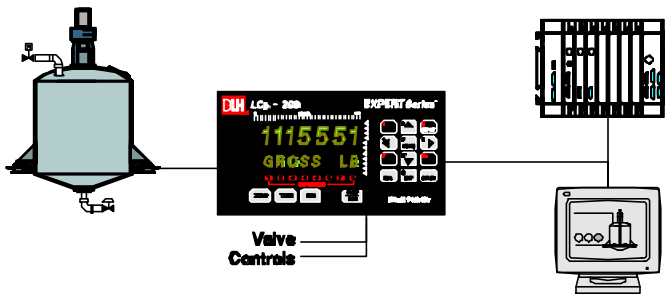


Weight and Mass Flow Measurement with Setpoint Control



Hardware Features

- 1 Million Count Resolution, 20 Updates per Second
- High Resolution (16 Bit) Analog Output
- RS-422/485 Communication Port with ASCII, BLH Digi-System Plus Network, or Modbus RTU Protocol
- Expansion Slot for A-B Remote I/O, Modbus Plus, Profibus, or Future Fieldbus
- Optional Internal Modem for On-Line Service
- Rate-By-Weight (Mass Flow) Operation
- Up To 8 Setpoint Relay Outputs

Safe-Weigh® Software System

- Quick-Cal Set-Up
- Dynamic Digital Process Filtering
- Real Time System & Loop Diagnostics

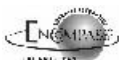


Product Description

LCp-200 Weight/Rate-By-Weight Controllers are high performance indicators with features and options focused on the requirements of process weighing applications with local setpoint control. They operate with all strain gage type load cells and interface easily with any PLC, DCS, or PC based supervisory control system. Engineering emphasis has been placed on simplicity, reliability, and expandability. Standard rate-by-weight operation and output provides precision mass flow control.

Eight relay outputs are available for local setpoint control, based upon set point values entered through the keypad, or downloaded serially from a host device. All relay configuration and logic parameters are selectable through the front panel keypad. Communication of weight, setpoint values, system status, and diagnostic information is accomplished using standard protocols such as ASCII and Modbus RTU, or special serial interfaces like Allen-Bradley Remote I/O, Modbus Plus, and Profibus.

The LCp-200 Safe-Weigh Software System encompasses over 50 years of BLH application expertise. Plug-n-Weigh® quick calibration and setup procedures save time, money, and even field service calls. On-line diagnostics continuously monitor system performance and alert service personnel to potential problems before they happen.



Thermo BLH

An ISO 9001 Registered Company

Setpoint Control and Communication Interfaces

Setpoint Availability

Precise setpoint control ensures accurate and repeatable batch process performance. Standard LCp-200 instruments have eight open collector DC setpoint output signals. Individual outputs can be configured for main (coarse) or dribble (fine) operation with in-flight and deadband (hysteresis) compensation for precision valve control. Polarity selection allows 'open above' or 'closed above' operation of each point. Tag names may be assigned for front panel or interface identification.

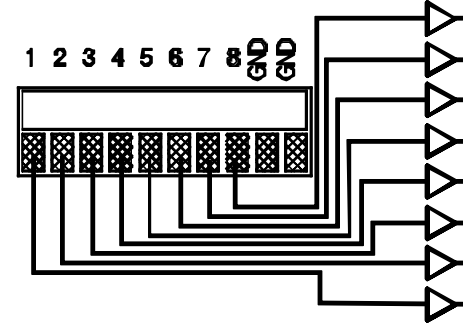
Optionally, eight solid state, triac type outputs can be ordered. Each triac output has the same configuration and parameter selections as the DC signals.

Communications and Interfacing

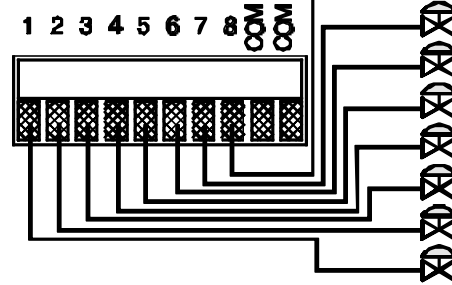
LCp-200 instruments are designed for fast, easy interfacing with virtually any PLC or DCS system. LCp-200 instruments are the first weight/rate system controllers with Schneider Automation Modbus Plus licensing. As a charter member of the Allen-Bradley 'Enabled' program, BLH offers Remote I/O capability in all LCp products. Profibus can be ordered for communication with Siemens controllers.

For network applications, units can be ordered with BLH Digi-System Plus protocol for communication with an LCp-400 Gate-Weigh controller.

OPEN COLLECTOR OUTPUTS

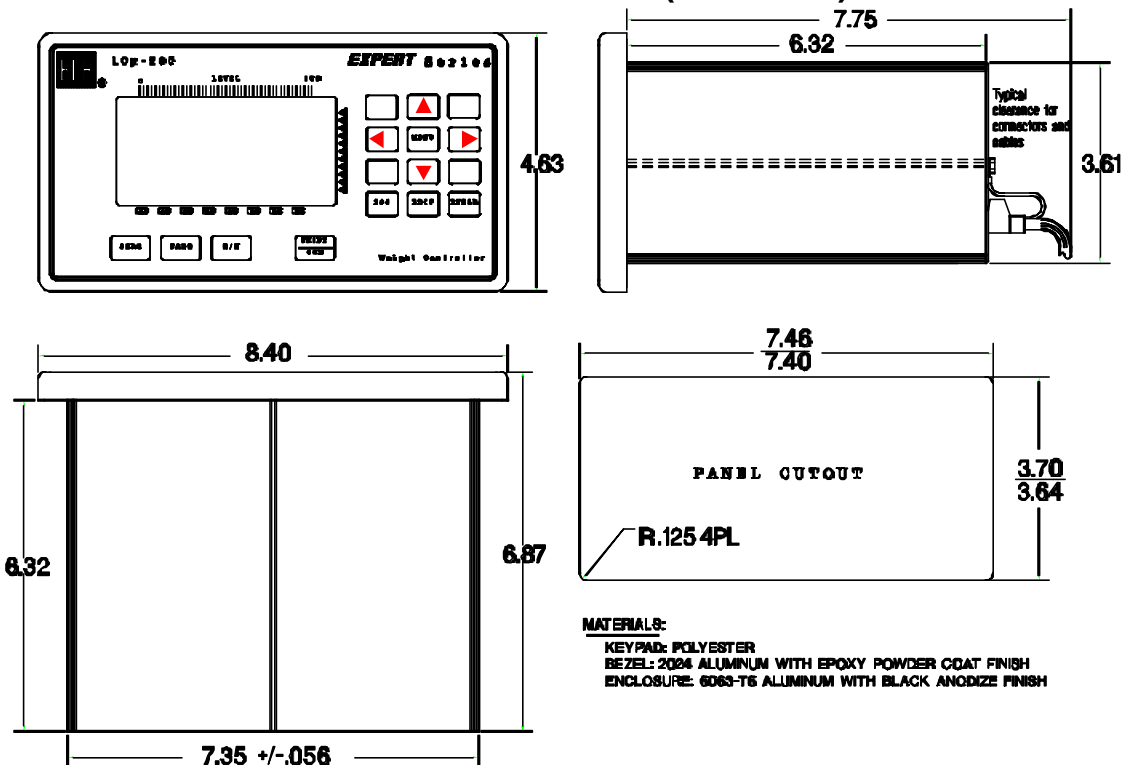


SOLID STATE RELAY OUTPUTS

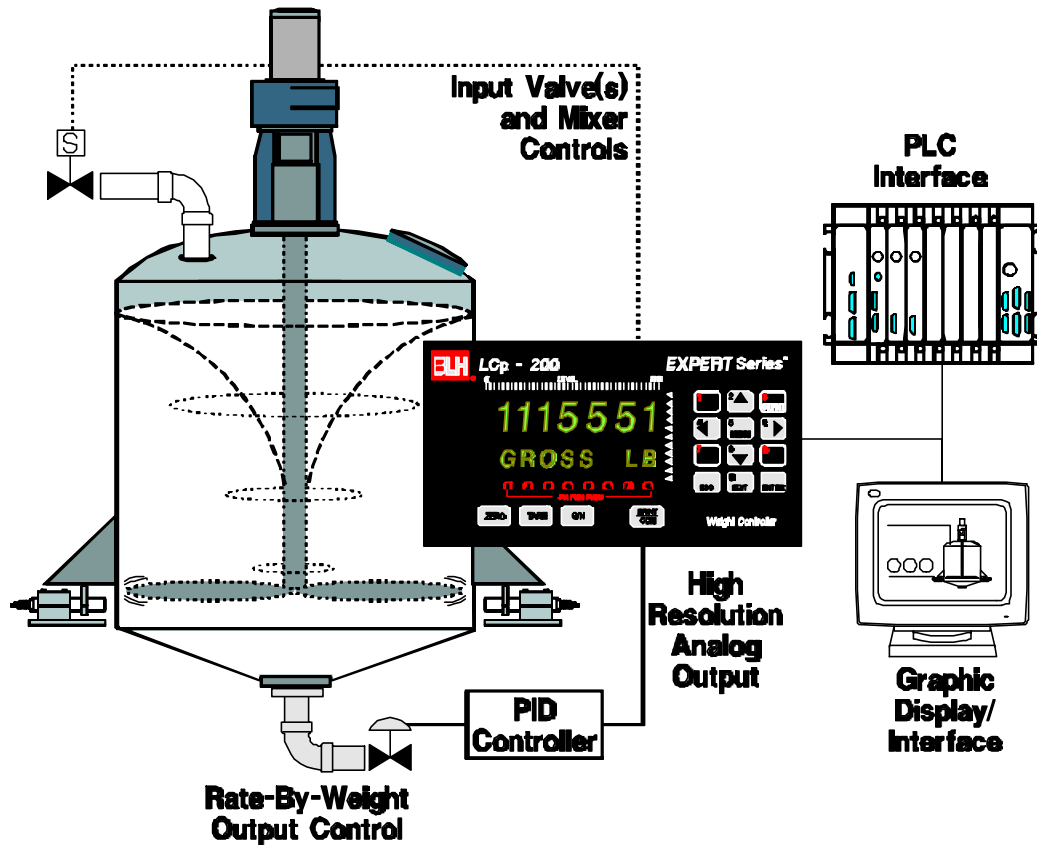


Open collector setpoint outputs interface with PLC I/O cards and optional solid state triac relays control process valves directly

Outline Dimensions - (in inches)



Typical System Diagram



Rate-By-Weight Processing

In addition to high accuracy gross and net weight tabulation, LCp-200 controllers offer rate-by-weight processing. When selected, mass flowrate is computed each update by dividing the change in weight by elapsed time. Display and communication output values are the average of accumulated rate updates during the operator selected derivation time period.

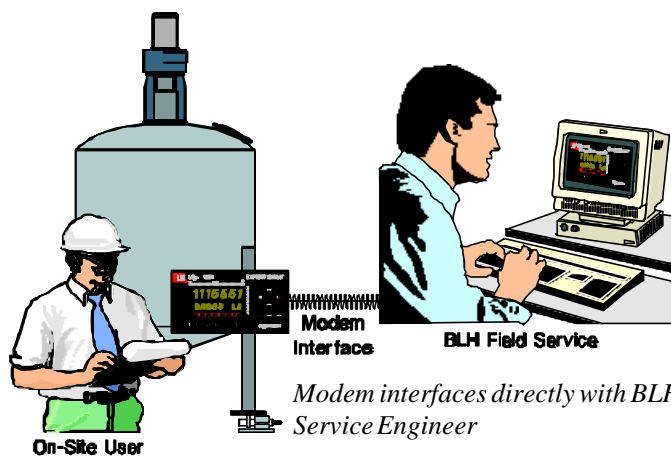
Selectable parameters include flow units per second or minute, rate resolution, and derivation time.

Field Service Connection

Units equipped with the optional internal modem connect directly with the BLH field service department. Authorized BLH Service Engineers interrogate, diagnose and correct (when possible) system errors right over the phone line. Service Engineers also evaluate system integrity and transmit setup or other internal parameter enhancements to maximize system performance. The LCp-200 modem is a V.22 bis data modem compatible with CCITT V.22 bis (2400 bps), Bell 212A (1200 bps), and Bell 103 (300 bps).

On-Line System Diagnostics

LCp-200 diagnostics provide easy access to critical operating system data. Front panel display alarm/status annunciators A1-A8 can be configured to represent communication errors, setpoint status, analog output errors, Allen-Bradley Remote I/O or Modbus Plus status, and modem status. Information from any active annunciator is transmitted to a host PLC or DCS via the communication interface.



Modem interfaces directly with BLH Field Service Engineer

LCp-200 System Specifications

Performance

Resolution	1,048,576 total counts
Displayed Resolution	700,000 counts
Conversion Speed	50 msec
Displayed Sensitivity	0.05 uV per count
Noise	0.4 uV per count (min. filt. setting)
Full Scale Range	3.5 mV/V
Dead Load Range	100% full scale
Input impedance	10 m-ohms min
Excitation Voltage	10 Vdc @ 250 mA
Linearity	+/-0.0015% full scale
Software Filter	multi-variable up to 10,000 msec
Step Response	one conversion
Temp Coefficient Zero	+/-2ppm/°C
Temp Coefficient Span	+/-7ppm/°C

Environment

Operating Temperature	-10 to 55° C (15 to 131° F)
Storage Temperature	-20 to 85° C (-5 to 185° F)
Humidity	5 to 90% rh non-condensing
Voltage	117/230 Vac +15% @ 50/60 Hz
Power	15 watts max

Enclosure

Dimensions (std)	4.63 x 8.40 x 6.5 in. HWD
NEMA 4/4X, 12 (opt)	8.5 x 13.5 x 10.45 in. HWD

Materials

Aluminum Case & Bezel	overlay meets 94V-0 rating
-----------------------	----------------------------

Display

Type	high intensity cobalt green vacuum fluorescent
Active Digits	7 digit alpha numeric .59" high for weight: 8 digit alpha numeric .39" high for status

Analog Output (Optional)

Conversion	16 bit D-A
Current Selectable	4-20 mA or 0-20 mA - 600 ohm max.

Remote Digital Inputs (Optically Isolated)

(Contact closure or do logic compatible)

Closed (Momentary)	logic low
Open	logic high
Cable Length	100 feet max.

DC Setpoint Outputs - 8 (Standard)

Type	open collector (current sinking)
Operating Voltage	5 - 35 Vdc
ON Voltage	1.2 Vdc @ 40 mA 0.8Vdc @ 1 mA
OFF State Leakage Power	0.04 uA @ 40 Vdc external supply required

AC Setpoint Outputs - 8 (Optional)

Type	triac
Operating Voltage	12 - 240 Vac
AC Frequency	20 - 500 Hz
ON State Voltage Drop	1.2 Vrms
Min - Max Load Current	5mA- 1A
Leakage Current	1mA @ full rated load voltage
Power	external supply required

Communications (Standard)

Serial RS-422/485	full or half duplex ASCII, printer, Provox, or Modbus protocols odd, even or no parity- selectable
Baud Rates	300, 1200, 2400, 4800, 9600, or 19200
Addressing	0 - 99

Special Interfaces (Optional)

DeviceNet	to ODVA specification
Allen-Bradley	Remote I/O - 1/4 Logical Rack
Modbus RTU	slave
Modbus Plus	peer-to-peer
Profibus	slave

Internal Service Modem (Optional)

Baud Rate	2400: Bell 212 and 103 compatible
Availability	U.S.A. and Canada only

Approvals/Certifications

FM (factory Mutual)	3611 (Div 2)
CSA	C22.2 (all applicable sections)
IEC 801-2	ESD susceptibility, category B
IEC 801-3	radiated electromagnetic field, cat. A
IEC 801-4	conducted line transients, cat. B
EMI Emissions	FCC part 15 subpart B. Class A Canadian Dept. of communication. Class A
EN 5501	Group 1, Class A
IEC 1010-1	Electrical Safety

PLC and Allen-Bradley are trademarks of Allen-Bradley Co., Inc.
Modbus is a trademark of Schneider Automation.
Profibus is a trademark of Siemens.
DeviceNet is a trademark of ODVA

BLH is continually seeking to improve product quality and performance. Specifications may change accordingly.

Main Office

75 Shawmut Road - Canton, MA 02021
Tel: (781) 821-2000 - Fax: (781) 828-1451
web site: <http://www.blh.com>

ISO 9001

Registered
U.S.A. Facility

Canada

41 Horner Ave, Unit 5
Toronto, Ontario M8Z 4X4
Tel:(416) 251-2554 - Fax: (416) 251-2690
Toll Free: (800) 567-6098

Ordering Specification Code

LCP-100- [M]-[AP]-[C]-[B]-[M] Indicating Weight Transmitter



LCP-200- [M]-[AP]-[C]-[B]-[M] Indicating Weight Transmitter with Discrete I/O & Rate Functions



LCP-100 LCP-200

[M] MOUNTING

- | | | |
|-------------------------------------------------------------------|-----|-----|
| [1] NEMA 4X PANEL MOUNT | STD | STD |
| [2] #1 & FM/CSA DIV. 2 APPROVAL (CLI, DIV2, GRP A-D,FG) | | |
| [5] NEMA 4X STAINLESS STEEL WALL MOUNT ENCLOSURE | | |
| [6] #5 & FM/CSA DIV. 2 APPROVAL (CLI,II, DIV2, GRP A-D,FG) | | |
| [7] #5 with MODEL 306 INTERNAL SUMMING BOARD | | |
| [8] #6 with MODEL 306 INTERNAL SUMMING BOARD | | |
| [13] #6 with TYPE Y PURGE SUITABLE FOR DIV. 1 AREAS | | |
| [15] NEMA 4/7/9 Ex Enclosure(CL I,II,III, DIV1,GRP BCDEFG) | | |

[A] EXPANSION SLOT A

- | | | |
|-------------------------------------|-----|-----|
| [1] NONE | STD | STD |
| [3] MODBUS PLUS | | |
| [4] ALLEN BRADLEY REMOTE I/O | | |
| [5] PROFIBUS DP | | |

[P] PROCESS INPUTS & OUTPUTS

- | | | |
|-------------------------------------------------------------------------------------------------------------|-----|-----|
| [1] REMOTE FUNCTION INPUT (zero, gross/net, tare, print) | STD | STD |
| [2] #1 and ANALOG CURRENT OUTPUT | | |
| [9] #1 and ANALOG CURRENT OUTPUT,BIPOLAR DIRECTION, 100 UPDATES/SECOND, UNITS IN LB, KG, PLI, N, N/M | | |

[C] COMMUNICATION

- | | | |
|------------------------------------------------------------------|-----|-----|
| [1] RS-485/422 W/ ASCII PROTOCOL & DIGISYSTEM + | STD | STD |
| [2] #1 and MODBUS RTU PROTOCOL | | |
| [3] #1 & PROVOX PROTOCOL (includes 20mA serial converter) | | |

[B] EXPANSION SLOT B

- | | | |
|----------------------------------------|-----|-----|
| [1] None | STD | N/A |
| [2] 8 Open Collector DC Outputs | N/A | STD |
| [3] 8 Solid State Relay Outputs | N/A | |

[M] MODEM/ON-LINE SERVICE

- | | | |
|-----------------------------------------------|-----|-----|
| [1] NONE | STD | STD |
| [2] MODEM with 90 DAYS ON-LINE SERVICE | | |

Weigh-View Software Kit (471297)