

## Tek-Batch 7900B

NEMA 4X Large Display Batcher



# Quick Start Guide

## 1. Before you begin

This guide provides basic guidelines to assist you in quickly getting started.



Installation of the device must be carried out by trained, qualified specialists authorized to perform such work by the facility's owner operator. The specialist must have read and understood these Operating Instructions and must follow the instructions they contain.



When using the measuring device in hazardous areas, installation must comply with the corresponding national standards and regulations.

## 2. Unpack

Tek-Batch 7900B NEMA 4X Large Display Batcher

## 3. Dimensional Drawing

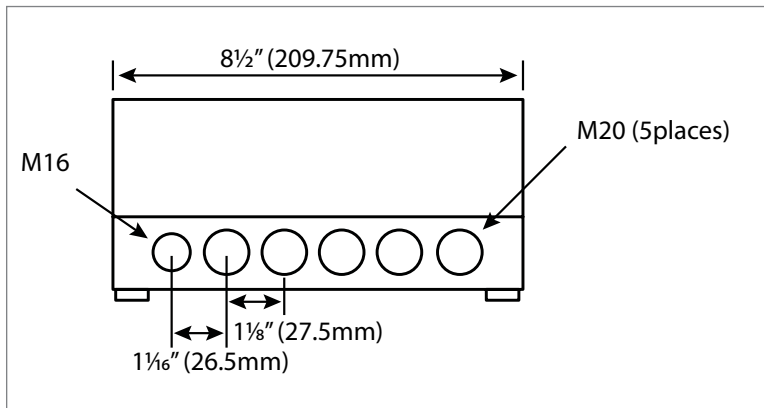


Fig 1: Bottom View of NEMA 4X Large Display Batcher

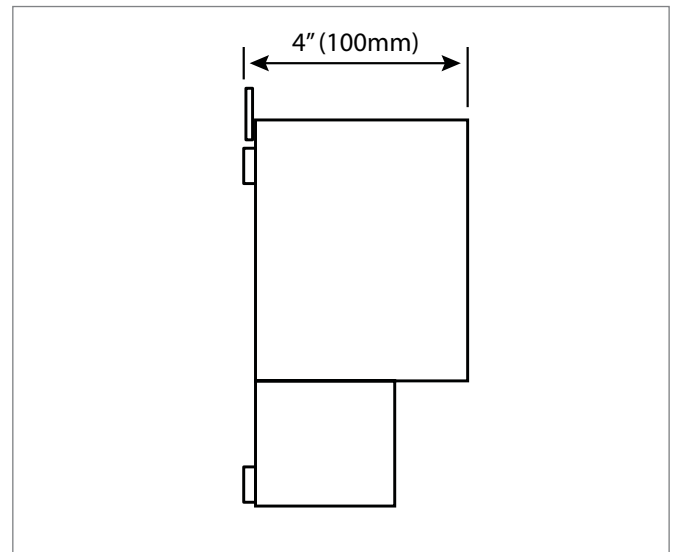


Fig 3: Side View of NEMA 4X Large Display Batcher

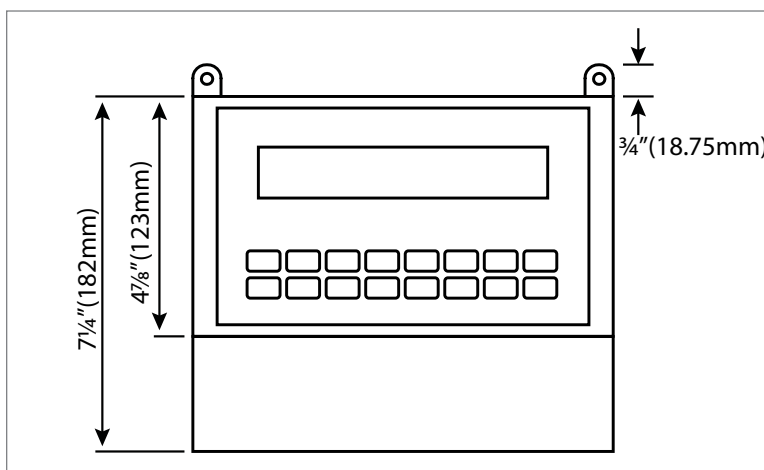


Fig 2: Front View of NEMA 4X Large Display Batcher

## 4. Display

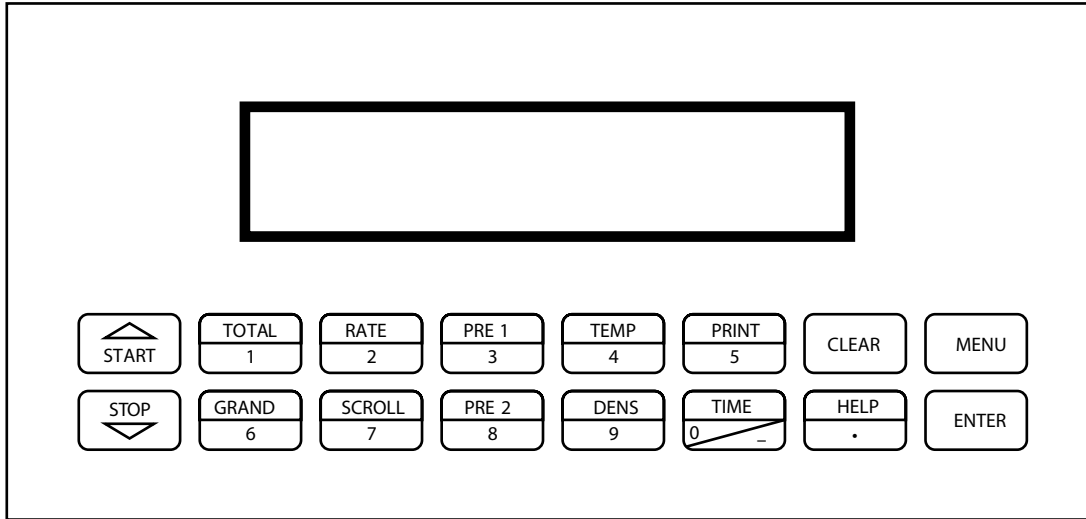


Fig 4: Display of NEMA 4X Large Display Batcher

### Key and its Function

Table 1: Display Key with its Function

Key	Function
HELP	On-line help is provided to assist the operator
Total	To clear the total
GRAND	To clear the grand total
PRE 1 & PRE 2	Used to view and/or change the preset setpoints
SCROLL	To setup a display list
PRINT	Used to print on demand
START	Start Batches
STOP	Stop Batches
MENU	Used to enter the Setup and Test modes
ENTER	To acknowledge and clear alarms

# Quick Start Guide

## 5. Power Supply

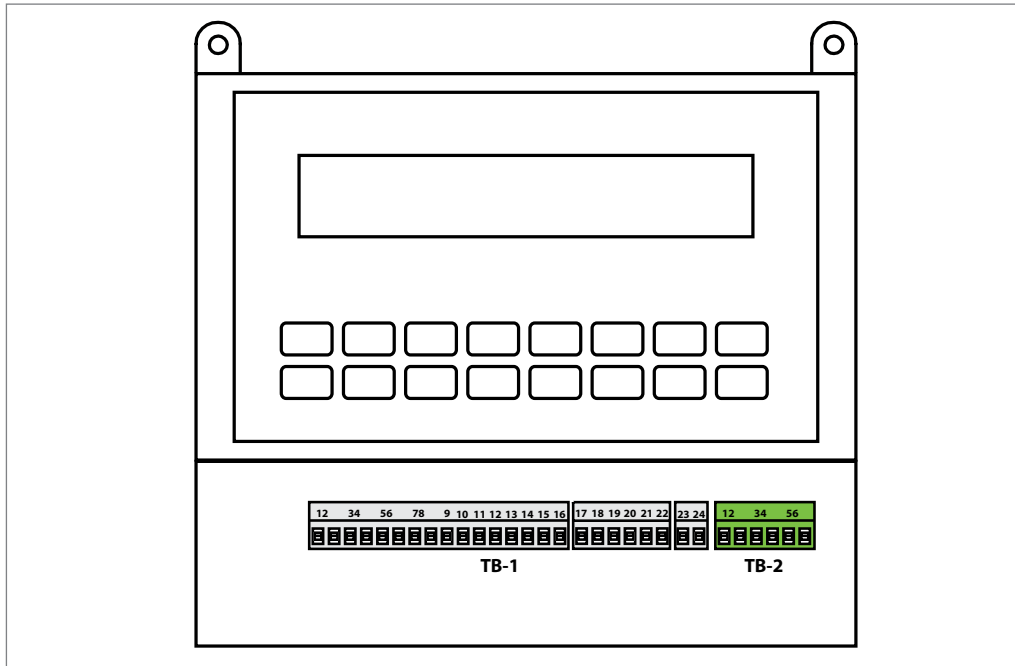


Fig 5: Pin Diagram of NEMA 4X Large Display Batcher

Table 2: Pin Description (TB-1)

Pin	Description	Pin	Description	
1	DC OUTPUT	16	ANALOG OUTPUT -	
2	PULSE IN 1 (Vin +)	17	NC	
3	PULSE IN 2 (lin +)	18	COM RLY 1	
4	COMMON	19	NO	
5	----- (Vin +)	20	NC	
6	RTD EXCIT +	21	COM RLY 2	
7	RTD SENS +	22	NO	
8	RTD SENS - (lin +)	23	AC LINE	DC +
9	CNTR IN 1	24	AC LINE	DC -
10	CNTR IN 2	25	NC	
11	CNTR IN 3	26	COM RLY 3	
12	COMMON	27	NO	
13	PULSE OUTPUT +	28	NC	
14	PULSE OUTPUT -	29	COM RLY 3	
15	ANALOG OUTPUT +	30	NO	

Table 3: Communication Port (TB-2)

RS 232		RS 485	
1	TX	4	TX/RC +
2	RX	5	TX/RC -
3	COM	6	GND 180REF

Note\*: \* Power Terminals 23 & 24 used for DC Input only when ordered with DC INPUT option

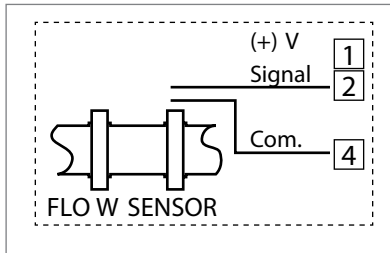


Fig 6: Optional Wiring for Flow Sensor with Preamp

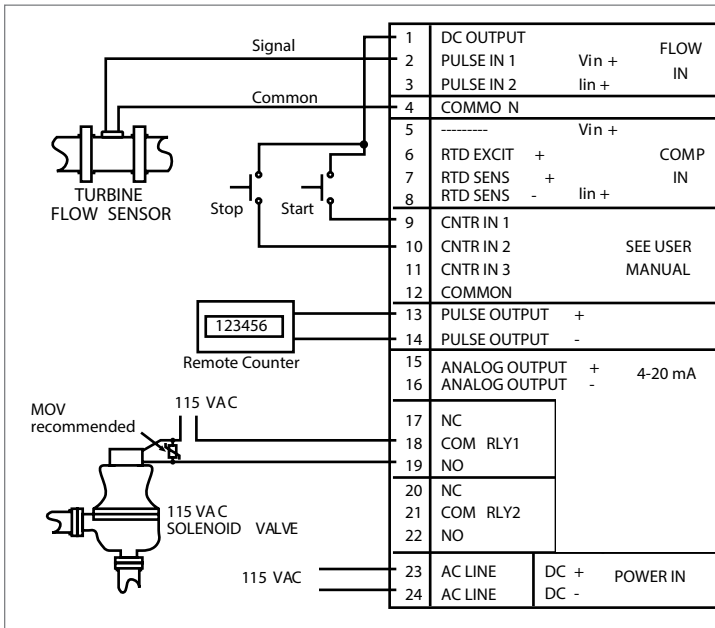


Fig 7: Typical Batcher Wiring

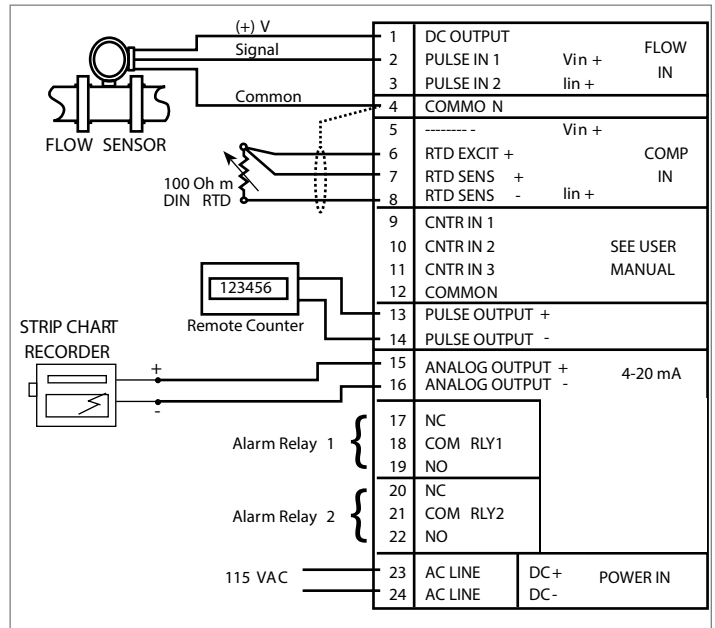


Fig 8: Typical Rate/Total Wiring

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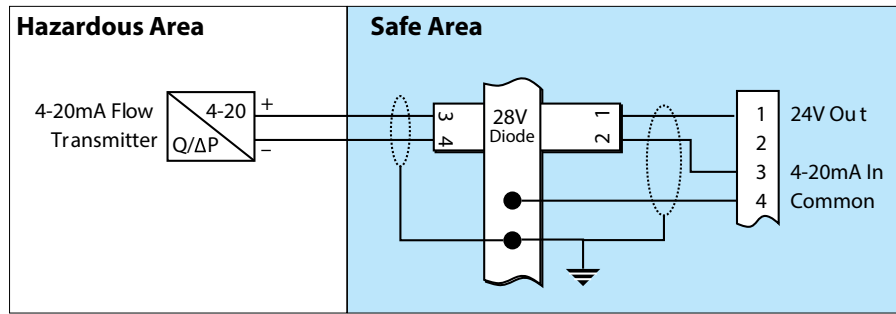


Fig 9: Wiring in Hazardous Area with Flow Input

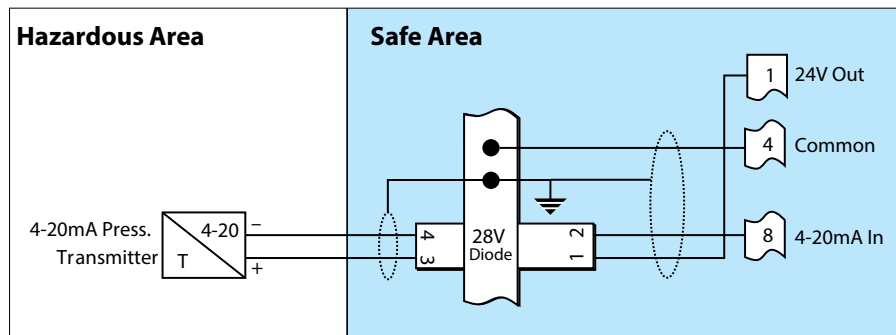


Fig 10: Wiring in Hazardous Area with Temperature Input (4 to 20mA Transmitter)

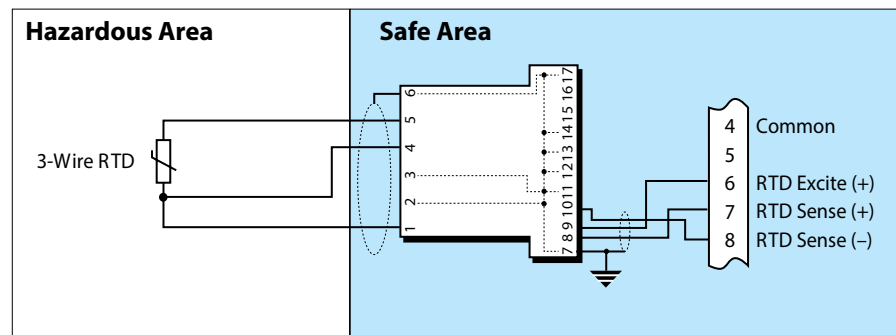


Fig 11: Wiring in Hazardous Area with Temperature Input (RTD)

## 6. Installation

### General Mounting

The TEK-BATCH 7900B NEMA 4X Large Display Batcher should be located in an area where, atmosphere is clean, dry, and shock and vibration free.

# 7. Menu Tree

## SETUP MENUS

### START HERE

#### SELECT EZ SETUP

INSTRUMENT TYPE	INSTRUMENT TYPE	SELECT PRESET TYPE	BATCH COUNT MODE	MAX. BATCH PRESET	BATCH OVERRUN COMP.	FLOW SIGNAL TIMEOUT	MAX. DRAIN TIME	SLOW START QUANTITY
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#### SELECT FLOW EQUATION

SELECT FLOW EQUATION
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#### SETUP INDICATORS

SETUP INDICATORS	TOTAL DESCRIPTOR	VOLUME UNITS	TOTAL DECIMAL PLACES	DENSITY DESCRIPTOR	MASS UNITS	DENSITY DECIMAL PLACES	RATE TIME BASE	RATE DESCRIPTOR	RATE DECIMAL PLACES	RATE AVERAGE FILTER	QUICK UPDATE %	TEMP DESCRIPTOR	TEMPERATURE SCALE	TEMPERATURE DECIMAL PLACES
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#### SETUP FLOW INPUT

EXCITATION VOLTAGE	FLOW INPUT TYPE	PULSE INPUT TYPE	PULSE TRIGGER TYPE	LOW PASS FILTER	INPUT TERMINATION	MAX WINDOW	K-FACTOR TYPE	AVERAGE KA-FACTOR	AVERAGE KB-FACTOR	CHANGE TABLE A	CHANGE TABLE B	LOW FLOW RATE ALARM	HIGH FLOW RATE ALARM
		ANALOG INPUT TYPE	VOLTAGE/CURRENT RANGE	LINEARIZATION TYPE	FLOW LOW SCALE	FLOW HIGH SCALE	CHANGE TABLE A	LOW FLOW CUTOFF	LOW FLOW RATE ALARM	HIGH FLOW RATE ALARM			

#### SETUP AUX INPUT

AUX INPUT TYPE	AUX SIGNAL TYPE	VOLTAGE/CURRENT RANGE	AUX LOW SCALE	AUX FULL SCALE	AUX. DEFAULT	AUX LOW ALARM	AUX HIGH ALARM	DENS EXTRACT METHOD
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#### SET FLUID PROPERTIES

REF. DENSITY	REF. TEMPERATURE	EXPANSION FACTOR	CALIBRATION DENSITY	VISCOSITY COEF. A	VISCOSITY COEF. B	H2O DENSITY AT 4DEGC
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#### SETUP PULSE OUTPUT

PULSE OUTPUT USAGE	PULSE WIDTH	PULSE VALUE
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These functions will only appear with appropriate settings in other functions.

#### SETUP ANALOG OUTPUT

ANALOG OUTPUT USAGE	ANALOG OUTPUT FLOW TYPE	ANALOG OUTPUT RANGE	ANALOG OUTPUT LOW SCALE	ANALOG OUTPUT FULL SCALE	ANALOG OUTPUT DAMPING
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#### SETUP RELAYS

SETUP RELAYS 1, 2, 3, 4	RELAY USAGE	RELAY DELAY	RELAY DURATION	RELAY MODE	RELAY SETPOINT	RELAY HYSTERESIS
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#### SETUP CONTROL INPUTS

SETUP CONTROL INPUTS 1, 2, 3	CONTROL INPUT 1 USAGE	CONTROL INPUT 2 USAGE	CONTROL INPUT 3 USAGE
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#### SETUP REAL TIME CLOCK

SETUP REAL TIME CLOCK	CLOCK TYPE	SELECT CLOCK AM/PM	TIME OF DAY	ENTER DATE
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#### SERIAL USAGE

SERIAL HARDWARE	DEVICE ID	BAUD RATE	PARITY	HANDSHAKE	DEVICE LINE FEED	MODEM CONTROL	MODEM AUTO ANSWER	CALL OUT DAY OF WEEK	CALL OUT TIME	CALL ON ERROR/ALARM	CALL OUT PHONE NUMBER	NUMBER OF REDIALS	HANGUP IF 2MIN. INACTIVE
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#### SETUP DATALOG/PRINT

SETUP DATALOG/PRINT	OUTPUT FORMAT	PAGE LENGTH	TOP MARGIN	DATALOG ONLY	PRINT TIME	PRINT INTERVAL	ENABLE PRINT KEY	PRINT END OF BATCH	CLEAR TOTAL IF PRINT	PRINT LIST ITEMS
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#### ADMINISTRATIVE SETUP

OPERATOR PASSWORD	TAG NUMBER	SUPERVISOR PASSWORD	SOFTWARE VERSION	PRODUCT ORDER CODE	UNIT SERIAL NUMBER	SENSOR SERIAL NUMBER
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#### SETUP NETWORK CARD

SELECT NETWORK PROTOCOL	NETWORK DEVICE ID	BAUD RATE	PARITY
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## 8. Troubleshooting

### Response of Batcher on Error or Alarm

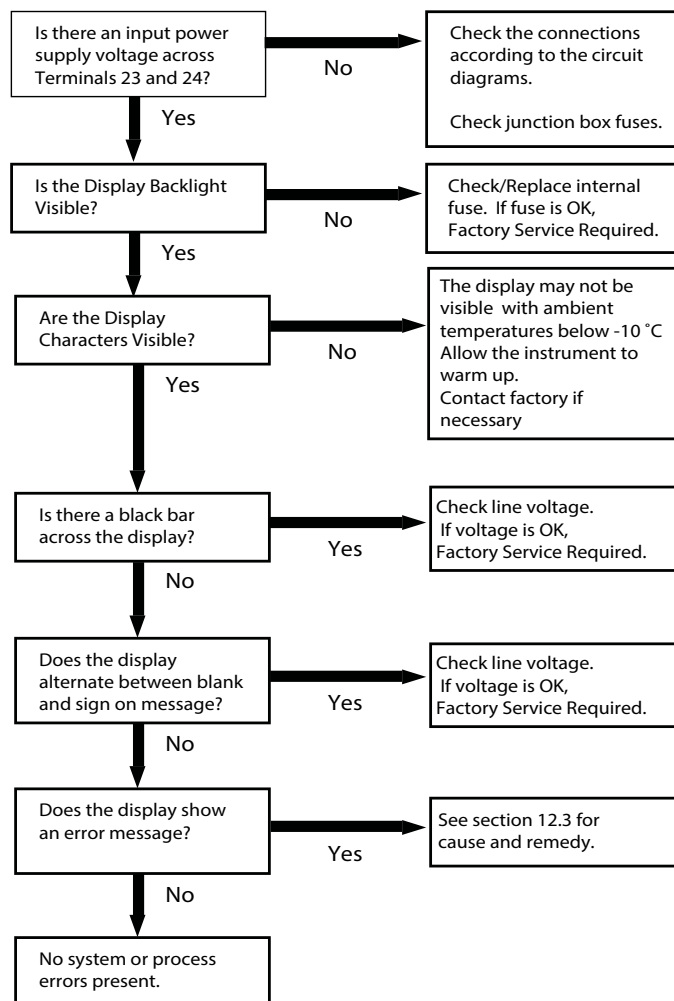
Error and warning indications occur during operation are indicated in the RUN mode alternately with the measured values. The Batcher has three types of error as shown in table 4:

Table 4: Type of Error with its Description

Type of Error	Description
Sensor/Process Alarms	Errors detected due to sensor failure or process alarm conditions
Self-Test Errors	Errors detected during self-test
System Alarms	Errors detected due to system failure

Note: A historical error alarm log is available in the "Test Mode".

### Diagnosis Flow Chart and Troubleshooting





## Error and Warning Messages

Table 5: Error and Warning Messages

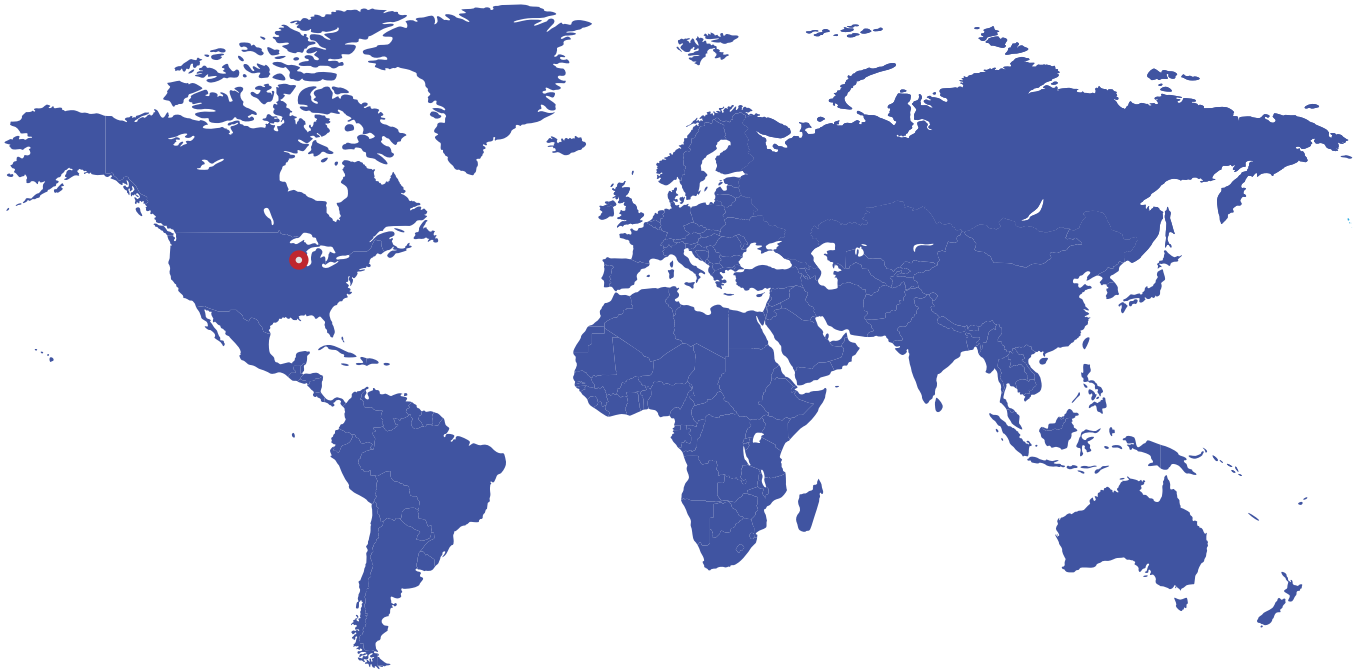
Error or Warning Messages	Cause	Remedy
<b>Totalizer Rollover</b>	Displayed when totalizer rolls over	Acknowledge Rollover, Remedy not required
<b>AUX Input Too Low</b>	4-20 mA Input current at aux input smaller than 3.5 mA: <ul style="list-style-type: none"> <li>Faulty Wiring</li> <li>Transmitter not set to "4-20 mA"</li> <li>Transmitter defective</li> </ul>	<ul style="list-style-type: none"> <li>Check wiring</li> <li>Check function of sensor</li> </ul>
<b>RTD Out of Range</b>	Input current at RTD input too low: <ul style="list-style-type: none"> <li>Faulty wiring</li> <li>RTD defective</li> </ul>	<ul style="list-style-type: none"> <li>Check wiring</li> <li>Check function of RTD sensor</li> </ul>
<b>Rate Overflow Error</b>	Pulse counter overflowed. The totalizer may have lost counts.	<ul style="list-style-type: none"> <li>Report error to factory</li> <li>Check application conditions</li> <li>Check wiring</li> </ul>
<b>Pulse Out Overflow</b>	Calculated pulse frequency too large: <ul style="list-style-type: none"> <li>Pulse width setting too long</li> <li>Larger pulse scaler needed</li> </ul>	<ul style="list-style-type: none"> <li>Adjust pulse value</li> <li>Adjust pulse width</li> <li>Check process conditions</li> </ul>
<b>Flow Rate Alarm Low</b> <b>Flow Rate Alarm High</b> <b>Temp Alarm Low</b> <b>Temp Alarm High</b> <b>Density Alarm Low</b> <b>Density Alarm High</b>	Limit value exceeded	<ul style="list-style-type: none"> <li>Check application if necessary</li> <li>Check limit value</li> <li>Adjust the limit value if required</li> </ul>
<b>Batch Overrun Alarm</b>	Batch size exceeded by more than set limit	<ul style="list-style-type: none"> <li>Check valves in system for proper operation and/or leaks</li> <li>Check limit value</li> <li>Adjust the limit value if required</li> </ul>
<b>Modem Not Present</b>	The setup expects modem usage and a modem is not responding.	<ul style="list-style-type: none"> <li>Check setup for proper baud rate, parity, etc.</li> <li>Check modem connection and cycle power to Batcher</li> <li>Replace modem</li> </ul>

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<b>Software Error Reset</b>	Watchdog Error like Transient	<ul style="list-style-type: none"> <li>• Check data in unit. Totalizer may have inaccuracies</li> <li>• Investigate brownout cause</li> </ul>
<b>Flow Input Too High</b>	<p>Analog input signal of the flow input exceeded by more than 3%:</p> <ul style="list-style-type: none"> <li>• Sensor over ranged</li> <li>• Incorrect full scale setting of flow meter</li> <li>• Function error in transmitter or faulty wiring</li> </ul>	<ul style="list-style-type: none"> <li>• Check analog signal range</li> <li>• Check the application conditions</li> <li>• Check wiring</li> </ul>
<b>AUX Input Too High</b>	<p>Analog input signal of the auxiliary input exceeded by more than 3%:</p> <ul style="list-style-type: none"> <li>• Sensor over ranged</li> <li>• Incorrect full scale setting of transmitter</li> <li>• Function error in transmitter or faulty wiring</li> </ul>	<ul style="list-style-type: none"> <li>• Check analog signal range</li> <li>• Check the application conditions</li> <li>• Check wiring</li> </ul>
<b>Flow Input Too Low</b>	<p>Analog input signal of the flow input fell below the low scale range by more than 3% of full scale value:</p> <ul style="list-style-type: none"> <li>• Flow meter not set to 4-20 mA</li> <li>• Function error in transmitter or faulty wiring</li> </ul>	<ul style="list-style-type: none"> <li>• Check wiring</li> <li>• Check calibration of flow meter</li> <li>• Check function of flow meter</li> </ul>
<b>Battery Low Warning</b>	Battery voltage too low	<ul style="list-style-type: none"> <li>• Replace Battery</li> <li>• Consult Factory for service information</li> </ul>
<b>A To D Not Converting</b>	Fault in analog/digital converter	<ul style="list-style-type: none"> <li>• Unit may self-correct, Press ENTER to acknowledge &amp; clear alarm</li> <li>• If error reasserts, factory service is required</li> </ul>
<b>Time Clock Error</b>	The correct time/date is no longer shown	<ul style="list-style-type: none"> <li>• Re-enter time and date</li> <li>• If error occurs again contact factory</li> </ul>
<b>Cal Checksum Error</b>	Calibration constants have been corrupted	Report error to factory
<b>Setup Checksum Error</b>	The unit's setup has been corrupted	Report error to factory



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