

Model Series: DelphiTech *USTAR*

Fixture Type: Interior LED Low PProfile

Part Numbers: PN LPR ...

A. INSTALLATION STEPS

1. Select location for **Power Source (D.)** and mount, and run **Power Feed Cable (E.)** to area where fixtures will be mounted. Plan to minimize distance between panel and fixtures and follow **Power Cable Loading (B.)** guidance.
2. Select locations for **Fixtures (F.)** to be screwed to the mounting surface. You can take a small pieces of wire and temporarily hook fixture up to DelphiTech power source to experiment with positioning to achieve the preferred result. If you do this, be careful not to damage IDC on fixture when you remove wire afterwards.
3. For final positions, perform all **Connections (C.)** between fixtures and power feed cable and mount fixtures.
4. When you are finished and turn the system on, check to ensure furthest fixture is operating at 9VDC or higher and the power supply current is less than its rating. This checking is NOT required if you follow the guidelines of **Power Cable Loading (B.)**
5. Apply corrective action if necessary. Contact DelphiTech if you have any questions.

The above 5 steps represent a typical installation for an LPR interior mounted fixture. All interior mounting locations follow the same general principles and standard trade practices. **Fixtures may be mounted on wood surfaces, metal surfaces, drywall, and various ceiling materials using appropriate fastening hardware**

B. Power Cable Loading

1. Voltage drop on Power Feed Cable should be considered. Fixtures should not be allowed to operate below 9 VDC or they may turn off.
2. Plan routes that put fixtures as close to the Power Source as possible to reduce voltage drop. A LPR120 fixture consumes 2W of power. The table below shows a worst case scenario for different power feed cable lengths **if all fixtures were at the end of the wire – typically not the case.**
3. For large systems, we recommend multiple runs of wire from the supply, especially when the wire runs are long. **For more understanding, use our CalcKing software which simulates distributed fixtures per run or call DelphiTech.**

Feet of Wire Per Run	1.5 Amp Supply (1 run)	2.09 Amp Supply (1 run)	5 Amp Supply (1 run)	5 Amp Supply (up to 4 runs)
50'	7	10	22	22
100'	6	9	11	22
150'	6	7	7	22
200'	5	5	5	20

C. Connections

1. The **18 AWG Insulation Displacement Connection (IDC)** is found on the back of a fixture
2. Use DelphiTech bit DPT_IDC_BIT_1 to perform a connection using a stubby magnetic screwdriver. For a non-magnetic bit, use a piece of tape or small amount of silicon adhesive to secure bit into screwdriver.
3. **Steps to perform connection:** a) gently score outer jacket of 18 AWG wire where you wish to attach a fixture and pull apart 1/2" b) pull nylon cord to the side and using DPT_IDC1_Bit in a magnetic stubby screwdriver, punch down on appropriate IDC connection with Red wire +ve closest to the outside of the fixture and Black wire –ve closest to the inside of the fixture c) inspect to ensure a quality connection is achieved
4. **All connections MUST be serviceable for repair if necessary—never hide a connection where it can't be found or worked on**
5. Never put connections in a conduit or electrical box containing standard household wiring
6. Ensure end of wire at the last fixture is only slightly beyond IDC and they don't short together or to the back of the fixture, otherwise keep them longer and insulate them with an appropriate method such as electrical tape.
7. All DelphiTech wire routing & connections follow Class II electrical rules — low voltage, power limited circuit on a short circuit protected PS approved by DelphiTech.

Warranty

Please contact DelphiTech for details on warranty. Note: Do not locate fixtures in an area where you intend to generate heat or excess humidity as this can void warranty. When operating appliances that can create these conditions, it is a good idea to avoid putting them in close proximity to fixtures. Do not paint fixtures. Do not put strain on fixture IDC. Only use a DelphiTech Power Source.

D. Power Source (PS)

1. **Never connect the 12 VDC output of one Power Source (PS) to another 12 VDC PS.** A PS can drive multiple main power feed cables, but no power feed cable can share more than one PS
2. **Never use any PS other than a DelphiTech PS to avoid risk of fire** or possible fixture damage
3. The DelphiTech PS should be operated in a dry indoor location (20% - 90% RH non-condensing) and a temperature (0°C - 40°C or 32°F - 104°F)
4. Never use attics, garages, sheds or outside shelter boxes for the PS unless that area meets above conditions 12 months of the year
5. **Measure total current when install is finished at the PS and ensure DC current is less than the supply rating.**
6. The AC input of the PS may be connected to any approved 120 VAC circuit including timer that is capable of switching an inductive load.

E. Power Feed Cable

1. Use DelphiTech approved 18 AWG power cable as it has proper safety ratings and works well with the solderless IDC connections.

F. Fixtures

1. Fixtures may be installed in areas that are -10 to +45 degrees Celcius and whose **average humidity** is 10-95% Relative Humidity RH non-condensing. Avoid mounting in any area that has excess heat or humidity and relocate any appliances that would present excess heat or humidity on fixtures.
2. For long durability, never surround a fixture by something that adds heat to the fixture. Never surround a fixture by any insulating material including building insulation, plastic, wood, etc. Fixtures are non-IC (non-Insulation-Contact). We recommend surface mounting only. If recessing into any wood surface for a flush look, always ensure there is at least 3/8" gap completely surrounding fixture on all 4 sides and do not cover front surface in any fashion.
3. All fixtures mount with a black #4 x 1" long screw that is supplied from DelphiTech.
4. When mounting you can place fixtures at the required distance along the mounting wire, to avoid excess wire. If mounted on a wood surface, wire can be secured to wood with either a T-25 wire staple or a channel (3/16" x 3/16") can be pre-routed in wood and wire can be secured and hidden between fixtures using an iron-on laminate strip matching wood color. Other wire hiding techniques may be employed to hide wires behind wooded surfaces, drywall, and various ceilings.