

## MODEL 424

### FEATURES

- Displays Batch Total, Preset Quantity, Flow Rate, and Accumulated Total
- Software Control of Flow Input Type and Output Voltage
- Overrun Compensation
- Remote Operation
- No Flow Alarm
- Custom Headers for Ticket Printing
- Universal Mains Input Voltage
- Dual Relay Outputs
- Optional 4-20mA Output
- RS485 & RS232 Output
- Adjustable Backlight
- Green, Red and Orange LED Status Lamps
- Tactile Keypad for Improved Operator Interaction



## Batch Controller



The 424 Batch Controller is suited to flow applications where precise measurement and control of batch quantities is required. Batch total, flow rate, accumulated total and preset value can all be displayed in engineering units on the large LCD display.

The 424 will interface to most flowmeters generating pulse or frequency outputs.



# Field Mounting Batch Controller

PROVEN IN THOUSANDS OF FIELD INSTALLATIONS  
THROUGHOUT THE WORLD.

The 424 is a high accuracy Batch Controller designed to operate with digital output flowmeters. Having an IP65 weatherproof fascia, new tactile keyboard and various mounting options, the 424 is perfect for the most arduous of installations.



## Models Available

### Model 424.\_0

Frequency input version with an input circuit capable of accepting mV signals from coils, 2-wire proximity sensors, reed switch inputs and most other pulse type signals.

### Model 424.\_1

Adds 4-20mA output capability to the controller.

## Batch Features

### Automatic Overrun Compensation

Based on previous batches, the 424 will automatically compensate for any overrun which may be caused by slow closing valves.

### Batch Limit

A maximum batch quantity can be programmed during set-up, so that the operator cannot enter a batch size that exceeds this limit.

### Signal Time-out

If the flow signal cuts out midway through a batch, e.g. flowmeter failure, the output relays are de-energised and an alarm signalled via an open collector output.

### Remote Start/Stop

Remote push-button switches can be connected to the rear terminal strip, to start and stop batches.

### Auto Restart

The 424 can be programmed to automatically restart the batch after a preset time delay.

### Count Up/Down

The instrument can be programmed to count up from zero, or to count down from the batch quantity.

### End of Batch

An 'End of Batch' signal is provided via an open collector transistor output

## Operation

Four key switches on the front fascia enable the batch quantity to be set, and batch operations to be started, stopped or reset.

To set a batch quantity, the **BATCH SET** key is pressed, and then the **►** and **▲** keys can be used to change and increment digits. Once set, the **BATCH SET** key is again pressed to return to **RUN** mode.

Keypad operations are straight forward and four LED's indicate the operational status at all times.

In **RUN** mode, the **DISPLAY** key can be used to display flow rate, batch preset and accumulated total.

The unique four key function simplifies operation, making the instrument suited to use by operators with minimal training.

## Versatile Performance Options

The instrument will operate from 12 to 28Vdc or from a universal AC input.

The fascia is fully watertight to IP65 (Nema 4X) and is resistant to most chemicals.

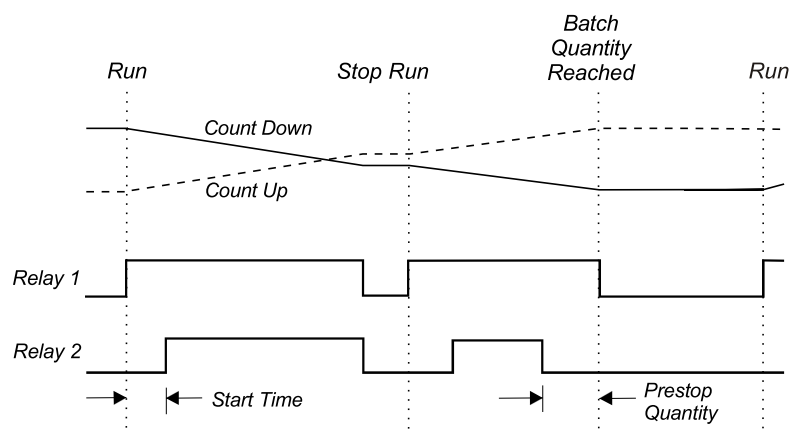
The standard instrument is supplied as panel mount. Field enclosures and explosion proof enclosures are optionally available.

## One or Two Stage Valve Control

Two output relays provide control for single or dual stage valve operation.

The first relay will energise at the start of the batch, and de-energise when the batch is complete.

The second relay can be programmed to energise at a set time after the start, and to de-energise at a set quantity prior to completion of the batch. This feature enables a slow startup and slow shutdown of the flow.



Dual Relay Outputs



### Computer/Printer Interface

An RS232 and RS485 output is available for interfacing to computers and printers. The interface allows the Batch Controller to be fully controlled from a computer via an ASCII protocol.

Software drivers are included for a number of printers and can print a ticket with time and date, a sequential delivery/batch number, and the batch and accumulated totals. An optional header for the ticket can also be printed (factory configured).



## SPECIFICATIONS

### General

**Display:** 6 digit 0.7" (17.8mm) high LCD

**Display Update Rate:** 0.25s

**Data Retention:** All set-up parameters and totals are stored in a non-volatile memory with 10 years retention

**Pulse Output:** Open collector output with a 1/10/100ms pulse produced on each increment of the accumulated total.

Max. Output: 499 Hz @ 1ms

Max Current: 100mA

**Transducer Supply:** 8-24Vdc software adjustable, 50mA maximum

#### Relays:

Max. Power: 1250 VA

Max Voltage: 250Vac, 30Vdc

Max Current: 5 Amps

#### Power Requirements:

DC Supply: 12-28.5Vdc 200mA typical current

AC Supply: AC mains universal 100-240V input

### Frequency Input

#### Frequency Range:

Minimum: 0.25Hz on Rate, 0Hz on Total

Maximum: 10kHz Pulse, 2.5kHz NPS & Coil

**Scaling Range:** 0.1000 to 50,000

### Outputs

#### 4-20mA Output Option

**Type:** Fully isolated output corresponding to the displayed flow rate, suitable for driving a recorder or controller

**Resolution:** 12 bits

**Accuracy:** <0.1%

**Maximum Load:** 390 ohms from internal power, 950 ohms if externally powered

#### Communications Output

**Type:** RS232, or RS485 interface is available for driving printers and communicating with computers

**Baud Rate:** 300 to 115200

**Parity:** None, odd and even

**Protocols:** A number of protocols are included to interface to printers and computers

**Time/Date:** A real-time clock provides time/date printing on tickets

**ID Code:** For multi-point communications, a unique address can be programmed

### Physical

**Operating Temperature:** 0 to 55°C, 32 to 131°F (-20 to +60°C, -4 to +140°F with Conformal Coating)

#### Enclosure

**Case:** Aluminium

**Rear Connection:** Terminal block

**Front Panel Material:** Polycarbonate

**Dimensions:** 144mm (5.7") W x 72mm (2.9") H x 179mm (7") D

#### Protection:

Field Enclosures: IP65 (Nema 4X)

Enclosures: ATEX, IECEx, CSA approved enclosures are available for hazardous areas

#### Mounting Options

**Panel:** Supplied with mounting brackets and panel mount gasket. Terminals accessible from rear. (Note: IP65 fascia integrity only maintained when correctly panel mounted using supplied gasket).

**Enclosures:** Field mount and explosion proof enclosures available

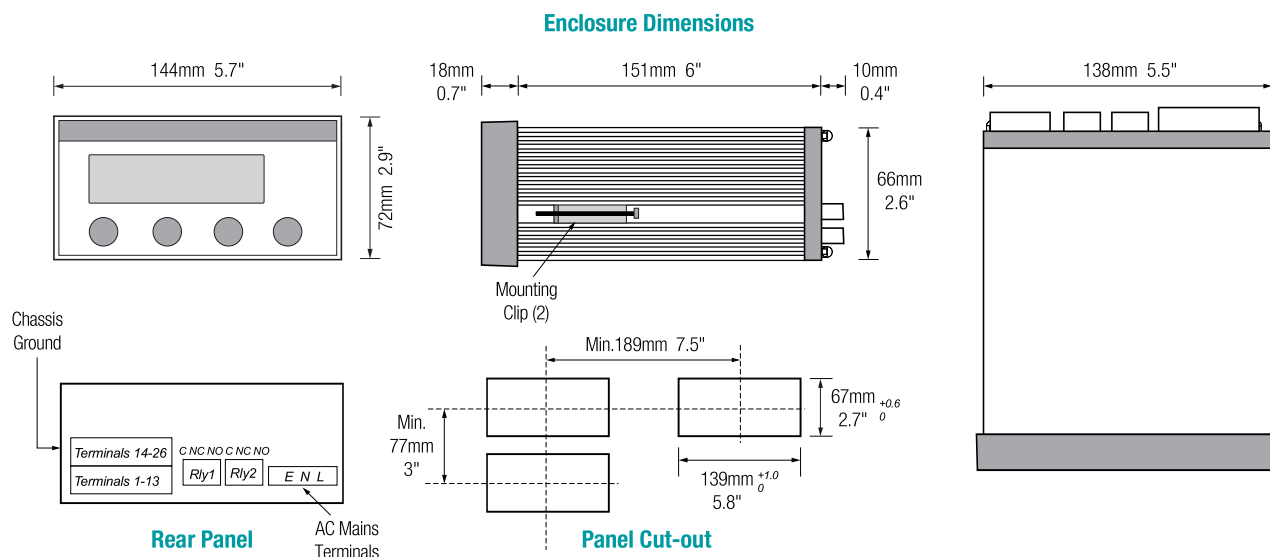
### Approvals

**Safety:** EN61010:2010, CSA

**EMC:** EN61326:2013

**Important:** Specifications are subject to change without notice.

## DIMENSIONS



## TERMINAL DESCRIPTIONS

Inputs & Outputs			
No.		No.	
1	Flow Common (–)	14	Calibration Link
2	Flow Signal Input (+)	15	Run Switch
3	+15V (option)	16	Display Switch
4	4-20mA Power Input (option)*	17	Batch Set Switch
5	I (+) (option)	18	Stop Switch
6	Either I (–) 0V Return (option)**	19	Switch Ground
7	Or I (–) –15V Return (option)***	20	CTS In
8	RS232 Signal Ground	21	RS232 Data In
9	RS485 (–)	22	RS232 Data Out
10	RS485 (+)	23	Pulse & Power Out Ground
11	Pulse Out	24	End of Batch / Pump Control
12	DC Power Input (12-28.5Vdc)	25	Flow Alarm
13	DC Ground	26	DC Power Out (8-24Vdc)

\* Link to 3 or ext PSU

\*\* Loads up to 390 ohms

\*\*\* Loads up to 950 ohms

Relays	
No.	
27	Relay 1 – Common
28	Relay 1 – Normally Closed
29	Relay 1 – Normally Open
30	Relay 2 – Common
31	Relay 2 – Normally Closed
32	Relay 2 – Normally Open

## PRODUCT CODES

When specifying please indicate model(s) required using the following:

Product Code, Mounting Types & Options			
<b>424</b>	•		<b>Batch Controller</b>
<b>Enclosure Mounting</b>	1		Panel Mounting
	2		Field Mount Enclosure
	3		Explosion Proof Enclosure
<b>4-20mA Output</b>		0 1	None 4-20mA Output
<b>Power Supply</b>		U D	Universal 110/240Vac 12-28Vdc Supply
<b>Special Options</b>		N C	No Option Conformal Coating

Typical Part Number: 424.21UC

## Instruments within the Contrec family:

**100 Series** – Accurate process instruments for field mounting applications

**200 Series** – Intrinsically safe, precise and reliable process instruments

**400 Series** – Rugged and dependable batch and flow control solutions

**505 Series** – Next generation flow instruments for a variety of applications

**515 Series** – Precise flow and batch control for more complex applications

**LC Series** – Robust load controllers for petroleum and chemical applications



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