LEVELtrol II

Multi-Function Level Indicator, Controller and Batcher

Features

- Level and Tank Volume/Mass Indicator
- Batching by Level
- Level Control, Tank Volume,
  Corrected Volume and Mass Calculations
- Menu Selectable Hardware & Software Features
- Two Line LCD, OLED or VFD Display
- Isolated Outputs Standard
- RS-232 Port Standard
- RS-485 Modbus RTU Optional
- Windows™ Setup Software
- DIN Enclosure with Two Piece Connectors
- DDE Server & HMI Software Available
- Panel Mount or Wall Mount Enclosure

Description:

The LEVELtrol II Flow Computer satisfies the instrument requirements for a variety of level sensor types in liquid applications. Multiple tank geometries, fluid equations and instrument functions are available in a single unit with many advanced features.

The alphanumeric display shows measured and calculated parameters in easy to understand format. Single key direct access to measurements and display scrolling are supported

The versatility of the LEVELtrol II permits a wide measure of versatility within the instrument package. The various hardware inputs and outputs can be "soft" assigned to meet a variety of common application needs. The user "soft selects" the usage of each input/output while configuring the instrument. Consider the following illustrative examples.

The isolated analog output can be chosen to follow level, tank volume, corrected tank volume, tank mass, temperature, or density by means of a menu selection. Most hardware features are assignable by this method.

The user can assign the standard RS-232 Serial Port for data logging, transaction printing, or for connection to a modem for remote meter reading. Setup software is supplied for easy programming and monitoring using a PC

Specifications:

Environmental
   Operating Temperature: 0°C to +50°C
   Storage Temperature: -40°C to +85° C
   Humidity : 0-95% Non-condensing
   Materials: U.L. approved

Listing: UL/C-UL Listed (File No. E192404), CE Compliant

Display
   Type: 2 lines of 20 characters
   Types: Backlit LCD, OLED and VFD ordering options
   Character Size: 0.2" nominal
   User programmable label descriptors and units of measure

Keypad
   Keypad Type: Membrane Keypad with 16 keys
   Keypad Rating: Sealed to NEMA 4X / IP65

Enclosure
   Style: See Ordering Code for Available Mounting Options
   Size: See Dimensions
   Depth behind panel: 6.5" including mating connector
   Type: DIN
   Materials: Plastic, UL94V-0, Flame retardant
   Bezel: Textured per matt finish

Power Input
   The factory equipped power option is internally fused. An internal line to line filter capacitor and MOV are provided for added transient suppression.
   110 VAC Power Option: 85 to 127 Vrms, 50/60 Hz
   220 VAC Power Option: 170 to 276 Vrms, 50/60 Hz
   DC Power Option:
       12 VDC (10 to 14 VDC)
       24 VDC (14 to 28 VDC)
   Power Consumption
   AC Power: 11.0 V/A (11W)
   DC Power: 300 mA max.

Level Inputs:
  Analog Input:
   Accuracy: 0.01% FS at 20° C
    Ranges
       Voltage: 0-10 VDC, 0-5 VDC, 1-5 VDC
       Current: 4-20 mA, 0-20 mA
   Basic Measurement Resolution: 16 bit
   Update Rate: 4 updates/sec
   Automatic Fault detection: Signal over/under-range,
                      Current Loop Broken
   Calibration: Software Calibration (no trimmers) and Auto-zero Continuously
   Extended calibration:
     Learns Zero and Full Scale of each range using special test mode.

Sensor Types Supported:
Differential Pressure, Ultrasonic, Many Others

Tank Geometries:
Horizontal, vertical, spherical and 32 point strapping table

Auxiliary / Compensation Input
The auxiliary/compensation input is menu selectable for temperature, density or not used. This input is used for the compensated input when performing compensated tank volume and mass calculations. It can also be used as a general purpose input for display and alarming.
Available Input Ranges
Voltage: 0-10 VDC, 0-5 VDC, 1-5 VDC
Current: 4-20 mA, 0-20 mA
Resistance: 100 Ohms DIN RTD

Control Inputs
Switch Inputs are menu selectable for Start, Stop, Reset, Lock, Alarm Acknowledge, Print or Not Used.

Relay Outputs
The relay outputs are menu assignable to Level, Tank Volume, Temperature, Density, Batch Control or Malfunction
Number of relays: 2 (4 optional)
Contact Ratings: 5 amp, 240 VAC or 30 VDC

Isolated Analog Output
The analog output is menu assignable to correspond to the Level, Tank Volume/Mass, Temperature or Density.
Type: Isolated 4-20 mA Current Sourcing

Excitation Voltage (AC powered units only)
24 VDC @ 100 mA (fault protected)

Isolated Pulse output
The isolated pulse output is menu assignable to generate pulse outputs when tank fills, empties or both.
Pulse Output Form: Isolated Photomos Relay
Maximum On Current: 25 mA
Maximum Off Voltage: 30 VDC
Pulse Duration: 10 msec or 100 msec

Serial Communication
The serial port can be used for printing, datalogging, modem connection and communication with a computer. Windows setup software is included for easy programming using a PC.
RS-232:
Device ID: 01-99
Baud Rates: 300, 600, 1200, 2400, 4800, 9600, 19200
Parity: None, Odd, Even
Handshaking: None, Software, Hardware
Print Setup: Configurable print list and formatting
RS-485:
Device ID: 01-247
Baud Rates: 300, 600, 1200, 2400, 4800, 9600, 19200
Parity: None, Odd, Even
Protocol: Modbus RTU (Half Duplex)
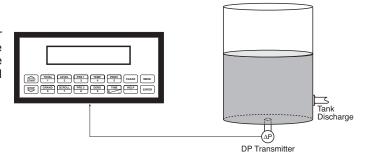
Real Time Clock
LEVELtrol II is equipped with a battery backed real time clock with display of time and date.
Format:
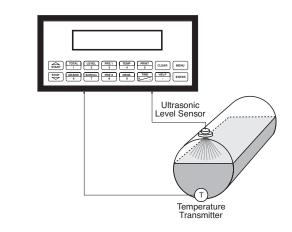12 or 24 hour time display
Day, Month, Year date display

Tank Level/ Volume Applications:
The LEVELtrol-II can monitor actual liquid level and tank volume of a liquid. Alarms are provided via relays and datalogging is available via analog (4-20mA) and serial outputs.

Corrected Liquid Volume Applications:
Monitoring corrected volume of a liquid stored in a horizontal tank. Alarms are provided via relays and datalogging is available via analog (4-20mA) and serial outputs.

Liquid Mass Applications:
Monitoring level and mass total of any liquid in a tank. Alarms are provided via relays and datalogging is available via analog (4-20mA) and serial outputs.
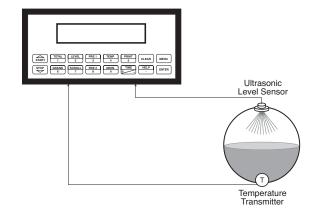
Kessler-Ellis Products • 800-631-2165
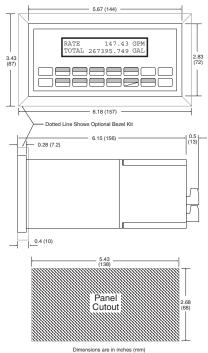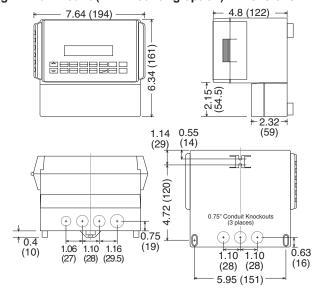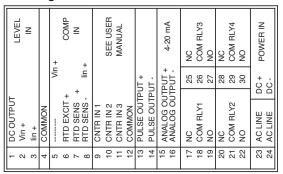
Fig. 1: Standard Dimensions


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RATE      147.43 GPM
TOTAL 267395.749 GAL
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5.67 (144)
3.43 (87)
2.83 (72)
6.18 (157)

Dotted Line Shows Optional Bezel Kit

6.15 (156)
0.28 (7.2)
0.5 (13)
0.4 (10)

5.43 (138)

Panel Cutout

2.68 (68)

Dimensions are in inches (mm)

Fig. 2: Wall Mount ("W" mounting option) Dimensions

7.64 (194)
6.34 (161)
4.8 (122)
2.15 (54.5)
2.32 (59)
1.14 (29) 0.55 (14)
4.72 (120)
0.4 (10)
1.06 (27) 1.10 (28) 1.16 (29.5)
0.75 (19)
0.75" Conduit Knockouts (3 places)
1.10 (28) 1.10 (28)
0.63 (16)
5.95 (151)

Terminal Designations:

Term	Designation
	DC OUTPUT
1	Vin +
2	Iin +
3	COMMON
4	
	LEVEL IN
5	Vin +
6	RTD EXCIT +
7	RTD SENS +
8	RTD SENS -
	COMP IN
	Iin +
9	CNTR IN 1
10	CNTR IN 2
11	CNTR IN 3
12	COMMON
	SEE USER MANUAL
13	PULSE OUTPUT +
14	PULSE OUTPUT -
15	ANALOG OUTPUT +
16	ANALOG OUTPUT -
	4-20 mA
17	NC
18	COM RLY1
19	NO
25	NC
26	COM RLY3
27	NO
20	NC
21	COM RLY2
22	NO
28	NC
29	COM RLY4
30	NO
23	AC LINE / DC +
24	AC LINE / DC -
	POWER IN

Ordering Information

Example   LT2   L   1   B   0   P

Series:
LT2 = LEVELtrol II

Display Type:
L= LCD
O = OLED
V= VFD

Input Type:
1= 110 VAC
2= 220 VAC
3= 12 VDC (10 to 14 VDC)
4= 24 VDC (14 to 28 VDC)

Relays:
A= 2 SPDT Relays
B= 4 SPDT Relays

Network Card:
0= None (STD)
2= RS485/Modbus

Mounting:
P= Panel Mount ....(see Fig. 1)
N= NEMA 4 Wall Mount ....(see MS811NEMAST4X1)
W= NEMA 12/13 Wall Mount w/ Clear Cover ....(see Fig.2)
E= Explosion Proof (No Button Access) ....(see XHVD 7/4)

Options
ET= Extended Tempertaure: -4°F to 131°F (-20°C to 55°C)
IM = Internal Modem
IM-56K = 56K Internal Secure Modem
M = Modem Power Option
TB= RS485 Terminal Block for Panel Mount Enclosure

Accessories:
OPC/DDE Server for RS232 Port available, see EX5-UCOND-NA00
OPC/DDE Server for Modbus Suite available, see EX5-MDBUS-NA00
Modem Available, see MPP-56KN and MPP-2400N
Serial printer available, see P1000, P295
Ethernet Port Server available, see IEPS (RS-232)
Ethernet Port Server Modbus TCP available, see ADAM4572 (RS-485)
RS-422/485 to RS-232 Communication Adapter available, see CA285
RS232 Extender Cable: P/N=13220-<length in inches>