

# Instrumentation/Process Control

## CB-2 Concrete Batch Controller Multi-Scale Automated Batching System



### STANDARD FEATURES

- One aggregate and one cement scale sampling 120 times per second
- Standard manual override controls
- Batch tickets with configurable field printing
- 1 megabyte database
- Material usage by day/week/month/year and inventory on hand with reporting
- Automatic aeration control for cement silos and weigh hoppers
- Multiple freefall values per material with "learning" abilities
- Split batching for loads larger than plant capacity with pre-weighing next batch for maximum throughput
- Automatic dust collection outputs
- Simulation mode for demonstration and/or testing

### SPECIFICATIONS

#### MATERIALS:

Eight single speed aggregates  
Four dual speed cements  
Hot & cold metered or weighed water delivered in two additions  
Six metered admixtures configurable as bottle or direct feed injected with either water addition

#### 1 MEGABYTE DATABASE:

2200 mix designs  
750 customers  
200 trucks  
99 materials  
100 orders

#### STATE MODES:

CALTRAN  
NYS DOT  
MnDOT

#### LINE VOLTAGES:

115 or 230 VAC

#### FREQUENCY:

50 or 60 Hz

#### POWER CONSUMPTION:

340 mA, maximum @ 115 VAC (26 W)  
240 mA @ 230 VAC (26 W)

#### FUSING:

115 VAC: 2 x 400 mA TR5 subminiature fuses Wickman Time-Lag 19374 Series. UL Listed, CSA certified and approved  
230 VAC/North American: 2 x 315 mA TR5 subminiature fuses Wickman Time-Lag 19372 Series. UL Listed, Semco and VD Approved

#### FULL SCALE INPUT SIGNAL:

Up to 70 mV

#### EXCITATION VOLTAGE:

10 ± 0.5 VDC, 16 x 350 Ω or 32 x 700 Ω load cells per A/D card

#### SENSE AMPLIFIER:

Differential amplifier with 4 and 6 wire sensing

#### ANALOG SIGNAL INPUT RANGE:

-10 mV to +70 mV

#### ANALOG SIGNAL SENSITIVITY:

0.3 μV/graduation minimum @ 7.5 Hz  
1.0 μV/graduation typical @ 120 Hz  
4.0 μV/graduation typical @ 960 Hz

#### A/D SAMPLE RATE:

7.5 to 960 Hz, software selectable (120 recommended)

#### INPUT IMPEDANCE:

>35 M typical

#### INTERNAL RESOLUTION:

8 million counts/8 million 23 bit

#### WEIGHT DISPLAY RESOLUTION:

9,999,999

#### INPUT SENSITIVITY:

10 nV per internal count

#### SYSTEM LINEARITY:

±0.01% full scale

#### ZERO STABILITY:

±150 nV/°C, maximum

#### SPAN STABILITY:

±3.5 ppm/°C, maximum

#### CALIBRATION METHOD:

Software, contents stored in flash memory

#### INPUT VOLTAGE DIFFERENTIAL:

±800 mV referenced to earth ground

#### INPUT OVERLOAD:

Load cell signal lines ±10 V continuous, ESD protected

#### RFI/EMI PROTECTION:

Signal, excitation and sense lines protected

#### ANALOG OUTPUT:

Option card: 16 bit resolution DAC  
Load resistance: 1.1 KΩ minimum  
Voltage output: 0 – 10 VDC  
Current output: 0 – 20 mA  
External loop resistance: 840 Ω maximum

#### MICROCOMPUTER:

Motorola ColdFire™ MCF5307 main processor @ 90 MHz

#### DIGITAL I/O:

Four I/O channels on CPU board; optional 24-channel I/O expansion boards available

#### DIGITAL FILTER:

Software selectable: 1–256, enhanced RATTLE-TRAP™ hybrid digital filtering

#### SERIAL PORTS:

Four ports on CPU board support up to 115,200 bps; optional dual-channel serial expansion boards available

Port 1: Full duplex RS-232

Port 2: RS-232 with CTS/RTS; PS/2 keyboard interface via DB-9 connector

Port 3: Full duplex RS-232, 20 mA output

Port 4: Full duplex RS-232, 2-wire RS-485, 20 mA output

#### DISPLAY:

4.6 in W x 3.4 in H (116 W x 86 mm H), 320 x 240 pixel VGA Liquid Crystal Display (LCD) module with adjustable contrast, 75 Hz scan rate 26,000 cd/m<sup>2</sup> brightness

#### KEYBOARD:

27-key membrane panel, PS/2 port for external keyboard connection

#### OPTIONAL FEATURES:

Four dual or eight single speed aggregates

Four dual or eight single speed cements

Weighted water with water reservoir

Four or eight auxiliary manual controls

Dual moisture probe interface (supports 4–20 mA or 0–10 V probes)

Continuous batching with mixer controls for central mix block or precast plants

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\*Factory field installation required, minimum three days on site

**RS**  
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