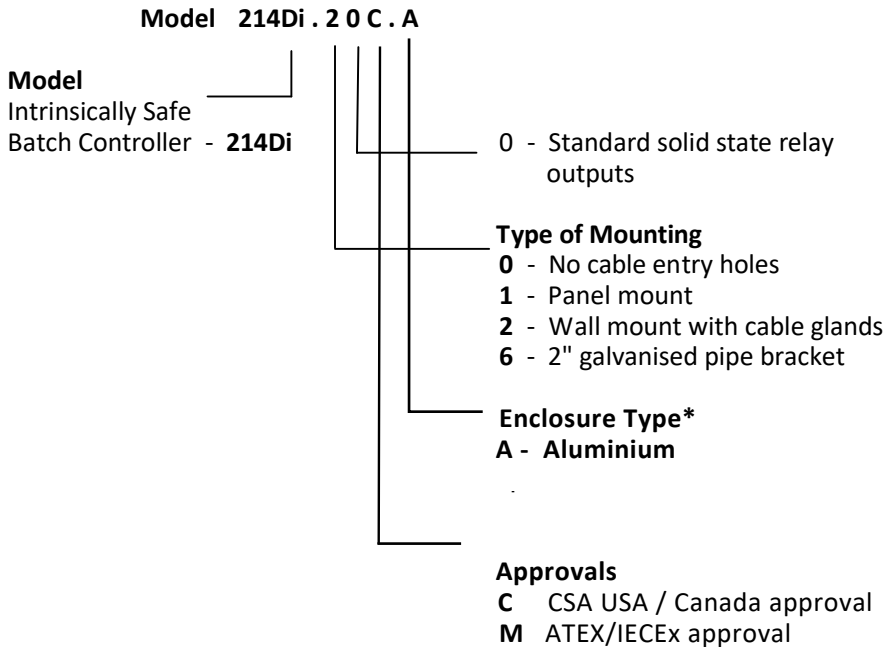
EN61326:2013   Electrical equipment for measurement, control and laboratory use – EMC requirements :
Residential, Commercial & Light Industry Environment & Industrial Environment.

EN61010:2010   Safety requirements for electrical equipment for measurement, control, and laboratory use.

In order to comply with these standards, the wiring instructions in Section 9.5 must be adhered to.

1.1 MODEL NUMBER DESIGNATION

The Model Number of the 214Di describes the unit type, output and backup options installed and the mounting options.

Model   214Di . 2 0 C . A

Model
Intrinsically Safe
Batch Controller - **214Di**

0 - Standard solid state relay
outputs

Type of Mounting
0 - No cable entry holes
1 - Panel mount
2 - Wall mount with cable glands
6 - 2" galvanised pipe bracket

Enclosure Type*
A - Aluminium

Approvals
C   CSA USA / Canada approval
M   ATEX/IECEx approval

eg. Standard wall mounted Batch Controller would be Model 214Di.20M

* 214D is supplied in plastic enclosure as standard unless 'A' is stated in part number.

1.2 INTRINSIC SAFETY APPROVALS

The Model 214Di is certified for use in hazardous areas and has IECEx, ATEX and CSA us/c approvals.

The Model 214Di certification details are:
IECEx Approval	IECEx BVS 15.0099X
Rating	Ex ia IIB T4 Gb
ATEX Approval	BVS 15 ATEX E 106 X
Rating	II 2G Ex ia IIB T4 Gb
Ambient Temperature:	Maximum ambient temperature of -20° to-60°C.
CSA us/c Approval	LR 104 840-5.
Type:	Class 1, Groups C and D.

When installing in hazardous areas, the instrument must be installed according to the guidelines in Section 8 and in accordance with standards for wiring and installation in hazardous areas.

DC Power

The input can be connected to IS circuits with the following maximum values:

U_i = 28V
I_i = 93mA
P_i = 653mW

The internal capacitance and inductance seen on these terminals is 0.1uF and 0mH.

Relay Outputs

The outputs can be connected to IS circuits with the following maximum values:

Ui = 28V
Ii = 93mA
Pi = 653mW

The internal capacitance and inductance seen on these terminals is 0.1uF and 0mH.

Flowmeter Input

Entity parameters on the flowmeter enable connection to a wide range of approved sensors.

Input parameters are:

Ui = 24V
Ii = 20mA
Pi = 320mW

The internal capacitance and inductance seen on these terminals is 0.02uF and 0mH.

Output parameters are:

Uo = 10.0V (open circuit)
Io = 9.0mA (short circuit)
Po = 23mW

Maximum allowed external capacitance is 20µF.
Maximum allowed external inductance is 1.5H.

2. SPECIFICATION

General

Display:	LCD which is continuously powered.
Batch Total:	7 digits with 10mm (0.4") high digits.
Accumulated Total:	Displayed when the ACCUM TOTAL button is pressed.
Preset:	5 digits with 8.5mm (0.33") high digits.
K-factor:	The pulses per unit of measure (e.g. pulses/gallon) is programmable in the range 0.0001 to 999,999.
Decimal Points:	Decimal point position is fully programmable for the total and preset.
Frequency Range:	0Hz to 10kHz.
Signal Type:	Link settable for sinewave (15mV P-P minimum), open collector, reed switch, pulse or Namur proximity switch.
DC Power Input:	9-28 Volt at 4mA maximum.

Battery Backup

Type:	Two lithium battery packs.
Battery Life:	5 years typical.

Outputs

|	
Outputs:	Two solid state relay outputs suitable for driving DC solenoids or external relays.
Switching Power:	200mA. 30VDC maximum.
Supply Backup:	Lithium battery.
Isolation:	Both outputs are separately isolated via opto-isolators.

Physical

Temperature:	Operating temperature: -20°C to 60°C.
Dimensions:	98mm (3.9") high x 152mm (6.0") wide x 43mm (1.7") deep (cable glands not included).
Protection:	Sealed to Nema 4X or IP67 standards.
Cable Entry:	By cable glands.
Material:	Polycarbonate and ABS.
Wall Mounting:	Universal mounting bracket supplied as standard.
Pipe Mounting:	A galvanised metal bracket is available which enables the Model 214Di to be attached to a 2" vertical or horizontal pipe.
Turbine Meter Adaptor:	An optional mounting stem is available for mounting the Model 214Di directly on turbine flowmeters which have a 1" NPT boss or 1" BSP boss.
Panel Mounting:	Supplied with mounting brackets. Terminals accessible from rear. The panel mount version is not watertight.
Cutout:	142mm (5.6") wide x 88mm (3.5" high).

3. OPERATION

The Model 214Di Batch Controller accepts a frequency or pulse input from a wide range of flowmeters. The instrument is fully programmable with all operating parameters and calculation constants programmable from the front panel. The setup parameters are stored in a non-volatile memory and are retained for at least 10 years in the event of a power loss.

3.1 FRONT PANEL OPERATION

Three keys on the front of the instrument provide an easy and straight forward method to set up batches and control operations. The three keys each have dual functions as described below:
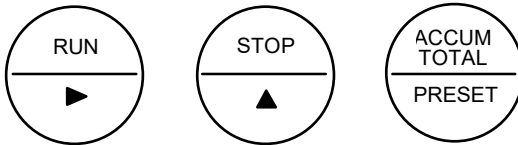
Front Panel Keys

SETTING THE PRESET QUANTITY

The Batch quantity is programmed as follows:

Switch Action	Display	Comments
Press PRESET		The Accumulated Total together with the Preset quantity is displayed.
	"1" 2345	The most significant digit of the Preset quantity flashes indicating that it can be changed.
Press □	*"2"* 2345	Pressing the < key will increment the digit. (The up arrow on the Stop key indicates to increment the digit.)

Switch Action	Display	Comments
Press ▷	2 *"2"* 345	Pressing the▷key will change digit and enables the next digit to be incremented. (The right arrow on the RUN key indicates to change digit.)
Press PRESET	22345	Pressing PRESET returns the instrument to the Run mode and batches can now be run.

Note: If there are no keys pressed within 10 seconds while the instrument is in preset mode it will return to the run mode saving the current value as the preset quantity.

Upon exit of preset mode the value is checked against the programmable batch limit. If the value is greater than the batch limit the preset value is set to the programmed limit. This check is disabled if the batch limit is programmed as zero.

Once programmed, the Preset quantity will be retained in memory and will not alter until changed by the user. The Preset quantity can only be set while the instrument is in a non-operational state such as when the batch is complete, or has been cancelled.

STARTING A BATCH

To start a batch press the RUN key. The Total will then reset to zero and, provided there is flow, the Total display will start counting upwards.

The batcher has two output transistors and these are switched on and off as described in section 3.3.

STOPPING

The process can be stopped at any time by pressing the STOP switch. This is indicated by the "Pause" message being displayed on the screen. Once the process has been interrupted in this way, it can be continued by pressing the RUN key or the process can be aborted by pressing the STOP switch a second time.

ACCUMULATED TOTAL

During a batch run, the Accumulated Total can be displayed by pressing the ACCUM TOTAL key. In the non-operational state (i.e. when the batch is complete), the ACCUM TOTAL key also functions as the PRESET key and enables the Preset quantity to be changed.

The Accumulated Total cannot normally be reset, except by pressing the internal Reset button (see section 9.4).

3.2 TEST MODE

The 214Di has a Test Mode which can be entered and exited by pressing and holding the front panel keys in certain sequences to avoid accidental entry or falsely starting a batch. To enter Test Mode, the front panel keys should be pressed and held in the following order: the STOP key and then the ACCUM TOTAL key.

Note the test mode cannot be entered while the instrument is in program mode or preset mode.

The tests are as follows:

Relay 1 Test	By pressing the RUN key, the display will show the test for Relay 1. The output will only activate while the RUN key is being pressed.
Relay 2 Test	By pressing the STOP key, the display will show the test for Relay 2. The output will only activate while the STOP key is being pressed.
Display Test	By pressing the PROGRAM key, all segments of the display will flash.

Note the relay outputs are only operated when external DC power is present. And any batch in progress when test mode is entered is stopped and cannot be resumed.

To exit Test Mode, the front panel keys should be pressed and held in the following order: the ACCUM TOTAL key and then the STOP key.

3.3 BATCH OPERATIONS

The operation of the Batch Controller is shown below:
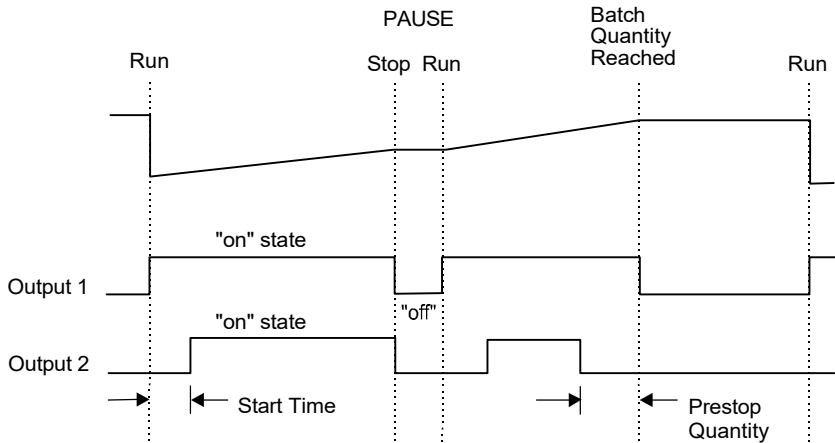
Two Stage Valve Control

3.3.1 Control Outputs

The two solid state relay outputs can be set up to control a single valve or a dual valve with slow stop and/or slow start. Alternatively, the second output can be used to control a pump.

The output operation is shown above.

A time delay between the Start and the time when Output 2 switches on can be programmed to provide a soft startup. The delay can range from 0 (no delay) to 9 seconds.

A Prestop quantity (i.e. the quantity to the end of the batch) can also be programmed to provide a slowdown of flow at the end of the batch, thereby enabling precise quantities to be batched.

The process can be stopped at any time by pressing the STOP key, whereby both outputs will immediately switch off. The process can then be aborted and the batcher reset by pressing the STOP key again, or the process continued by pressing the RUN key.

If the process is continued and the instrument was previously in the slow start or main control phases (i.e. not the prestop phase), the timer will be reset and a slow start will occur with a full time delay to ensure a correct start up. The totals will not be reset and the batch quantity will remain unchanged.

3.3.2 Signal Timeout

The Signal Timeout period defines a time interval which is used to detect if the low has stopped. If there is no signal input for a time greater than the Signal Timeout period, the flow is deemed to have stopped. A Signal Timeout period detects the loss of signal midway through a batch when the outputs are on. In this case, the Batcher will enter a Flow Alarm condition and switch off the outputs.

The Flow Alarm condition is maintained until acknowledged by pressing the STOP switch. The alarm condition is also signalled to the operator by the PAUSE message being flashed on the display.

The instrument enables the user to program a time interval of up to 99 seconds to detect an absence of signal input.

If the Signal Timeout is set to 0, this function is disabled.

4. PROGRAMMING

The Model 214Di is fully programmable, with all parameters being stored in memory.

The Program Mode can be entered in one of two ways:

1. By removing the lower cover strip (i.e. the dark grey strip along the bottom of the enclosure) and turning it end for end and replacing it. This brings a small magnet, on the inside of the cover strip, in close vicinity of a reed switch inside the instrument.

2. By removing the front section of the enclosure which contains the main processor board and batteries. Once removed, the PRESET key is pressed to enter the Program Mode.

The PRESET switch is used to step through the program (CAL sequence) and the ▷ and Δ keys on the front panel are used to change and increment the flashing digits. Six CAL steps are accessible in the Calibration mode. The CAL number is displayed on the lower display and the parameter is displayed on the upper display.

Any batch in progress when the Program mode is entered, is stopped and cannot be resumed. Also, no incoming pulses are totalised while the unit is in Program mode.

To exit the Program mode the lower cover strip should be returned to its original position or the front panel should be refitted.

Parameters in Program Mode that consist of the two parts, **whole numbers** and **digits after the decimal point,** are restricted to having a maximum of 6 significant digits. Therefore the number of significant digits entered in the *whole numbers* determines the number of digits that are able to be entered in the *digits after the decimal point*.

For Example

000001 in the whole numbers makes 0000 available after the decimal place.
000100 in the whole numbers makes 000 available after the decimal place.
010000 in the whole numbers makes 0 available after the decimal place.

4.1 PROGRAM STEPS

| *Step* | *Comment* |

CAL 01   **Scaling Factor - whole numbers.**

CAL 02   **Scaling Factor - digits after the decimal point.**

The Scaling Factor is the pulses per unit of measure (e.g.pulses/litre, pulses/gallon, etc). The Scaling Factor

can be programmed in the range of 0.0001 - 999,999.

CAL 03   **Decimal Point for Total Display.**

The total and preset quantity can be displayed with 0, 1, 2 or 3 decimal point places.

CAL 04   **Start Time Delay.**

The time in seconds (0-9 sec) when Output 2 will switch "on" once the RUN key is pressed.

CAL 05   **Prestop Quantity**

The quantity at which Output 2 will switch "off" before the end of the batch (Eg. If the Preset quantity is 100 litres and the Prestop quantity is 2 litres, Output 2 will switch off after 98 litres.)

CAL 06   **Signal Timeout.**

A time period between 0-99 seconds during which, if there is no flow measured, the Outputs will both switch "off" and the PAUSE message will be displayed.

CAL 07   **Batch Limit.**

This value determines the maximum preset value that may be entered by the operator. A value of zero for the batch limit disables this feature.

SOFT   **Software Version.**

4.2 EXAMPLE

A flowmeter produces 20.538 pulses per litre and has a maximum flowrate of 150litres/minute. It is required to batch quantities in batches of around 300 litres and to alarm if there is no flow once the batch has started.

To increase the accuracy of the batch, a two stage valve will be used and the flow will be slow prior to the end of the batch to enable a more accurate cutoff.

It has also been decided to reduce the flowrate 10 litres prior to the end of the batch. The instrument is then programmed as follows:

Step	Value of Parameter	Description
CAL 01	00020	Scaling factor (Whole numbers).
CAL 02	5380	Scaling factor (Decimals).
CAL 03	1	One decimal place.
CAL 04	1	One second delay on full flow to stop pipe hammer.
CAL 05	10	10 litre prestop.
CAL 06	2	Two second signal timeout.
CAL 07	350	350 litre batch limit.
SOFT	2.XX	Software Version.

5. VALVE CONTROL AND DC POWER

The Model 214Di will operate from an external power source between 9-28VDC and draws no more than 4mA. This enables the instrument to be powered from AC mains adaptors and eliminate the need to run mains voltage in the field.

As the instrument has an internal battery backup it will power the instrument if DC power is interrupted, but these batteries are not capable of powering the solenoids or sensors if they require external power (see section 6 for further description of operation with battery backup.)

Solid state relay outputs provide control to solenoids or relays and can sink up to 200mA. The outputs are internally protected against voltage spikes caused by relays and coils. Connections for a dual stage applications is given on the following page.

For single stage applications, only Output 1 is required.

Specification for Outputs

Maximum Current (sink):	200mA.
Maximum Voltage:	30VDC.
Saturation Voltage:	0.8VDC max across the outputs in the "on" state.
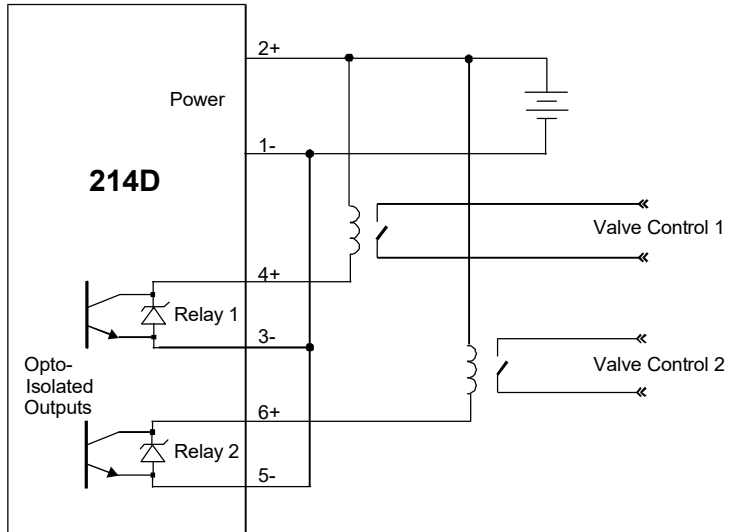
Relays with DC Coils

6. BATTERY BACKUP VERSION

The battery backup version of the Model 214Di is designed to provide power backup for the instrument if the supply has been interrupted. The two lithium battery packs provide sufficient capacity to power the instruments for up to 5 years and the operator is warned of a low power condition by a message on the LCD display.

Note: No low battery warning will be displayed whilst there is external DC power connected.

New batteries can be purchased via Contrec or our distributors and replaced in the field without compromising the IS approvals. *There are two battery packs in each instrument and care must be taken to replace only one pack at a time so that there is always power connected to the memory.* Failure to do this may result in loss of totals and preset value.

Note that only Contrec supplied batteries can be used for replacement in Intrinsically Safe installations.

6.1 POWER INTERRUPTION

With the battery backup the Model 214Di has the ability to resume a batch if the DC power is interrupted during a delivery. The 214Di will also totalise any incoming pulses while power is unavailable.

If a batch is in progress and the external DC power is lost, both relay outputs will be deactivated and the batch will be paused. The paused batch can only be restarted when the DC power returns. However, the paused batch will be terminated if the STOP key is pressed or if any totalising of pulses causes the Batch Total to exceed the Preset Value.

7. FLOWMETER INPUT

The Model 214Di has an input conditioning circuit which will accept signals from most **pulse** or **frequency** producing flowmeters. Links on the rear panel enable the input circuit to be configured for different signal types.

The input will interface directly to:

- Turbine flowmeters.
- Open collector outputs.
- Reed switches.
- Logic signals.
- Two-wire proximity switches.

The following pages give examples of interconnection to various signal outputs. A circuit diagram of the input is also provided.

For pulse or logic type signals, the input switching threshold is 1.3 volts. That is, the input signal must have a "low" voltage of less than 1.2 volts and a "high" voltage of greater than 1.4 volts.

For flowmeters with coils, the minimum input voltage is 15mV P-P.

All inputs are protected for over voltage up to 28 volts.

pull-up = 0 uA (PULSE link (link 1) not installed)
pull-up = 15 uA (PULSE link, no external power)
pull-up = 150 uA (PULSE link, external power)

+3.3V

pull-up Input

INPUT COMPARATOR

8+

825R

LINK 2

1.3V

5

+

7

6

-

NPS (LINK 3)

DBL

DBH

825R

0.01uF

0.1uF

100K

COIL (LINK 1)

7-

100R
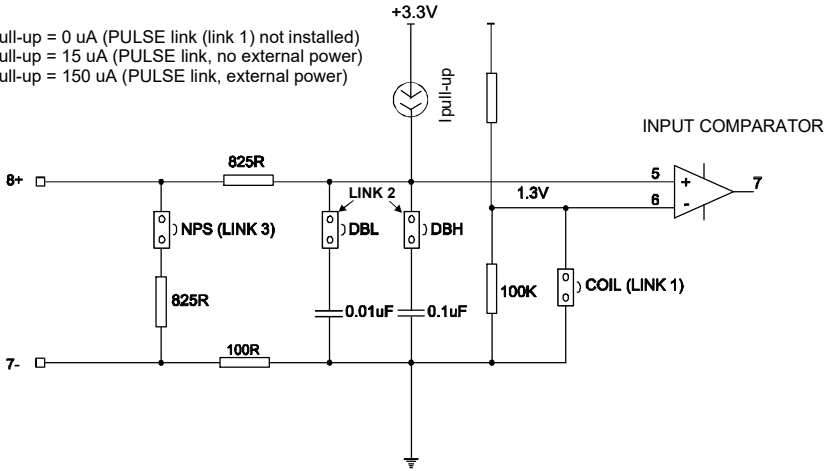
Simplified Frequency Input Circuit

1. Squarewave, CMOS or Pulse

Link Settings

COIL   PULSE

Link 1

Link 2

DBL   DBH

Link 3
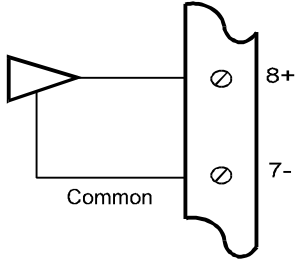
NPS
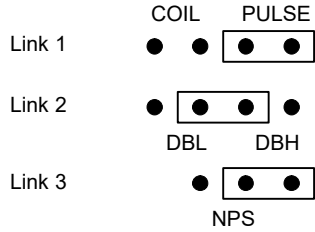
Switching threshold voltage is 1.3 volts.

8+

7-

Common

2. Open Collector
 With $15\mu A/150\mu A$ internal pull up
 current

Link Settings

COIL   PULSE

Link 1

Link 2

DBL   DBH

Link 3

NPS

8+

7-
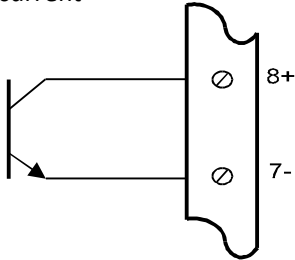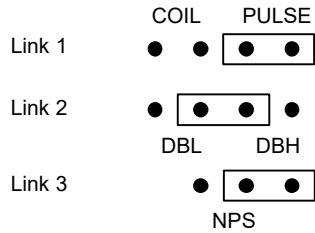
3. Reed Switch - External DC Power
 With $150\mu A$ internal pull up
 current

Link Settings

COIL   PULSE

Link 1

Link 2

DBL   DBH

Link 3

NPS

8+

7-
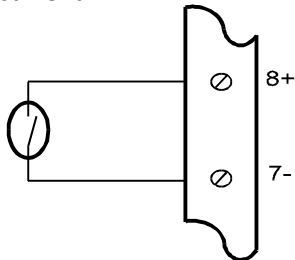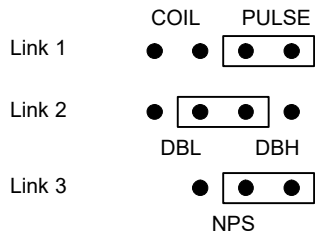
Note: For a switch or reed input with contact bounce link DBH can be switched "on"
by linking across the two right pins above DBH. This will eliminate the effect of
switch bounce while limiting the input frequency to 200Hz.

4. Coils
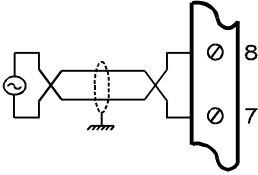
OR
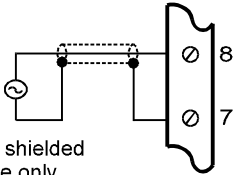
Use shielded
cable only

Link Settings

825R input impedance

eg. Millivolt signal from paddlewheel
or turbine (15mV P-P minimum).

**Note: If the input has a very high impedance,
the following link settings should be used:**

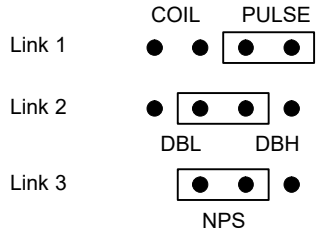Link Settings

5. Namur Proximity Switch

+12 Volts

0V
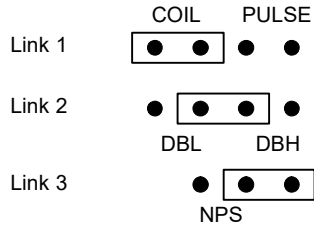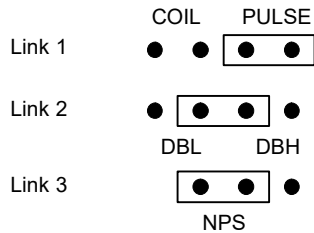
Link Settings

825R input impedance

For IS connections of Namur switches
see Section 8.

6. Namur Proximity Switch - External DC Power

+12 Volts

8+

0V

7-

Link Settings

Link 1

COIL   PULSE

Link 2

DBL   DBH

Link 3

NPS
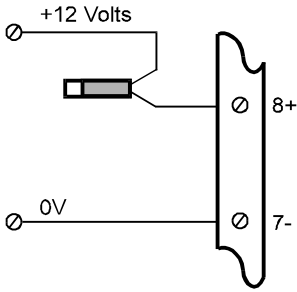
825R input impedance

For IS connections of Namur switches see Section 8.

8. INTRINSIC SAFETY CONNECTIONS

When installing the Model 214Di in hazardous areas, the wiring and installation must comply with appropriate installation standards.

8.1 COILS

The Model 214Di will connect directly to a turbine flowmeter or paddlewheel with a certified Intrinsically Safe (IS) coil or other certified IS sensor which produce a pulse input provided they do not exceed the following input parameters:

U_i = 24V
I_i = 20mA
P_i = 320mW

The maximum allowed capacitance and inductance of the pulse or coil including the cabling is:

C_{ext} = 20μF
L_{ext} = 1.5H

The internal capacitance and inductance of the Model 214Di seen on the input are negligibly small with C_i = 0.02uF and L_i = 0mH. The maximum voltage and current produced by the Model 214Di on its inputs (terminals 8 & 7) are:

U_o = 10.0V (open circuit)
I_o = 9.0mA (short circuit)
P_o = 23mW

8.2   SIMPLE APPARATUS

Devices such as reed switches which can be classed as "simple apparatus", as defined in the CENELEC standards EN60079, can be connected to the Model 214Di without certification.
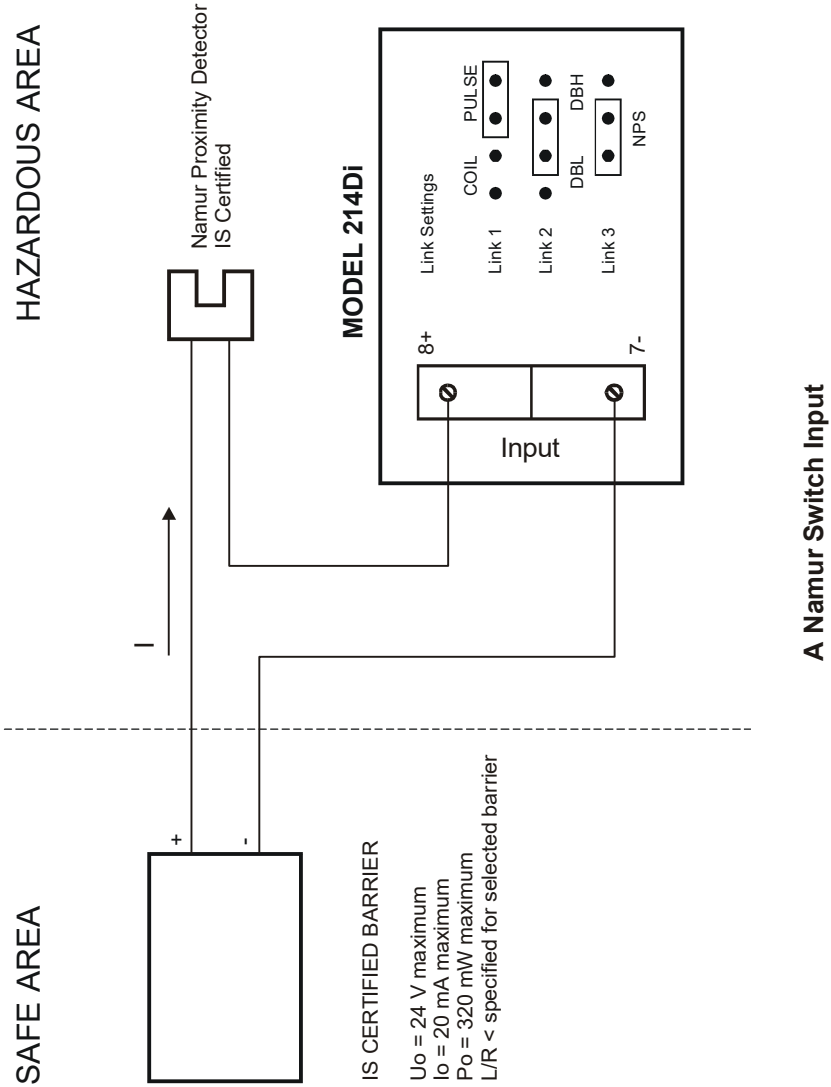
8.3   NAMUR PROXIMITY SWITCHES

Connection to certified Namur proximity switches is permitted as shown on the following page with the following maximum input parameters:

U_i = 24V
I_i = 20mA
P_i = 320mW

HAZARDOUS AREA

SAFE AREA

Namur Proximity Detector
IS Certified

MODEL 214Di

Link Settings

PULSE

COIL

DBH

DBL

NPS

Link 1

Link 2

Link 3

8+

7-

Input

IS CERTIFIED BARRIER

Uo = 24 V maximum
Io = 20 mA maximum
Po = 320 mW maximum
L/R < specified for selected barrier

+

-

A Namur Switch Input

8.4 RELAY OUTPUTS

The low alarm and high alarm/pulse output can be connected to suitably certified devices providing the circuit is protected with a barrier with the maximum safety parameters:

Uo = 28V
Io = 93mA
Pmax = 0.653W

The input capacitance on these terminals is 0.1uF max and the inductance is negligible.

Note that the two relay outputs must be kept as independent IS circuits and each protected with their own barrier. It is not permissible to connect these circuits via a common barrier.

Solenoid

Only certified intrinsically safe solenoids may be used for I.S. applications.
Because these solenoids have a relatively small coil, they are only usually suitable for small line sizes and non viscous products.

Generally, it is preferable to use a pneumatic system with the solenoid valves controlling air to a larger pneumatically controlled valve.

HAZARDOUS AREA

SAFE AREA

IS Certified Device
such as an Alarm Lamp
or IS Solenoid

MODEL 214Di

4 or 6

3 or 5

IS CERTIFIED BARRIER

Uo = 28 V maximum
Io = 93 mA maximum
Po = 653 mW maximum
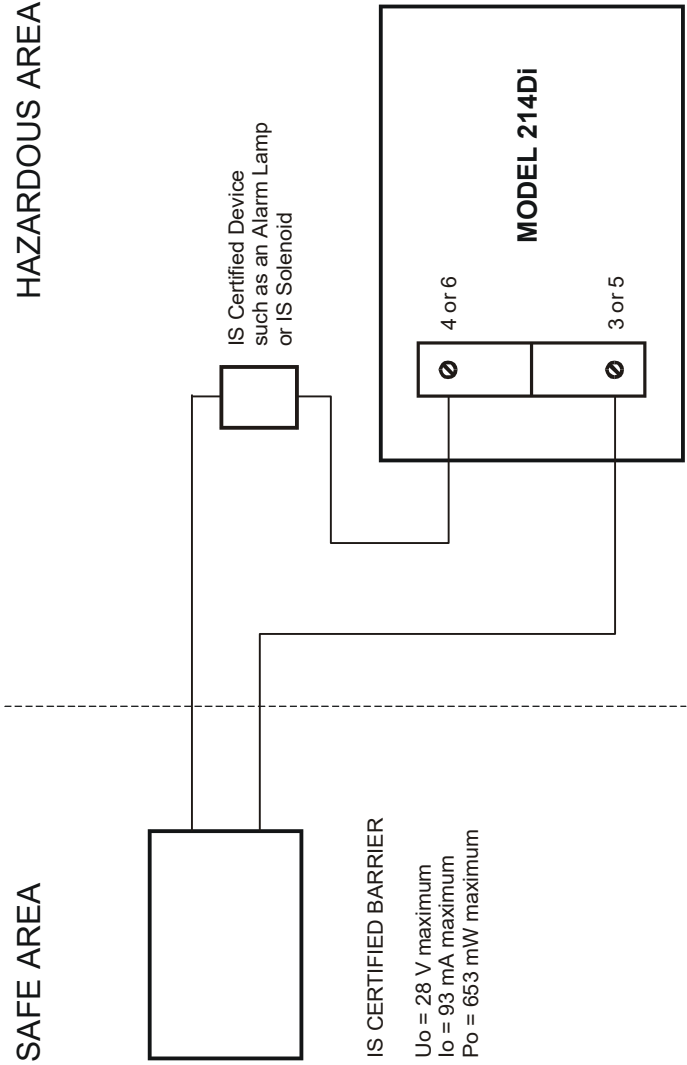
9. INSTALLATION

9.1 WALL MOUNTING

A wall mounting bracket is supplied with each instrument. Round head screws should be used to attach the bracket to the wall (countersunk screws should not be used). The bracket is mounted first with the tray section at the bottom. The instrument is then mounted on the bracket with two screws as shown below.
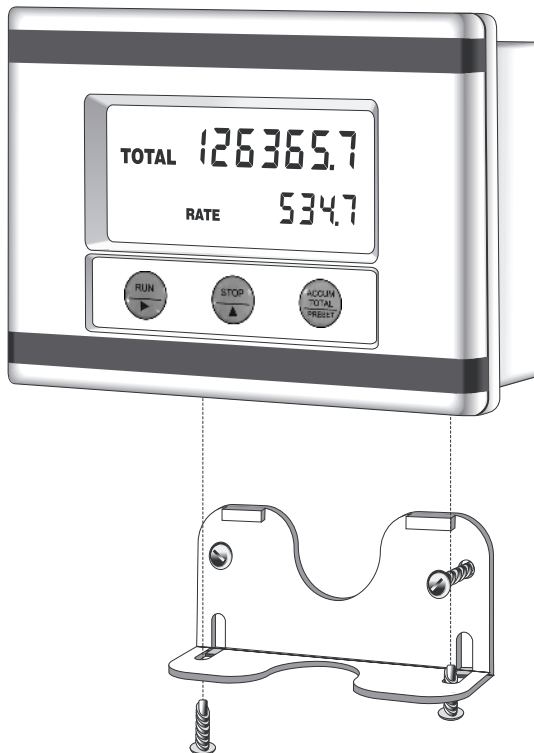
9.2 PANEL MOUNT VERSION

The panel mount version of the Model 214Di is supplied with two panel mount brackets and plug-in terminals which are accessible from the rear of the instrument. A diagram of the rear panel is shown below:
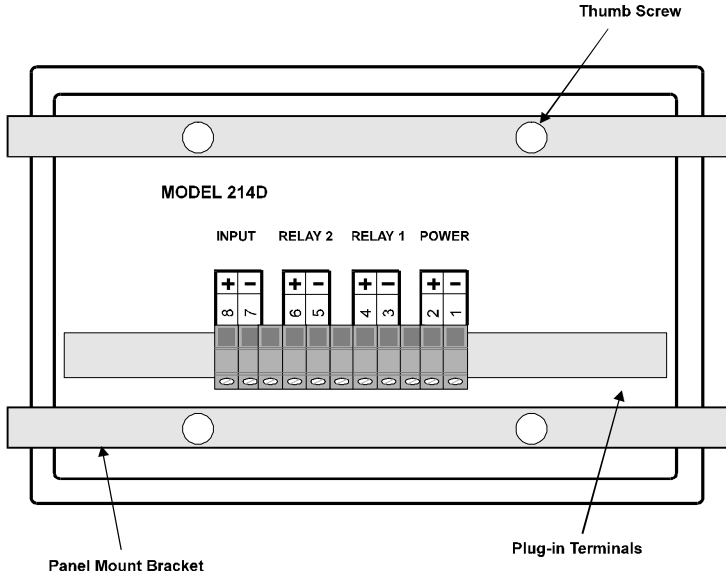
Rear View of 214D Panel Mount Case

The cutout for the panel mount version is 142mm (5.6") wide x 88mm (3.5") high.

NOTE. The aluminium enclosure is not suitable for panel mounting

9.3.1   REMOVING THE FRONT PANEL - PLASTIC ENCLOSURE

The front panel should be removed as follows:

1. Remove the top and bottom cover strips (ie. the dark plastic strip) by levering a screwdriver under one end.

2. Undo the screws retaining the front. Do not remove the screws, they are retained by O-rings.

3. Remove the front panel from the housing.

To replace the front cover, follow the above procedure in reverse. Ensure that the front panel is aligned at connector points before tightening the screws.
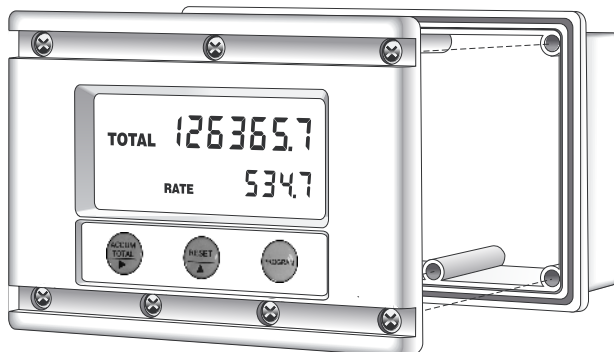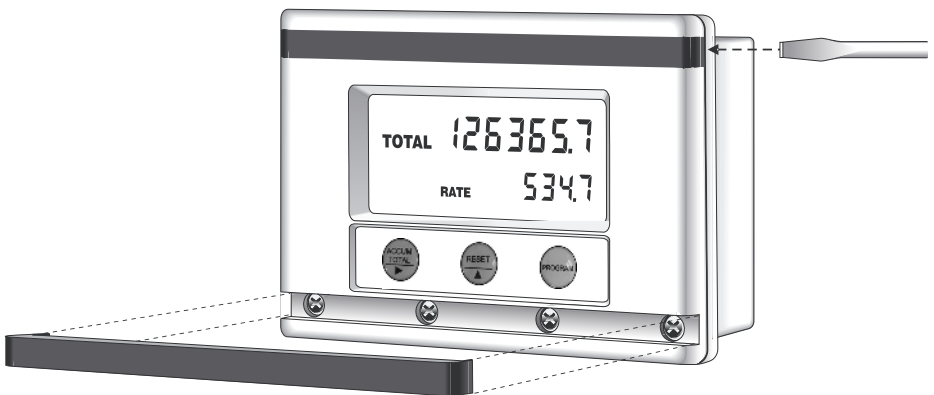
9.3.2 REMOVING THE FRONT PANEL - ALUMINIUM ENCLOSURE

The front panel should be removed as follows:

1. Unscrew the 4 x socket head screws from each corner of the front panel.

2. The screws are not retained so removed them completely.

3. Remove the front panel from the housing.

To replace the front cover, follow the above procedure in reverse. Ensure that the front panel is aligned at connector points before tightening the screws.

If slightly stiff, the enclosure has a small gap on the right side of the front panel. This can be used to open the instrument with a tool.

9.4 THE MAIN ELECTRONICS

The front section of the housing contains the microprocessor, display and the batteries if fitted. It is possible to adjust the display contrast via a small potentiometer on the board. The **Display Contrast** is shown below and this can be adjusted for optimum contrast.

Adjacent to this control is a **RESET** switch which can be used to reset the microprocessor. *Note that pressing this button will set the totals to zero and set the preset value to a default figure of 10.*
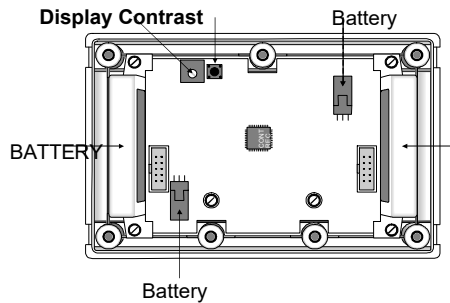
9.5 GROUNDING THE ENCLOSURE

NOTE. This only applies to the aluminium enclosure

On one side of the enclosure a ground point is available to attach the 202D to the nearest protective earth (PE).

Earth Point
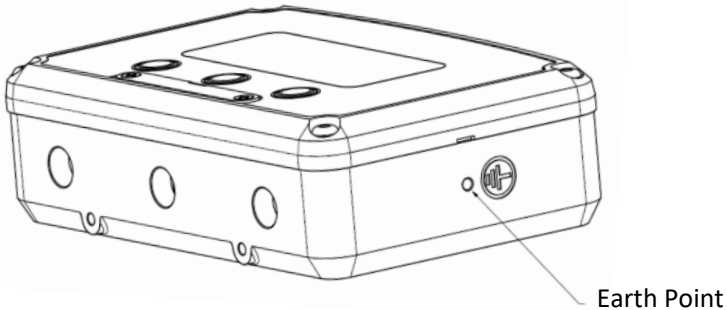
9.6 WIRING

When connecting the 214Di it is good practice to use shielded cable. The shield should be connected to earth at one end of the cable. The other end of the shield should not be connected.

This wiring practice is mandatory in order to comply with the requirements for Electromagnetic Compatibility as per EMC-Directive 2004/108/EC of the Council of the European Community.

9.7 MAINTENANCE

All printed circuit boards must be repaired by Contrec. In the case of a fault, no attempt should be made to repair the board as the intrinsically safe functionality may be impaired.

All batteries for use in hazardous areas must be supplied by Contrec
No substitute batteries are permitted as the battery packs contain certified energy limiting devices and insulation protection.

9.8 GENERAL

- Ensure that all gland entries not used are blanked with IP rated gland plugs/blanking caps.

- Only use plastic PG7 glands on the aluminium enclosure.

SPECIAL CONDITIONS FOR SAFE USE

To comply with this products ATEX/IECEx certification the special conditions for safe use must be followed.
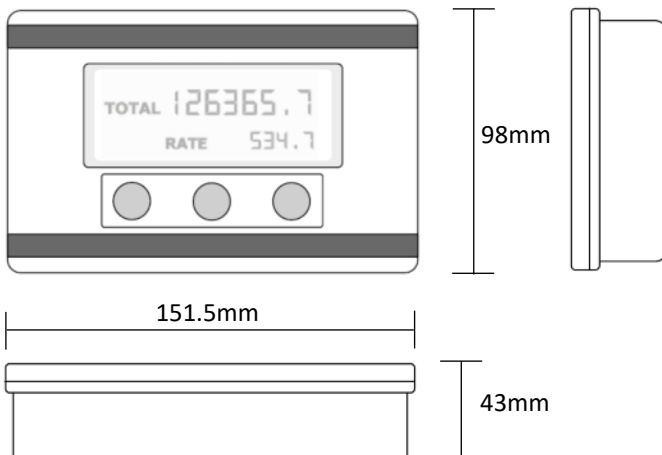
The Instrument type 214Di shall be mounted in an area where electrostatic charge/discharge will be avoided.

9.9 INSTRUMENT DIMENSIONS

9.9.1 Aluminium Enclosure

106mm

161mm

47mm
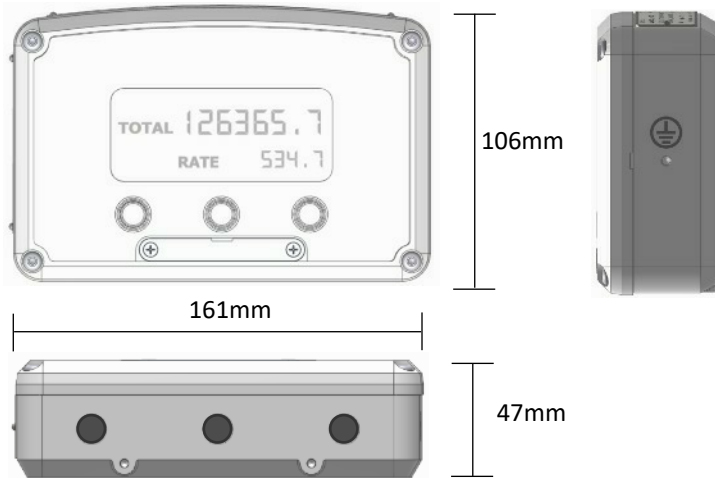
9.9.2 Plastic Enclosure

98mm

151.5mm

43mm

9.10 TERMINAL DESIGNATIONS

All versions

8	Pulse (+) / Coil Input
7	Pulse (-) / Coil Input
6	Output 2 (+)
5	Output 2 (-)
4	Output 1 (+)
3	Output 1 (-)
2	DC Power +9 to 28V
1	DC Power 0V

10. DISPOSAL

10.1. Instrument Disposal

Contrec instrumentation should not be thrown into the general waste system.

If within EU member states, this instrument should be disposed of according to the guidelines set by the WEEE (Waste Electrical and Electronic Equipment) directive 2012/19/EU. If outside of the EU, this equipment should be responsibly disposed of according to local and national regulations for EEE (Electrical and Electronic Equipment).

By not discarding of this product along with other house hold waste you are preserving natural resources and reducing waste sent to landfill and incinerators.

Remove batteries and dispose of separately (see *Disposal of Batteries*) before disposal of Contrec instrumentation.

10.2. Disposal of Batteries

Batteries have an environmental impact, safe and responsible disposal should be undertaken.

In all EU member states, as per Directive 2006/66/EC, batteries must not be thrown away with general waste. Contact your local environmental authority for information regarding disposal or recycling of used batteries, alternatively they can be returned directly to Contrec Ltd. for disposal.

Please Contact Contrec Ltd before returning batteries for disposal.

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