





Universal Mount Series RT FLOW RATE TOTALISER

INSTRUCTION MANUAL SUPPLEMENT
for INTRINSICALLY SAFE
FLOW RATE TOTALISER

ATEX & IECEx approvals

<i>The name of the manufacturer :</i>	Trimec Industries Pty, Ltd.
<i>Address :</i>	Caringbah, NSW 2229 Australia
<i>The type identification (as appropriate) : Rate Totaliser</i>	Model RT12*****
<i>Other marking required by Directive 94/9/EC</i>	 0518  II 2G
<i>The certification code :</i>	EEx ia IIB T4 (-20 C T _a +60 C)
<i>Ambient temperature range :</i>	(-20 C T _a +60 C)
<i>The ATEX certificate number :</i>	Sira 06ATEX2033X
<i>The IECEx certificate number :</i>	TSA 05.0035X

Supplementary Instructions for Intrinsically Safe (I.S.) flow rate totaliser

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1. General

These instructions must be read in addition to the instrument Instruction Manual if you have purchased an ATEX / IECEx I.S. certified instrument and intend installing it in a hazardous environment for which it is approved.

The I.S. certified instrument may be stand alone or fitted to a flowmeter.

2. Conforming Standards

The I.S. instrument is certified in accordance with the IECEx scheme and the ATEX directive. Prior to installation, review the certification marking on the instrument label to confirm it is appropriately certified for your region, suits the site classification and complies with your hazardous area philosophy.

IECEx scheme

Conforms to Standards

IEC 60079-0 (2000) and IEC 60079-11 (1999)

These standards are identical to


AS/NZS 60079-0 (2000) and AS/NZS 60079-11 (2000)

ATEX Directive

Complies with ATEX directive 94/9/EC

Conforms to Standards

EN50014:1997 + Amendments 1 & 2 and EN 50020:2002

The instrument has also been assessed against the Essential Health and Safety requirements (ESHR's) as defined in European Directive 94/9/EC for  II 2 G.

The instrument is certified for "ia" (intrinsically safe) protection suitable for gas group IIA, IIB and temperature class T1 to T4 in an ambient temperature of -20 to +60 deg C and is suitable for installation in Group II, Zone 1 and 2 areas.

The instrument has also been tested to IEC60529 and complies with a protection rating of IP66/67.

3. Overview

The certified instrument is an I.S. indicator providing a display of flowrate, accumulated total and resettable total. It can be battery powered and/or dc powered via an approved associated apparatus such as an I.S. isolator.

In addition, when externally powered the certified instrument provides the choice of one output from the list below;

Loop Powered 4~20mA output proportional to flow rate.

Low flow rate alarm.

High flow rate alarm.

High or Low flow rate alarm.

Scaled pulse output for remote totalisation.

Flowmeter pulse amplifier.

4. Mechanical Installation *(also refer Instruction manual)*

There are additional installation requirements to the Instruction Manual for certified instrument in accordance with the ESHR's as defined in annex II of the ATEX directive 94/9/EC.

The ambient temperature must be within the limits -20 to +60 deg C.

The instrument must be installed to prevent mechanical and thermal stresses and to prevent an attack from existing or foreseeable aggressive substances.

The instrument case is not considered to be an electrostatic risk, however the equipment must not be installed in a position where it may be subjected to an excessive air flow or subjected to rubbing that may cause an electrostatic build up.

In all installations appropriate local rules, regulations and directives governing instrument selection, installation practices and requirements must be followed.

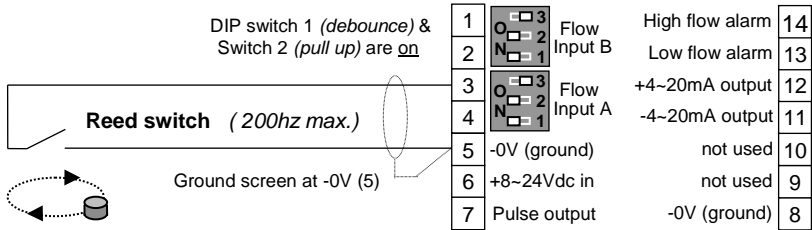
5. Electrical Installation

5.1 Inputs

The I.S. instrument can accept pulse or frequency inputs from a variety of flowmeters. When the I.S. instrument is supplied as part of a flowmeter the appropriate input is normally pre-wired at the factory. The common input types are listed below.

5.1.1 Un-powered inputs

Reed switch inputs are defined as simple apparatus under the IECEx scheme and the ATEX directive. A reed switch input can be wired directly into the instrument without further certification.



Connect across terminals 1 & 5 when using the flow input B. If it is a preference to dc power the instrument refer to Outputs Section of this supplement.

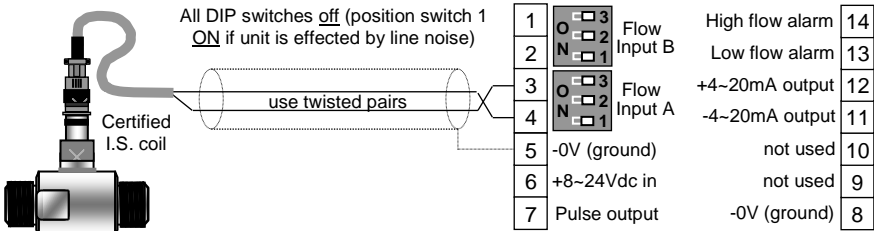
5.1.2 Self Exciting Inputs

Non amplified Pick off coils from turbine meters are examples of this type of input. Pick-off coils must be I.S. certified and the entity parameters of the coil must not be less than the entity parameters of the instrument being:

Vi of the sensor must be greater than or equal to 28 Vdc

Ii of the sensor must be greater than or equal to 100mA

Pi of the sensor must be greater than or equal to 0.7W



Connect across terminals 1 & 2 when using the flow input B. If it is a preference to dc power the instrument refer to Outputs Section of this supplement.

5.1.3 Inputs requiring power from the instrument

Examples of this type of sensor are open collector output from a Hall Sensor, pre-amplified coils from turbine meters or Namur inductive proximities. Examples are where the voltage required to power the sensor originates from the associated apparatus via the instrument.

These sensors must be certified and the entity parameters of the sensor must not be less than the entity parameters of the instrument being:

Vi of the sensor must be greater than or equal to 28 Vdc

Ii of the sensor must be greater than or equal to 100mA

Pi of the sensor must be greater than or equal to 0.7W

The power to the instrument must come from a certified source (*commonly known as associated apparatus*). The entity parameters of the associated apparatus must not exceed those of the instrument being:

Voc of the associated apparatus must be less than or equal to 28Vdc

Isc of the associated apparatus must be less than or equal to 100mA

Pout of the associated apparatus must be less than or equal to 0.7W

The associated apparatus may also be used to retransmit an output from the instrument to the safe area. (*refer to Output Section in this supplement for wiring examples*)

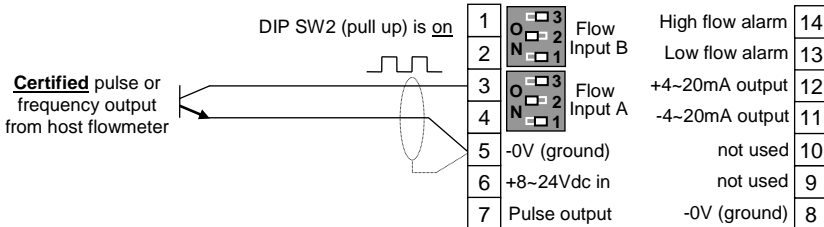
5.1.4 Other Inputs

The instrument can also accept isolated pulse/frequency outputs from a powered device such as an open collector or voltage free contact from a mass or electromagnetic flowmeter. These devices must be **appropriately certified** and the pulse/frequency output must be isolated and have certified entity parameters not less than the entity parameters of the RT instrument being:

Vi of the flowmeter pulse/frequency output must be greater than or equal to 28 Vdc

Ii of the flowmeter pulse/frequency output must be greater than or equal to 100mA

Pi of the flowmeter pulse/frequency output must be greater than or equal to 0.7W



Connect across terminals 1 & 5 when using the flow input B. If it is a preference to dc power the instrument refer to Outputs Section of this supplement.

5.2 Outputs

The instrument is certified to provide one of the following outputs. To obtain an output external power is required to be sourced from a **certified** associated apparatus located in the safe area. In all cases the entity parameters of the associated apparatus must not exceed those of the instrument being:

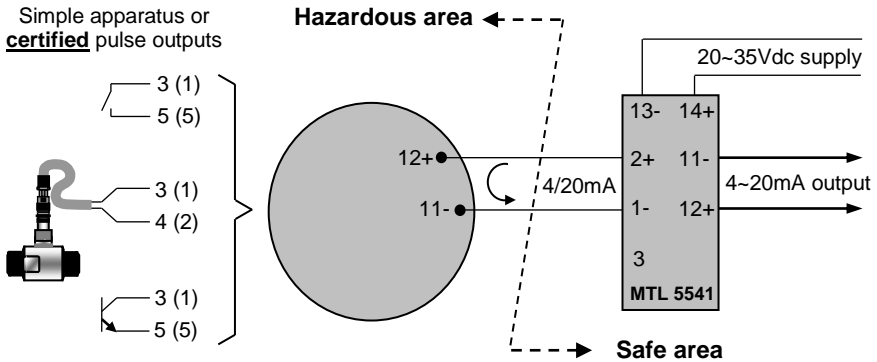
Voc of the associated apparatus must be less than or equal to 28Vdc

Isc of the associated apparatus must be less than or equal to 100mA

Pout of the associated apparatus must be less than or equal to 0.7W

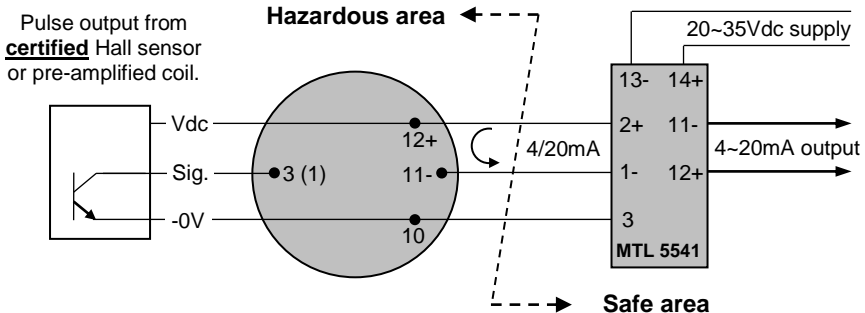
5.2.1 Two wire 4-20mA loop powered output

This configuration is used when the flow input does not require power from the instrument. Terminal designations in parenthesis () refer to the B flow input.



5.2.2 Three wire 4-20mA Output

This configuration is used when the flow input requires power from the instrument. Terminal designations in parenthesis () refer to the B flow input.



5.2.3 Pulse (Pre-amplified or Scaled Pulse) or Flow alarm Output when the flow input does not require power from the instrument (refer manual for input DIP switch settings)

Instrument jumpers 7B, 13 and 14 must be set to PNP.

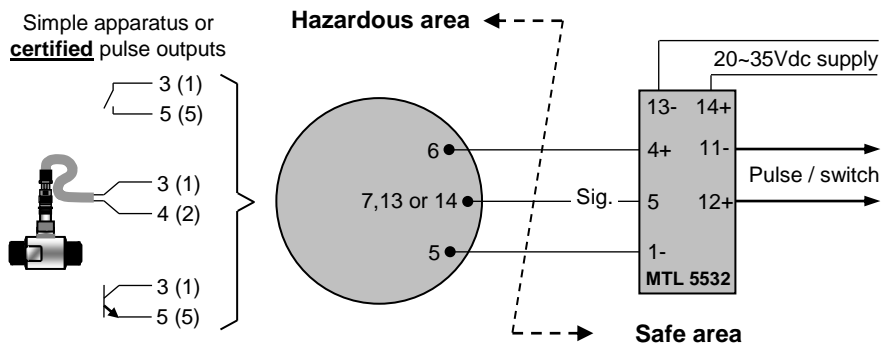
Terminal 7 is pre-amplified pulse (frequency) if jumper 7A is set to “REP”

Terminal 7 is scaled pulse output if jumper 7A is set to “SPO”

Terminal 13 is low flow alarm output.

Terminal 14 is high flow alarm output.

Terminal designations in parenthesis () refer to the B flow input.



5.2.4 Pulse (Pre-amplified or Scaled Pulse) or Flow alarm Output when the flow input requires power from the instrument (refer manual for input DIP switch settings)

Instrument jumpers 7B, 13 and 14 must be set to PNP.

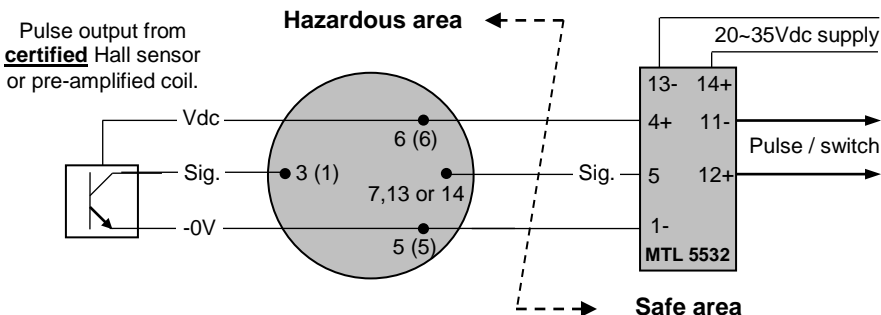
Terminal 7 is pre-amplified pulse (frequency) if jumper 7A is set to “REP”

Terminal 7 is scaled pulse output if jumper 7A is set to “SPO”

Terminal 13 is low flow alarm output.

Terminal 14 is high flow alarm output.

Terminal designations in parenthesis () refer to the B flow input.



5.3 Associated Apparatus

The wiring examples illustrated in this supplement are based on MTL 5500 series I.S. Isolators. Alternative isolators with suitable entity parameters are permitted to be used with the instrument. Refer to manufacturers catalogues for full specifications.

5.4 Wiring

In addition to the wiring requirements of the Instruction Manual, appropriate local rules, regulations and directives governing wiring practices for I.S. installations must be followed. These include but are not limited to cable lengths, segregation, routing and identification of I.S. cabling.

With regards to cable selection and allowable length the associated apparatus capacitance and inductance parameters must not be exceeded by the sum of the capacitances and the sum of the inductances within the loop.

When calculating allowable cable length use the capacitance and inductance values of the instrument of 0.335 microF and 0mH respectively.

By way of example when using a 5532 MTL isolator and assuming cable parameters of 100pF/m & 1 μ H/m the maximum allowable transmission distance is calculated to be 550m (1800ft). If a 5541 MTL isolator is used the allowable transmission distance increases to 3150m (6600ft) assuming the same cable parameters.

Certain regions such as Europe allow the inductance/resistance ratio of the cable to be used instead of the sum of the inductances. In this case the cable inductance/resistance ratio must be lower than the maximum inductance/resistance ratio permitted by the associated apparatus.

5.5 DIP switch and Jumpers

Refer to the Instruction Manual for location, full description & settings of DIP switches & Jumpers.

6. Programming

Refer to the Instruction Manual for programming of your instrument.

7. Service

The only serviceable item within the instrument is the battery pack and can be replaced insitu. Only the certified I.S. battery assembly P/No. 1412028 can be used and is available from the locations listed at the end of the Instruction Manual.

8. Repair

The instrument must only be repaired by trained personnel using approved spares. Instruments requiring repair must therefore be returned to the place where you purchased your instrument from or to the instrument manufacturer.

Notes:

Notes:

Wichita / Sydney / Mexico City



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