

Description

The LKP-400 is a high accuracy, "closed-loop" Hall effect system designed to accurately and reliably measure unidirectional dc bus currents up to 400 k amperes. This "system" consists of a four-piece measuring head, which installs around the bus, an electronics unit and four multiconductor cables connecting the two. This model supersedes the following LEM and "Halmar" models: LKC400.

Application

The LKP-400 is particularly well suited to measure bus currents in Electro-chemical processes including aluminum, chlorine, copper, manganese, titanium, zinc as well as electroplating and coating processes.

Specifications

Input

Full Scale (FS) bus current 400 kA
Based on approved DynAmp Bus Analysis

Output

Voltage scaling 1 mV per bus kA
Voltage full scale 400 mV
Voltage accuracy $\pm 0.1\%$ of FS **
Current scaling 200 mA per bus kA
Current full scale 80 A
Current loop max burden 15 V
Current accuracy $\pm 0.1\%$ of FS **
Repeatability $\pm 0.02\%$ of FS
plus core set
Linearity (5...100% of FS) $\pm 0.03\%$ of FS
Temperature sensitivity $\pm 0.002\%$ of FS per °C

Mains

Available Input Ranges
100V: 85 to 110V RMS
120V: 102 to 132V RMS
200V: 170 to 220V RMS
220V: 187 to 242V RMS
240V: 204 to 264V RMS
Frequency
50Hz.: 45 to 55 Hz.
60Hz.: 55 to 65 Hz.
Power requirements
Impact of mains variation
on accuracy
20 VA / bus kA typical
100, 120, and 200V:
 $\pm 0.001\%$ FS / V RMS
220, 240V:
 $\pm 0.0005\%$ FS / VRMS

Isolation

Bus to output 6 kVac for 1 minute with
25 mm air gap
Mains supply to output
Mains supply to chassis
Output to chassis
Bus to head structure
1.5 kVac for 1 minute
1.5 kVac for 1 minute
1.5 kVac for 1 minute
6 kVac for 1 minute with
25 mm air gap

Environmental

Operating temperature -4 to 131° F
-20 to 55° C
Storage temperature -40 to 158° F
-40 to 70° C
Storage Humidity 85%, non-condensing
Installation Restrictions: Ref. Tech. Bulletin 9907

Physical

Measuring head enclosure IP-649
Measuring head weight 3968 lbs. / 1800 kg
Electronics unit enclosure IP-22
Electronics unit weight 700 lbs. / 320 kg (Max.)
Interconnecting cable(s)
(Head to Meter Unit) 33 Ft / 10 m standard
4 cables

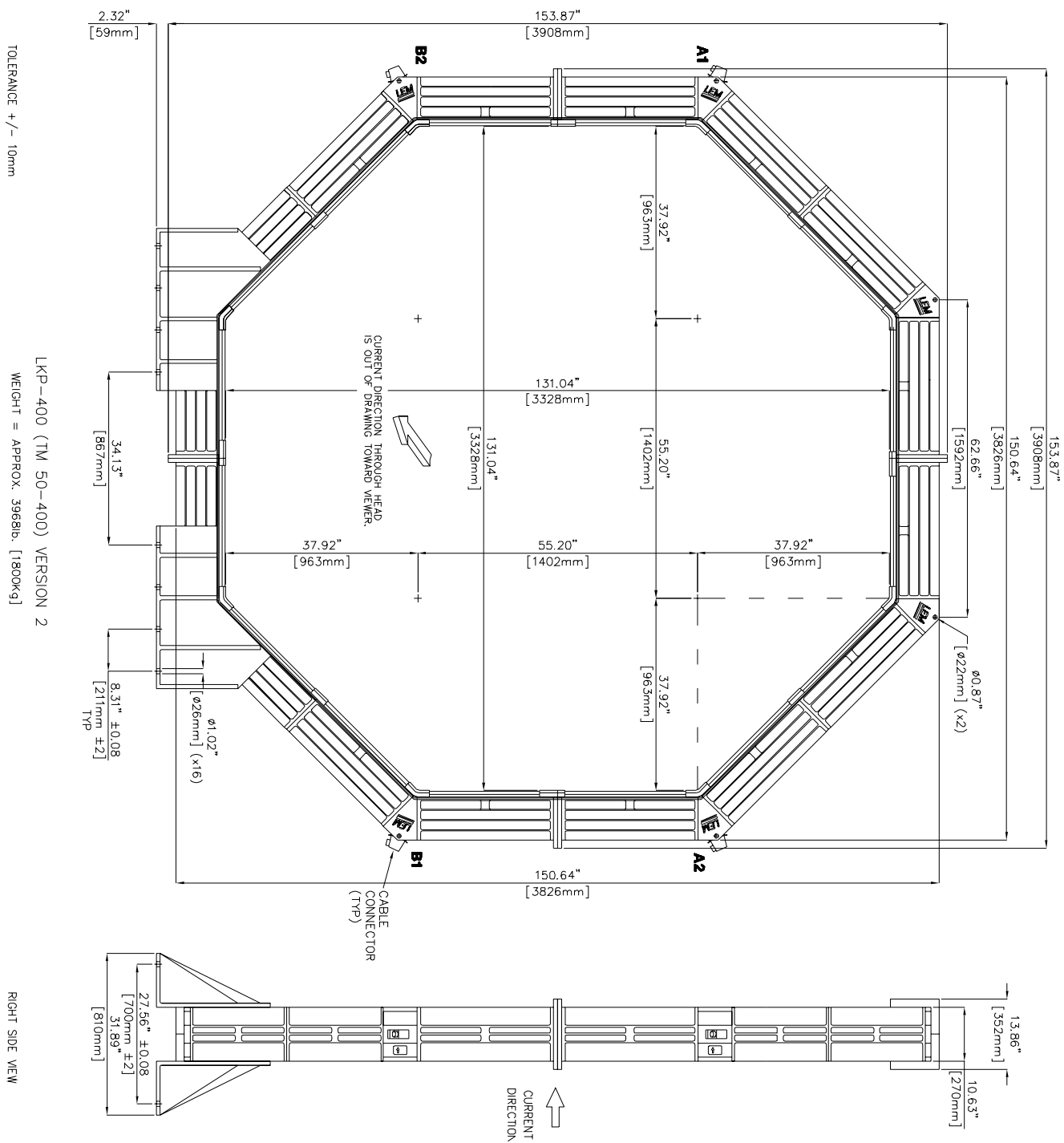
** At DynAmp reference conditions:
77° F $\pm 4^\circ$ F (25° C, $\pm 2^\circ$ C)
120/240 V RMS. $\pm 2\%$, 60 Hz ± 1 Hz.

Specifications subject to change without notice



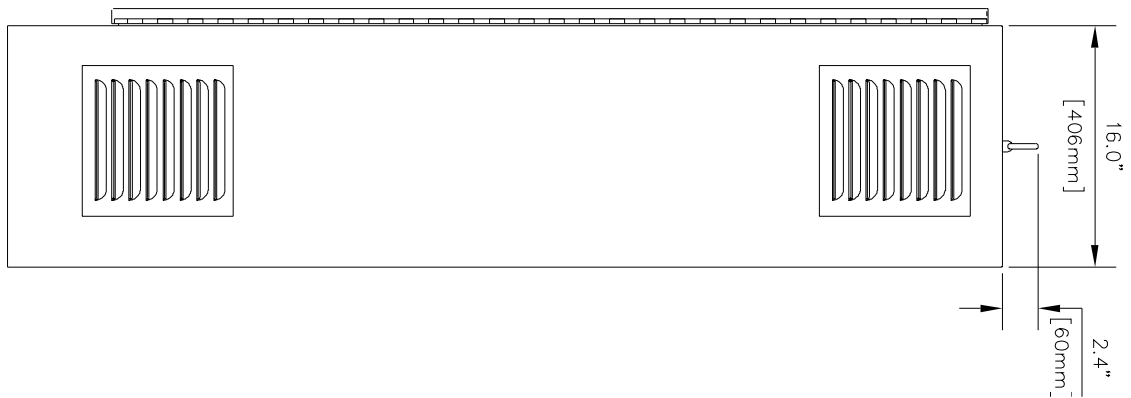
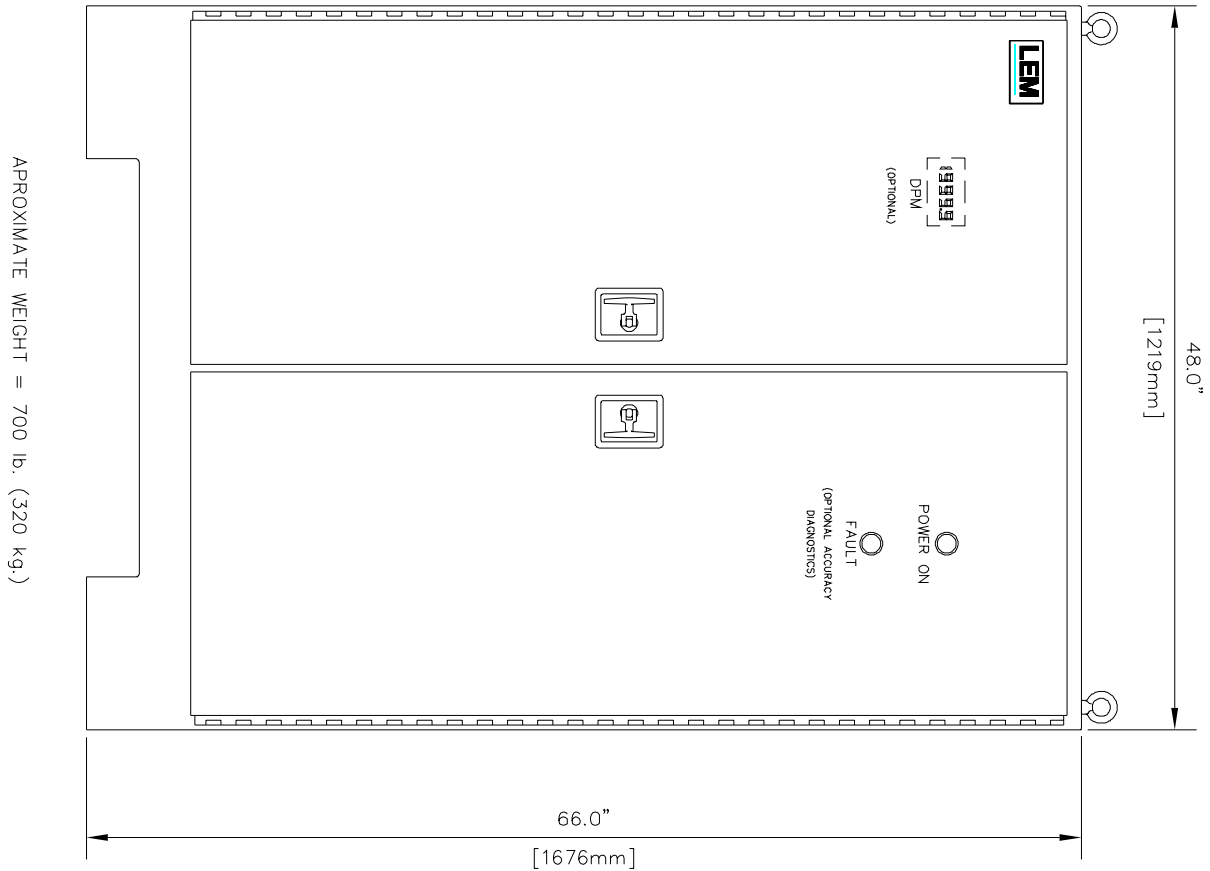


Measuring Head Outline and Mounting Diagram and Information - Version 2



LKP-400

Metering Unit Outline and Mounting Diagram and Information



LKP-400

Ordering Information

1. Specify model LKP-400, (see pages 2 & 3 for versions.)

Version 1 Specify Item Number: 42118

Version 2 Specify Item Number: 42537

2. Specify item number and description of options and or accessories.
3. Complete System Worksheet BEN068 and worksheets for options and accessories as required.

Standard System Includes

Split apart measuring head
 10 meter / 33 feet head to meter connecting cables
 Metering Electronics
 Mounting Feet
 Operator / installation manual
 Calibration result data tables and graphs
 One internally mounted shunt
 Meter enclosure is to standard IP-22
 4 hours operation before final test/calibration
 2 year warranty
 DynAmp bus analysis of installation location
 (subject to availability of customer drawings)
 Weather resistant shipping crate

Options

Accuracy Diagnostics:

Provides an SPDT relay output if a channel amplifier or power supply voltage is out of normal range. Detects errors due to excessive or reversed magnetic fields and failures in electrical components such as amplifiers, fuses, or sensors.

Specify Item Number: 41431

Second Internal Shunt:

Standard system includes one internally mounted shunt. A second internal shunt is available to provide an additional scaled and calibrated millivolt output.

Requires completed Shunt Worksheet BEN055.

Specify Item Number: 43309

Local Digital Display:

Mounted on the surface of the enclosure to provide local display of bus current.

Requires completed DPM Worksheet BEN056.

Specify Item Number: 41031

Current & Voltage Output (Internal Isolator):

CE compliant Model SI2284 provides isolated voltage and 0-20mA or 4-20mA output proportional to current. Refer to SI2284 data sheet for detailed specifications.

Requires completed Isolator Worksheet BEN061.

Specify Item Number: 42315

Compliance With CE Requirements:

A CE certified version is available including all required components, tags, certifications and documentation. CE compliance may not extend to all options and accessories. Consult factory for determination.

Specify Item Number: 42991

Accessories

Remote Digital Display:

Additional digital panel meters are available for remote indication of the bus current.

Requires completed DPM Worksheet BEN056.

Specify Item Number: 41031

Extended Burn-In:

Standard systems are operated for 4 hours before final tests and calibration. Extended burn-in periods can be ordered in 24-hour increments.

Specify item number: 99922

Standard Spare Part Package:

Allows swap of major assemblies as well as single components to ensure fast return to operation.

Specify Item Number: 43798

Spare System Components:

Measuring Head –Version 1 Specify Item Number: 41733

Version 2 Specify Item Number: 42418

Metering Unit - Specify Item Number: 41418

External Shunt:

Converts system feedback current to low voltage. Refer to Shunt data sheet for detailed specifications.

Requires completed Shunt Worksheet BEN055.

Contact DynAmp

Totalizing Shunt:

Totalizes the output of multiple systems. A special assembly is available to properly interconnect many units. Refer to Shunt data sheet for detailed specifications.

Requires completed Shunt Worksheet BEN055.

Contact DynAmp

Custom Head To Meter Unit Cable Length:

Standard systems are supplied with 10 m (33 ft.) of interconnecting cable. Cable lengths of up to 50 m (165 ft.) can be readily provided. Consult factory for lengths greater than 50 m (165 ft.). Specify additional length required in meters.

Specify Item Number: 41450

Current & Voltage Output (External Isolator):

CE compliant Model SI2284 provides isolated voltage and 0-20mA or 4-20mA output proportional to current. Refer to SI2284 data sheet for detailed specifications.

Requires completed Isolator Worksheet BEN061.

Specify Item Number: 42315

Suggested Support Services

On-Site Commissioning:

Factory trained technicians and specialized equipment on-site during start-up. **Contact DynAmp**

Annual / Biannual Calibration:

Experienced field service technicians and specially calibrated equipment are available to verify proper operation and calibrate your system to internationally traceable standards, ensuring the most reliable data for decision making and cross plant comparisons. **Contact DynAmp**