

Intrinsically Safe Dose Control Unit

Product features

- Measuring of dosed material quantities / rest material quantity still to be dosed / total dosed material quantity
- Measuring of material flow
- NAMUR / contact inputs
- 2 valve-controller, 1 pump-controller
- Automatic batch correction
- Remote operation with external push buttons
- TTY serial interface
- Large, 25 mm 4 digit or 17,8 mm 6 digit LCD display
- Intrinsically safe design
- Enclosure with IP 65 protection; suitable



With help of impulse output flow-through detector connected to its input, the **DT930 Dose Control Unit** is suitable for accurate batching of fluids. The fluid quantity needing to be batched can be adjusted by means of tastature located on the front panel or, in remote controlled operating mode, through the communication interface.

The equipment has two valve regulating outputs and one pump regulating output, with help of which it is capable of performing many kinds of batching operational mode. On its large-sized display it indicates the material flowing rate, as well as the quantity of batched material, residual material and total batched material.

It may have an analogue output of 4-20 mA for transmission of the material flowing rate, as well as the quantity of batched- and residual material, and/or an impulse output for transmission of the quantity of batched material.

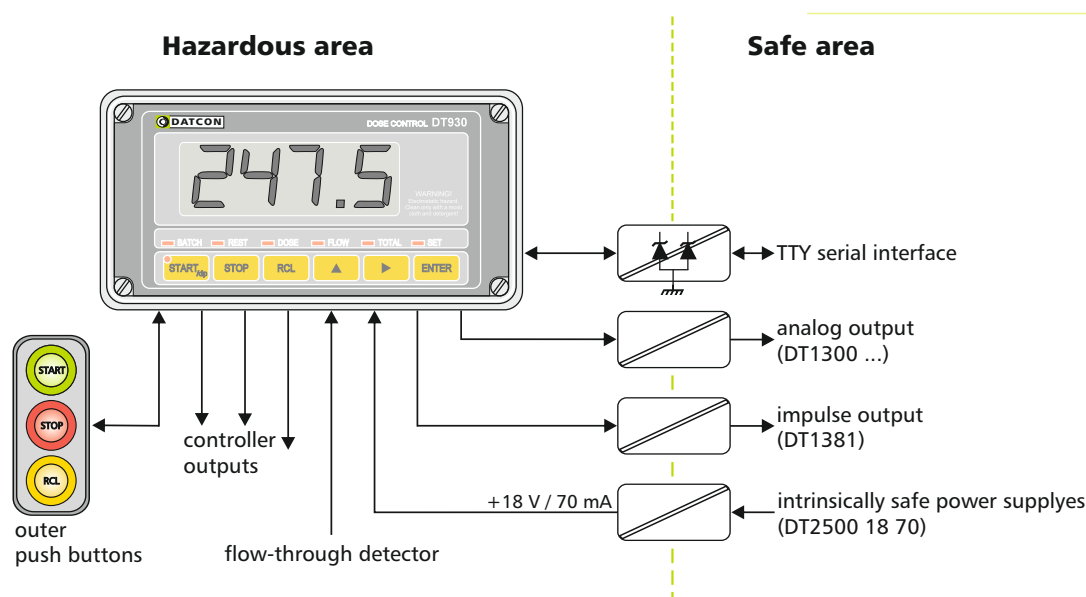
The outputs are scaleable.

The equipment is intrinsically safe it can also be operated in an potentially explosive areas.

On account of its case with protection ratio of IP 65 it can be installed near by the field of process, or it can be installed as panel-instrument.

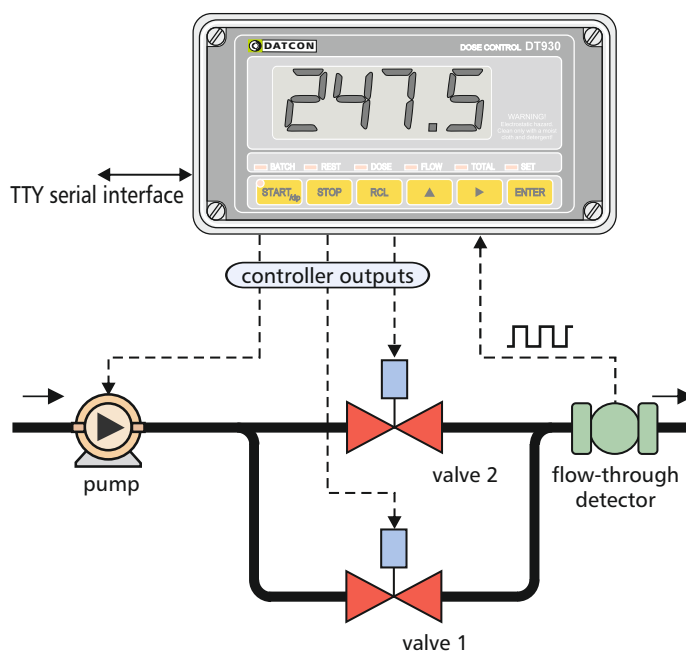
Remote operation with outer push buttons

The push buttons for start (START), stop (STOP) and reload (RCL) can be led through and also be installed farther from the equipment, consequently the equipment can be protected against possible rough impact and push buttons can be placed at the most appropriate location for the operator.



Installation, remote operation with communication

The DT930 Dose Control Units can be connected to PLC, process control computer, via serial interface. The interface are galvanically isolated and suitable for bus system connecting of more equipment. The communication protocol Modbus provides an effective information exchange between the DT930 and the computer, PLC. Batching parameters can be downloaded, the batching process can be started and stopped, furthermore measuring results and error messages can be queried. The equipment knows both the protocol Modbus RTU and the protocol Modbus ASCII. A programme, running on PC, for testing the communication is provided by the manufacturer.



Measuring flow rate, as well as the quantity of batched material, residual material and total batched material

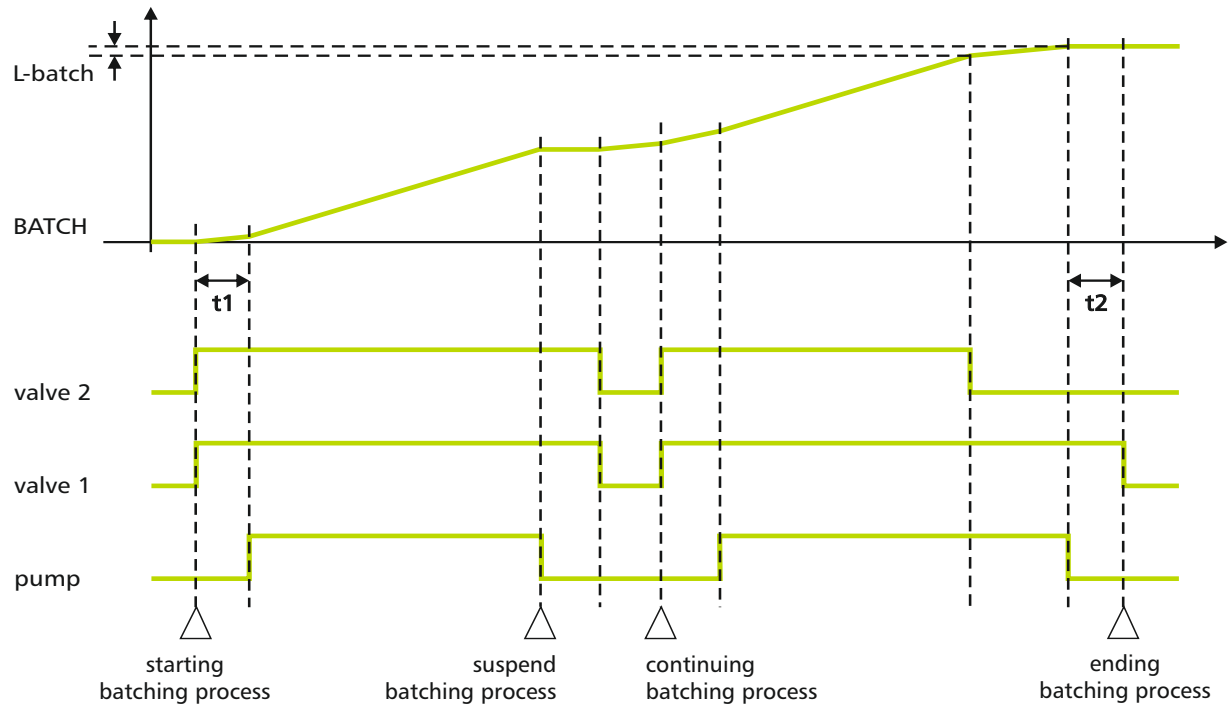
The DT930 measures the following parameters with , 4 or 6 digit resolution:

- **flow rate**
- **quantity of batched material**
- **quantity of residual material**
- **quantity of total batched material**

On the front panel LED indicators signalize which parameter can be viewed on the display.

In case of measuring flow rate averaging can also be applied, the averaging parameter can be adjusted.

Batching parameters can be adjusted on the front panel or, in remote controlled operating mode, through serial interface. Parameter adjustments are protected by password, they are preserved in out-of-work condition.



2 valve regulating- and 1 pump regulating output, fine batching, automatic batch correction

Depending on the batching task and conditions the equipment DT930 can be applied in several ways.

One- or two valve operating method, pump controlled- or without pump operating method.

During two-valve operating method quick and accurate batching can be performed: the valve with high delivery value closes before the end of batching and the batching process is completed through the valve with low delivery value.

After stopping the batching the automatic batching correction measures the difference between the batch adjusted and the batch measured, and corrects it during the next batching.

The DT930 has a valve protection if during batching process the material flow is stopped due to any cause, then this protection suspends batching, closes valves and switches the pump off. After trouble shooting the batching can be completed.

Flow-through detectors

Almost all of flow-through detectors having impulse output can be connected to the input of DT930:

- **contact**
- **NAMUR** (line fault- and line break detection)

The parameter of the flow-through detector (impulse / quantity) and the time dimension of the flow rate (sec, min, h) can be adjusted on the equipment.

Intrinsical safety data:

Certification: BKI 15 ATEX 0036 X
 Protection marking:  II 2G Ex ia IIC T4 Gb (-20 °C < Ta < +60 °C)

Safety data pertaining to intrinsical safety:

	Uo [V]	Io [mA]	Po [mW]	Co [uF]	Lo [mH]	Ui [V]	Ii [mA]	Pi [W]	Ci [uF]	Li [mH]
Power supply:	--	--	--	--	--	22.4	91	2.1	0	0.73
NAMUR input:	8.61	8.72	37.5	5	100	--	--	--	--	--
Digital outputs:	5	1.35	1.6	0	0	30	35	0.2	0	0
Analogue outputs:	8.61	49.7	107	5	10	--	--	--	--	--
Outer push-buttons:	5	5.2	6.4	5	100	--	--	--	--	--
TTY serial interface:	--	--	--	--	--	26	70	0.38	0	0

Input parameters:

Digital inputs:
 Input: for the connection of NAMUR (DIN 19234) / contact / switching transistor
 No-load voltage / inner resistance: 8.2 V / 1 kohm
 Frequency range: 1 mHz-500 Hz

Outer push-buttons:

Input: for the connection of outer push-buttons
 No-load voltage / inner resistance: 5 V / 1 kohm
 Resistance of closed / open contacts: 1 kohm (max.) / 150 kohm (min.)

Output parameters:

Analogue output:

Output signal: DC current
 Range: 4-20 mA
 Overdrive: 10%
 Overvoltage protection: 8.6 V (limiter)
 Overcurrent protection: 50 mA (limiter)
 Error of the output signal: 0.5% (max.)
 Temperature-coefficient: 50 ppm / °C (typically)
 Supply-voltage effect: practically zero
 Loading effect: practically zero

Digital outputs:

Output: 4 passive switching transistor
 Load rating: 30 V, 35 mA, 200 mW

Communication interface:

Interface type: TTY serial (independent intrinsically safe circuit)
 Protocol: Modbus slave, RTU or ASCII, 9600 Baud (max.)

Display:

Display:	4 digit, 7 segments LCD with 25 mm character height	6 digit, 7 segments LCD with 17.8 mm character height
Display range:	0.000-9999	0.00000-999999
Accuracy:	±1 digit	±3 digit

Power supply:

Supply voltage: 18 VDC (intrinsically safe)
 Supply current: 70 mA
 Consumption: 1.4 W (max.)

Ambient conditions:

Operating temperature range: -20 - +60 °C
 Relative humidity: 90% (max., non-condensing)
 Place of installation: potentially explosive area

Electromagnetic compatibility (EMC)

accordance with the standard EN 61326-1:2013:

Immunity: -A- criterion
 Noise emission: -A- class

General data:

Housing: polycarbonate box; it is installable also as a panel-instrument
 Connection: IP 65 cable entry
 screw-fixed type connections
 Connection cable: 0.25-1.5 mm²
 Dimensions / weight: 167 x 87 x 95 mm (width x height x depth) / 0.8 kg
 Protection: IP 65

Detailed information see in operating instruction. The Manufacturer maintains the right to change the technical data!