The Signet 9900-1BC Batch Controller system provides control capability and process fine-tuning in a familiar package. The programming interface uses a four-button keypad and an intuitive menu for adjusting a batching system to the best performance possible. Choose between simple or advanced modes. In simple mode, relay outputs can be used for batching, external counter, missing signal alarm and 4 to 20 mA output can be used to indicate batch status. In advanced mode relays can also be used for end of batch pulse, two-stage shutdown, overrun alarm, high flow detection, total volume or source volume alarm.

New to Generation IV, Automatic Overrun Compensation feature. The 9900-1BC can measure excess flow after a batch stops and use it to reduce flow to the next batch by de-energizing the batch relay early, thus closing the flow control valve, and eliminating batch overrun.

Designed for a variety of batch applications, the 9900-1BC can save up to 10 batch sizes for batching or blending a variety of liquid volumes. Customize batch names for easy distinction between batches. One K-Factor can be used for all batches, or use a different K-Factor for each batch for when different liquids are batched. User can choose to be prompted prior to starting a batch with a Yes/No or with a password to prevent inadvertently starting a batch.

The 9900-1BC operates on 10.8 to 35.2 VDC, regulated. Connect a remote start or stop switch for remote batch control. Use the end-of-batch pulse to trigger the next step in the process.

Features
- Store up to 10 batch sizes for batching or blending a variety of liquid volumes
- Customize 10 batch names for easy distinction between batches
- Modular Design - Can be purchased as a complete system or add a Batch Module and Relay Module to an existing 9900 Transmitter (Generation II or later)
- New! Automatic Overrun Compensation can eliminate excess flow by automatically reducing the next batch size by the overrun value of previous batch.
- Remote control wiring with start, stop & resume terminals for remote batch control
- 3 programmable relays, one open collector, two dry-contact relays
- Two-stage control to prevent overfilling or to minimize water hammer
- Confirmation START/RESUME – Can prompt user prior to starting each batch with a Yes/No or password to prevent inadvertently starting a batch
- Enter 10 different K-Factors - one per batch for when different liquids are batched

Applications
- Batch Process
- Filter Backwash Initiation
- Chemical Addition
- Canning and Bottling
- Tank Filling
- Bulk Storage Transfer
- Chemical Processing
- Food and Beverage
- Life Sciences
- Water Treatment
### Specifications

#### General
- **Input Channels**: One
- **Accuracy**: ±0.2%
- **Terminal Blocks**: Pluggable screw type 16 AWG max wire gauge

#### Enclosure and Display
- **Case Material**: PBT
- **Window**: Shatter-Resistant Glass
- **Keypad**: 4 buttons, injection-molded silicone rubber seal
- **Display**: Backlit, 7- and 14-segment
- **Indicators**: Dial-type digital bar graph
- **Update Rate**: 1 s
- **LCD Contrast**: 5 settings
- **Enclosure size and color**: ¼ DIN
- **Mounting**: Panel ¼ DIN, ribbed on four sides for use with mounting bracket for panel mount installations; Wall Large enclosure (sold as an accessory) that encases the panel mount transmitter

#### Environmental Requirements
- **Ambient Operating Temperature**:
  - Backlit LCD: -10 °C to 70 °C; 14 °F to 158 °F
  - Storage Temperature: -15 °C to 70 °C; 5 °F to 158 °F
  - Operating Temperature: -10 °C to 70 °C; 14 °F to 158 °F
- **Relative Humidity**: 0 to 100% condensing for field and panel mount (front only); 0 to 95% non-condensing for panel mount back side
- **Maximum Altitude**: 4,000 m (13,123 ft)
- **Enclosure Rating**: Designed to meet NEMA 4X/IP65 (front face only)

#### Input Power
- **DC**: 24 VDC input; range: 10.8 to 35.2 VDC regulated
- **Overvoltage Protection**: 48 Volt transient protection device
- **Current Limiting**: For circuit protection
- **Reverse-Voltage Protection**: Protected

#### Input Specifications
- **Digital [S^3L]**: Serial ASCII, TTL level, 9600 bps
- **Accuracy**: Determined by sensor
- **Frequency**:
  - Sensitivity: 80 mV @ 5 Hz, mV threshold gradually increasing with frequency
  - Range: 0.5 Hz to 1500 Hz @ TTL level input for open collector
  - Accuracy: ± 0.5% of reading max error @ 25 °C
  - Repeatability: ± 0.2% of reading
  - Resolution: 1 μs
  - Update Rate: 150 ms nominal

#### Power to Sensors
- **Voltage**: +4.9 to 5.5 VDC @ 25 °C, regulated
- **Current**: 20 mA max.
- **Short Circuit**: Protected

#### Power Supply
- **Reverse Polarity**: Protected
## Specifications continued

### Output Specifications

#### Relay Specifications

<table>
<thead>
<tr>
<th></th>
<th>Dry-Contact Relays (2)</th>
<th>Open Collector (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type</strong></td>
<td>SPDT</td>
<td>NPN</td>
</tr>
<tr>
<td><strong>Form</strong></td>
<td>C</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Max. Voltage Rating</strong></td>
<td>30 VDC or 250 VAC</td>
<td>30 VDC</td>
</tr>
<tr>
<td><strong>Max. Current Rating</strong></td>
<td>5 A</td>
<td>50 mA</td>
</tr>
</tbody>
</table>

**Hysteresis**: Adjustable (absolute in Engineering Units)

**Latch**: Reset in test screen or view mode

**Delay**: 9999.9 seconds (maximum)

**Test Mode**: Set On or Off

**Maximum Pulse Rate**: 400 pulses/minute

**Volumetric Pulse Width**: 0.1 s to 3200 s

### 4 to 20 mA Current Loop Output

- ANSI-ISA 50.00.01 Class H (passive: external power required)

#### Output 1

- **Span**: 3.8 to 21 mA
- **Zero**: 4.0 mA factory set; user programmable from 3.8 to 4.2 mA
- **Full Scale**: 20.00 mA factory set; user programmable 19.0 to 21.0 mA
- **Accuracy**: ± 32 μA max. error @ 25 °C @ 24 VDC
- **Resolution**: 6 μA or better
- **Temperature Drift**: ± 1 μA per °C
- **Power Supply Rejection**: ± 1 μA per V
- **Isolation**: Low voltage (< 48 VAC/DC)
- **Voltage**: 10.8 to 35.2 VDC
- **Max. Impedance**: 250 Ω @ 12 VDC, 500 Ω @ 18 VDC, 750 Ω @ 24 VDC
- **Update Rate**: 150 ms nominal
- **Short circuit and reverse polarity protected**
- **Adjustable span**: Reversible
- **Error Condition**: Selectable error condition 3.6 or 22 mA or NONE
- **Actual update rate determined by sensor type**
- **Test Mode**: Increment to desired current [range 3.6 to 21.00 mA]

### Shipping Weights

<table>
<thead>
<tr>
<th></th>
<th>Base Unit</th>
<th>Batch Module</th>
<th>Relay Module</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>0.63 kg</strong></td>
<td>1.38 lb</td>
<td>0.16 kg</td>
<td>0.35 lb</td>
</tr>
</tbody>
</table>

### Standards and Approvals

- CE, UL, CUL, FCC
- RoHS compliant, China RoHS
- Manufactured under ISO 9001 for Quality, ISO 14001 for Environmental Management and OHSAS 18001 for Occupational Health and Safety

### Dimensions

- **Width**: 99.06 mm (3.90 in.)
- **Depth**: 91.44 mm (3.60 in.)
- **Height**: 29.97 mm (1.18 in.)

- **Width**: 99.06 mm (3.90 in.)
- **Depth**: 8.13 mm (0.32 in.)
- **Height**: 54.10 mm (2.13 in.)
### Accessories and Replacement Parts

<table>
<thead>
<tr>
<th>Mfr. Part No.</th>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>6682-1102</td>
<td>159 001 710</td>
<td>DC Power Plug, 2 Pos, Right Angle</td>
</tr>
<tr>
<td>6682-1103</td>
<td>159 001 711</td>
<td>Relay Module Plug, 3 Pos, Right Angle</td>
</tr>
<tr>
<td>6682-1104</td>
<td>159 001 712</td>
<td>Loop Power Plug, 4 Pos, Right Angle</td>
</tr>
<tr>
<td>6682-3004</td>
<td>159 001 725</td>
<td>Freq/S3L Plug, 4 Pos, In-Line</td>
</tr>
<tr>
<td>6682-3104</td>
<td>159 001 713</td>
<td>Freq/S3L Plug, 4 Pos, Right Angle</td>
</tr>
<tr>
<td>7310-1024</td>
<td>159 873 004</td>
<td>24 VDC Power Supply, 10W, 0.42 A</td>
</tr>
<tr>
<td>7310-2024</td>
<td>159 873 005</td>
<td>24 VDC Power Supply, 24W, 1.0 A</td>
</tr>
<tr>
<td>7310-4024</td>
<td>159 873 006</td>
<td>24 VDC Power Supply, 40W, 1.7 A</td>
</tr>
<tr>
<td>7310-6024</td>
<td>159 873 007</td>
<td>24 VDC Power Supply, 60W, 2.5 A</td>
</tr>
<tr>
<td>7310-7024</td>
<td>159 873 008</td>
<td>24 VDC Power Supply, 96W, 4.0 A</td>
</tr>
<tr>
<td>3-9900.390</td>
<td>159 001 714</td>
<td>Standard Connector Kit, Right Angle</td>
</tr>
<tr>
<td>3-9900.391</td>
<td>159 001 715</td>
<td>Connector Kit, In-Line</td>
</tr>
<tr>
<td>3-9900.392</td>
<td>159 001 700</td>
<td>Wall Mount Accessory</td>
</tr>
<tr>
<td>3-9000.392-1</td>
<td>159 000 839</td>
<td>Liquid Tight Connector Kit, NPT (1 pc.)</td>
</tr>
</tbody>
</table>

### Ordering Information

<table>
<thead>
<tr>
<th>Mfr. Part No.</th>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-9900-1BC</td>
<td>159 001 770</td>
<td>Batch Controller System</td>
</tr>
<tr>
<td>3-9900-1P</td>
<td>159 001 695</td>
<td>9900 Panel Mount Transmitter</td>
</tr>
<tr>
<td>3-9900.393</td>
<td>159 001 698</td>
<td>Relay Module - 2 DCR (dry-contact relays)</td>
</tr>
<tr>
<td>3-9900.397</td>
<td>159 310 163</td>
<td>Batch Module</td>
</tr>
</tbody>
</table>

### Panel Mount - Tank, Wall

- **Signet Model 9900-1BC Batch Controller System**
  - (Includes mounting bracket and panel gasket)
- **Signet Model 9900-1BC Batch Controller System with Wall Mount Accessory**
  - 3-9900.392 (power supply sold separately)

### Signet Sensors - Flow

- 515 2536 525 2000 2100 2507 2537 2540 2551 2562

### Signet Fittings - See individual sensor data sheets

All sold separately