

Line Drop Compensator
Gate Box / LDC
Combination Unit

35+
YEARS IN BUSINESS
Established 1987



FCX
SYSTEMS

Engineered for Endurance
MADE IN THE USA SINCE 1987



Ground POWER Solutions For All Generations Of Aircraft

FCX Systems, Inc., leaders in 400Hz Technology since 1987, offers Line Drop Compensation (LDC), Gate Box, and Gate Box / LDC combination units.

The FCX Line Drop Compensator (LDC) is designed to cancel out the inductive voltage drop in 400Hz transmission lines. Voltage drop in the cables carrying 400Hz power is much greater than if the same cable were carrying 60 Hz power. Left uncorrected, the aircraft may reject the power feed due to low voltage.

The LDC is connected in series with the cable run to the 400Hz Service Point and improves voltage by cancelling out the voltage drop due to 400Hz AC reactance of the cable. The LDCs are available in ratings with up to 20% compensation capability.

Each LDC is equipped with individual transformer – capacitor networks per phase. These networks insert a specific amount of capacitive reactance which cancels out the inductive reactance inherent in the cables. Transformers are supplied with multiple taps representing 2% steps of compensation up to the max ordered. Once the transformers are adjusted to the correct tap for the type and lengths of cable, the LDC will automatically adjust the compensation based on the load. The units monitor power parameters of the current and voltage with a dedicated circuit board.

The LDC includes a power supply and necessary fuses and connection terminals for ease of installation and reliable service. The compensator is housed in a rugged, NEMA 3R equivalent enclosure designed for indoor or outdoor duty. The LDC continuously monitors the 400 Hz current in the three incoming phase lines and automatically inserts a selectable level of capacitive reactance proportional to the load level on the cable run. This results in

near unity power factor operation for the zone equipped with a compensator. The only voltage drop in a compensated system is that attributable to the cable's DC resistance. The LDC is equipped with an adjustable inverse time operating over current alarm interlocked with the boosting transformer system to prevent excessive voltage boosting during periods of an extended overload. The alarm is factory set at 125% of the rated current capacity of the compensator but can be easily reset by the user in the field. In addition to the inverse time alarm, a separately adjustable instantaneous short circuit alarm is provided. Alarm relay contacts can be interlocked with the customers' feeder circuits.

The FCX Gate Box / LDC combination unit is designed to step down the 575 VAC (or other voltages) 400Hz power from the centralized system as well as boosting the voltage to acceptable aircraft power of 200 / 115 volts.

The FCX Gate Box / LDC combination unit meets the requirements of MIL-STD- 704F. The Gate Box / LDC unit is equipped with the FCX System's Electronic Overload Protection Module (EOPM), interlocked with contactor coils. The EOPM provides adjustable protection for over current and over / under voltage.

The FCX Gate Box / LDC unit is designed for bridge mounted applications as well as free standing applications for hangar and apron use.



FCX Systems has been serving the military, commercial, and industrial markets since 1987. Our knowledgeable, experienced sales staff is waiting to review your requirements and specifications. Please call us at **(304)983-0400** or submit your inquiry via email to **sales@fcxinc.com**. We are eager to provide your solution.

| Electrical Characteristics | | | Line Drop Compensator | Gate Box | Line Drop Compensator/ Gate Box |
|--|------------------------|---|-----------------------|----------|------------------------------------|
| INPUT | Input Voltage | 115 V through 575 V RMS \pm 1%, 3 phase, 400 Hz | X | X | X |
| | | Other voltages available | X | X | X |
| | Protection | LDC overcurrent | X | X | X |
| | | Short circuit | X | X | X |
| | | Over boost | X | X | X |
| | | Over/under voltage (as required by application) | X | X | X |
| OUTPUT | Line Drop Compensation | 6% to 16% \pm max. (6 user taps) 6% to 20% \pm max. (8 user taps) | X | X | X |
| | Tap Increments | 2% increments | X | | X |
| | Output Phase | 3 Phase, 3 & 4 wire systems, ABC (clockwise rotation) | | X | X |
| Environmental | | | | | |
| Ambient Temp. Range | | Operating: -40 °C to +55 °C (-40 °F to +131 °F) | X | X | X |
| Air Storage | | -40°C to +60°C (-40 °F to +140 °F) | X | X | X |
| Humidity | | 0 - 95%, non-condensing | X | X | X |
| Altitude | | 0 to 3,000 meters without derating | | X | X |
| Available Enclosure Ratings | | NEMA 3R equivalent NEMA 4X also available | X | X | X |
| Codes and Standards | | | | | |
| MIL-STD-704F | | | X | X | X |
| BS2G-219 | | | X | X | X |
| DFS-400 | | | X | X | X |
| Controls | | | | | |
| Output overload adjust | | | X | X | X |
| Alarm reset pushbutton | | | X | X | X |
| Indicators | | | | | |
| Overload | | | X | X | X |
| Short circuit (on circuit board) | | | X | X | X |
| Features | | | | | |
| NEMA 3R enclosure | | | X | X | X |
| Efficiency - approximately 99% | | | X | X | X |
| Over boosting protection | | | X | X | X |
| Switchgear interlocking capabilities | | | X | X | X |
| DC power supplies for electronics and alarm | | | X | | |
| Cabinet grounding connection for bonding | | | X | | |
| Conformal coated circuit boards | | | X | | |
| Corrosion inhibitors | | | X | | |
| Stackable | | | X | | |
| Step down transformer | | | | X | X |
| Padlock access door | | | | X | X |
| Line side disconnect switch | | | | X | X |
| Electronic Overload Protection Module (EOPM) | | | | X | X |
| 960 volt models available | | | | X | X |
| Available Options | | | | | |
| 18" floor stand | | | X | X | X |
| Bridge mount kit | | | | X | X |

| Line Drop Compensator Models | | | |
|------------------------------|-----|-----------------|--------------|
| Model | KVA | Size (inches) | Weight (lbs) |
| LDC015 | 15 | 30H X 30W X 18D | 260 |
| LDC025 | 25 | 30H X 30W X 18D | 260 |
| LDC030 | 30 | 30H X 30W X 18D | 300 |
| LDC045 | 45 | 30H X 30W X 18D | 300 |
| LDC060 | 60 | 30H X 30W X 18D | 320 |
| LDC090 | 90 | 30H X 30W X 18D | 320 |
| LDC120 | 120 | 30H X 30W X 18D | 320 |
| LDC140 | 140 | 30H X 30W X 18D | 360 |
| LDC150 | 150 | 30H X 30W X 18D | 360 |
| LDC180 | 180 | 30H X 30W X 18D | 400 |

| Gate Box / Line Drop Compensator Models | | | |
|---|-----|-----------------|--------------|
| Model | KVA | Size (inches) | Weight (lbs) |
| LDC060-GB-GM-2 | 60 | 60H X 48W X 24D | 750 |
| LDC090-GB-GM-2 | 90 | 60H X 48W X 24D | 850 |
| LDC120-GB-GM-2 | 120 | 60H X 48W X 24D | 1200 |
| LDC140-GB-GM-2 | 140 | 60H X 48W X 24D | 1250 |
| LDC150-GB-GM-2 | 150 | 60H X 48W X 24D | 1350 |
| LDC180-GB-GM-2 | 180 | 60H X 48W X 24D | 1750 |



**Gate Box / LDC
Combination
Unit**

(Available with 18" floor stand or bridge mounting kit on select models).

At FCX Systems, we take pride in our highly trained support staff, dedicated to providing the best operational and technical support in the industry. Factory technicians are available for on-site training, maintenance and repair services, either in conjunction with our available maintenance plans, or as standalone services. Operational and maintenance training are also available at our factory. With FCX you can rest assured that you will have the support you need, when you need it, from a friendly, professional and experienced staff, 24/7/365. Contact us at **(304)983-0403** or **service@fcxinc.com**.