**INSTALLATION GUIDE**

**BUSRan Busway**

**Hanging**

- **Hanging Joiner**
- **BusRun Cross-Sections**
  - **BUS1**
    - 1-Circuit BusRun
    - 0.75 pounds/linear foot
  - **BUS2**
    - 2-Circuit BusRun
    - 1.45 pounds/linear foot

**Pendant**

- **Mounting Hardware** (ordered separately)

**Typical Layouts**

- **Grids**
- **Rows**
- **Patterns**
- **Pathways**

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**H Mounting Point Rules**

- **12"**
  - A hang-point must be provided within 12" of every end or corner of the BusRun layout.

- **8’ 0”**
  - Maximum distance between hang-points cannot exceed 8 linear feet of ‘H’ BusRun busway.

- **14”**
  - Mounting points cannot be made within 7” on either side of the centerline at sleeved joints.

- **100 lbs**
  - BusRun busway and mounting hardware are rated for a total supported weight up to 100 pounds between mounting points.
  - If the total supported weight between mounting points exceeds 100 pounds, shorten the distance between mounting points to comply with 100 pound maximum (as below).

- **40 lbs**
  - The BusRun fitting is rated for 40 pounds (maximum) static, vertical load.
  - Only BusRun fittings and/or BusRun supplements may be mounted directly to BusRun busway.

**Shortened Distance**

To comply with 100 pound max.

**H Mounting Point Examples**

**At X or T Intersection**

At least one mounting point must be located within 12” of every BusRun corner. Distance to the next mounting point on each side cannot exceed Maximum.

**Centered Around X or T Intersection**

Branch runs must have mounting points within 12” of each end of the run, with not more than Maximum between any two points.

**Near X or T Intersection**

The distance between mounting points in all directions around an X or T intersection cannot exceed Maximum.

**Support**

Structure and everything from Structure to BusRun Mounting Hardware must be engineered and installed so as to properly support the entire suspended weight.

**Structure**

Connection (by others)

Pendant Kit (by Litelab) with components shown on page 3.

**Installer’s Responsibility**

Weight of ‘H’ BusRun busway

- 1-circuit – 0.75 lb per running foot
- 2-circuit – 1.45 lb per running foot

(not including connected weight)
H Mounting Hardware

Pre-Assembly
Slide one tapped bar per required pendant into the BusRun mounting channel before adding Joiner sleeves. Tapped bars can be installed only from the end of the mounting channel. Consult factory before installing Pendants at corners of L, T, or X Intercepts if four hex nuts are supplied, instead of tapped bar and 3 hex nuts.

Plug-Ins on H BusRun

The BusRun fitting is rated for up to 40 pounds static, vertical load. Only BusRun fittings and/or BusRun supplements may be mounted directly to BusRun busway.

When mounting lighting fixtures by others to BusRun PowerTaps, or signage to BusRun SignHangers, the total weight per item cannot exceed 40 pounds static, vertical load.

Bridges PLUS the weight mounted to them cannot exceed 40 pounds total.

Bridge Example

Weight of Bridge and plug-ins mounted to it cannot exceed 40 pounds, and must be included in the 100 lb maximum between BusRun mounting points.

Lighting, Power & Support, by Litelab

<table>
<thead>
<tr>
<th>Lighting Fixtures</th>
<th>SignHangers</th>
<th>PowerDown Boxes</th>
<th>PowerAcross Bridges</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Lighting Fixtures" /></td>
<td><img src="image" alt="SignHangers" /></td>
<td><img src="image" alt="PowerDown Boxes" /></td>
<td><img src="image" alt="PowerAcross Bridges" /></td>
</tr>
</tbody>
</table>

*all weight ratings are based on static, vertical load.

PowerTaps for Lighting by Others (consult)

<table>
<thead>
<tr>
<th>Decorative PowerTaps</th>
<th>Hi-Bay PowerTaps</th>
<th>Hi-Bay Bracket PowerTaps</th>
<th>Fluorescent Bracket PowerTaps</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Decorative PowerTaps" /></td>
<td><img src="image" alt="Hi-Bay PowerTaps" /></td>
<td><img src="image" alt="Hi-Bay Bracket PowerTaps" /></td>
<td><img src="image" alt="Fluorescent Bracket PowerTaps" /></td>
</tr>
</tbody>
</table>
H Starters
Hardwired maximum 60A
supplied with
End Cap for end of run

Connections
<table>
<thead>
<tr>
<th>Item</th>
<th>1-Circuit</th>
<th>2-Circuit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pendant – 30° leads standard</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Stem/Coupling</td>
<td>1/2&quot; NPSM x 18&quot; nom. ht.</td>
<td>1/2&quot; NPSM x 18&quot; nom. ht.</td>
</tr>
<tr>
<td>• Canopy</td>
<td>6 3/8&quot; dia.</td>
<td>6 3/8&quot; dia.</td>
</tr>
<tr>
<td>• #4 box, by others</td>
<td>see size supplied above or equivalent volume</td>
<td>see size supplied above or equivalent volume</td>
</tr>
<tr>
<td>Lead Wire</td>
<td>supplied</td>
<td>supplied</td>
</tr>
<tr>
<td>• by others</td>
<td>#6 AWG rated 90° C.</td>
<td>#6 AWG rated 90° C.</td>
</tr>
</tbody>
</table>

BusRun Starters do not have screw terminals. Leads must be factory-fitted in standard (above) or custom lengths (specified at time of order). Field-connections to extend lead length must be made in an accessible junction box.

BusRun Starters are a UL listed factory assembly with #8 AWG leads. As such, they are not subject to the same NEC sizing requirements as the building wiring (feeds) brought to them.

Feed Wire
<table>
<thead>
<tr>
<th>by others</th>
<th>#6 AWG rated 90° C.</th>
</tr>
</thead>
</table>

Smaller wire may be used (as allowed) for feeds less than 60 amps. Refer to appropriate building/electrical codes.

Maximum Feed

<table>
<thead>
<tr>
<th>Max Voltage</th>
<th>Max. Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>300 V.A.C. max.</td>
<td>60 amps max.</td>
</tr>
</tbody>
</table>

Line-Voltage Loads

<table>
<thead>
<tr>
<th>120 VAC</th>
<th>277 VAC</th>
<th>CURRENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. Load</td>
<td>Max. Run</td>
<td>Max. Load</td>
</tr>
<tr>
<td>7,200 watts</td>
<td>260 feet</td>
<td>16,620 watts</td>
</tr>
<tr>
<td>6,000 watts</td>
<td>310 feet</td>
<td>13,850 watts</td>
</tr>
<tr>
<td>4,800 watts</td>
<td>390 feet</td>
<td>11,080 watts</td>
</tr>
<tr>
<td>3,600 watts</td>
<td>516 feet</td>
<td>8,310 watts</td>
</tr>
<tr>
<td>2,400 watts</td>
<td>780 feet</td>
<td>5,540 watts</td>
</tr>
</tbody>
</table>

Ratings for Maximum Load and Maximum Run were calculated to produce no more than 5% voltage drop, based on an evenly distributed load.

Low-Voltage Loads

Do NOT proceed as above!
Refer to separate Instructions and Ratings for Low-Voltage (12V) BusRun.
If not enclosed, contact customer service at 1-800-238-4120.

H Starters
BranchBus maximum 20A

BranchBus Connections
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feed</td>
<td>Plug-in fitter and stainless steel-sheathed cable provide 20-amp fused power from 60-amp (max) main run.</td>
</tr>
<tr>
<td>Mounting</td>
<td>Supplied hardware holds BranchBus Starter at a 90° angle against main run from which it gets power (diagrams at right). BranchBus Starters and connected Joiners must be secured to structure according to same Mounting Rules as main runs.</td>
</tr>
</tbody>
</table>

BranchBus Loads

<table>
<thead>
<tr>
<th>Item</th>
<th>Fuse</th>
<th>Voltage</th>
<th>Max Load</th>
<th>Max Run</th>
</tr>
</thead>
<tbody>
<tr>
<td>BranchBox Starter</td>
<td>20A</td>
<td>120V</td>
<td>2,400 watts</td>
<td>780 feet</td>
</tr>
<tr>
<td></td>
<td>20A</td>
<td>277V</td>
<td>5,540 watts</td>
<td>1,790 feet</td>
</tr>
<tr>
<td>BranchTap Starter*</td>
<td>20A</td>
<td>120V</td>
<td>2,400 watts</td>
<td>25 feet</td>
</tr>
<tr>
<td></td>
<td>20A</td>
<td>277V</td>
<td>5,540 watts</td>
<td>25 feet</td>
</tr>
</tbody>
</table>

* As a tap, the maximum length of run using this product can range from 25 - 50 feet. Consult Articles 240-2 and 364-11 of the National Electrical Code.

Assembly & Mounting

BranchBus Starters must be mounted to the ceiling independently of the main run from which they get power.

• Slide rectangular bar (a) into mounting channel of Branch Starter.
• Insert dog-eared bar (b) into mounting channel of main run and rotate it 90°.
• Fit holes of cross-bar (c) onto studs of bars a and b and secure with lockwashers and hex nuts.

This assembly cannot be used as a mounting point — use only approved mounting hardware, as shown on page 3.

Joiners used for branch runs are the same as those used in main runs. Follow the instructions for connecting and mounting, as detailed within the pages of this book.

After Joiners and End Cap have been added to complete the branch run, plug fitting from Branch starter into main run.
H Joiners
for use with Starters (hardwired or BranchBus)
includes items shown, mounting hardware specified separately

Basic Steps of Joining BusRun Pieces

1 • Verify Gap at Ends

BusRun is supplied with copper busbars cut 5/8" back from the open ends so joints can be made between pieces. Although the busbars in Starters and Intercepts are glued in place, those in Joiners are not. This allows standard Joiner lengths to be field-cut when necessary (page 8). Busbars fit snugly into the insulator, and the insulator snugly into the housing, but their position should be verified.

Verify that insulator is flush with housing at both ends of Joiner and that copper busbars are 5/8" back from both ends.

2 • Install Sleeve

2A Slide alignment/ground sleeve half-way onto housing (mounting bars should already be in the mounting channel, page 3).

2B Add next piece to alignment/ground sleeve.

Important
To achieve polarity and correctly-made connections, ends to be joined must match internally.

3 • Connections

3A Tighten until snug, plus an additional half-turn – do not overtighten.

3B Use needlenose pliers to insert busbar connectors into busbars, making sure that each is centered inside gap at seam and pushed in fully above bottom of insulator.

4 • Protect

Insert protective cover, snapping edges into groove on each side of busway. Center cover at seam to protect and insulate busbar joints.
**4 BASIC STEPS**

Standard BusRun Joiners are available in **FULL** four, eight, and ten foot lengths. In addition, standard **REDUCED** and **SHORT** lengths allow 4, 8, and 10 foot modularity to be maintained when Starters and L, T, and X-Intercepts are factored into grids.

**FULL** Joiners are standard in 4, 8, and 10 foot lengths.

**REDUCED** Joiners are 10 inches shorter than full.

**SHORT** Joiners are 20 inches shorter than full.

Intercepts are 10 inches long from the corner.

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**Modular Length Joiners**

Standard BusRun Joiners are available in **FULL** four, eight, and ten foot lengths. In addition, standard **REDUCED** and **SHORT** lengths allow 4, 8, and 10 foot modularity to be maintained when Starters and L, T, and X-Intercepts are factored into grids.

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**Key**

- **(F)** = Full-length Joiner
- **(R)** = Reduced-length Joiner
- **(S)** = Short-length Joiner

**Examples**

The examples at right illustrate the usefulness of factory-cut Full, Reduced, and Short Joiners in maintaining modularity.

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**NOTE:** X, T, and L Intercepts are pre-wired at the factory for individual applications — they cannot be altered in the field. When using X, T, and L Intercepts in a grid, a drawing must be provided so proper layout can be achieved.
**Basic Steps**

1. **Consult Layout**
   - Working from planned layout, determine the number and location of feed points and mounting points.
   - Feeds must comply with ratings for Starters (page 4) or Low-Voltage Ratings (supplied as separate booklet).
   - Mounting points must comply with Mounting Rules (pages 2-3).

2. **Install Suspension Devices**
   - Secure suspension devices to structure in compliance with Mounting information (page 2) as well as any additional instructions supplied with the specified mounting hardware.

3. **Insert Mounting Hardware**
   - Mounting hardware is packed separately from BusRun.
   - Locate mounting bars and slide them into mounting channels of Starters, Joiners, and Intercepts as required to match layout of Suspension Devices.
   - Loosely thread remaining components of mounting hardware (page 3) onto bars.

4. **Connect Starters to Suspension Devices**
   - Connect Starters to suspension devices at feed points, but do not connect feed wires until later.
   - Adjust position of mounting hardware, if necessary, and tighten to prevent shifting.

5. **Add Ground/Alignment Sleeves**
   - Slide sleeve onto correct end of Joiner (page 5) and position it (temporarily) all the way back from the end of the Joiner.

6. **Connect Joiners to Suspension Devices**
   - Connect Joiner mounting hardware to suspension devices. Work in combination with step 7, if necessary, to prop up Joiner while connecting mounting hardware.
   - Adjust position of mounting hardware, if necessary, and tighten to prevent shifting.

7. **Join Pieces with Ground/Alignment Sleeves**
   - Join BusRun Pieces together with Ground/Alignment Sleeve, tightening screws on sleeve to secure the joint (page 5).

8. **Cross-brace with Struts, if needed**
   - Attach non-electrical Struts (page 8) for lateral support between cable-hung, parallel runs.

9. **Make/Verify Electrical Connections**
   - Follow detailed instructions on page 5 to:
     - Verify ground connections at Sleeves.
     - Make hot and neutral busbar connections.
     - Install protective covers at all busbar connections.
     - Install end caps at ends of runs.
     - Make feed connections to Starters (ratings, page 4).
     - When BusRun installation is complete, install lighting fixtures and other Listed devices, as shown on separate BusRun Plug-In Fittings instructions.
Struts
non-electrical cross-pieces for use with parallel straight runs

Assembly & Mounting
As non-electrical support elements, Struts mount to BusRun Joiners at a 90° angle. Struts can be used intermittently to add lateral support between cable-hung, parallel straight runs or, they can be used in continuous spans across parallel straight runs to provide the look of a grid with power in one direction.

Struts can support non-electrical plug-ins when properly installed in compliance with Mounting Rules (pages 2-3).

The hardware that holds Struts against Joiners cannot be used as a mounting point — use only approved mounting hardware (page 3) to support BusRun and Struts.

Assemble hardware and attach Struts to BusRun Joiners as follows:
• Slide rectangular bars (a) into mounting channel of Strut.
• Insert dog-eared bar (b) into mounting channel of BusRun and rotate it 90°
• Fit holes of cross-bar (c) onto studs of bars a and b and secure with lockwashers and hex nuts.

END-OF-RUN FIELD-CUTS
Modular Full, Reduced and Short Joiners along with X, T, and L Intercepts (page 6) eliminate most field-cutting, but sometimes it may be necessary to trim an end of run. **Only BusRun Joiners can be field-cut — Starters, L, T, and X Intercepts cannot be field-cut** because the busbars are not adjustable. Field-cutting any BusRun piece except a Joiner will negate its connectability to any other piece and void its warranty.

EQUIPMENT LIST:
• Chop saw with aluminum cutting blade OR mitre box and fine-tooth hacksaw
• Safety glasses
• De-burring tool

1 Mark desired field-cut length of BusRun on joiner housing.

2 Verify that grey insulator is flush with aluminum housing at BOTH ends of Joiner.

3 Push copper busbars into Joiner until flush with insulator and housing at SCRAP end, producing a 1 1/4" gap at opposite end.

4 Wear safety glasses while making a 90° cut at the marked location.

5 Deburr cut ends of housing, insulator, and busbars.

6 Push busbars back from cut end to create 5/8" gap at BOTH ends.

End Strut, with mechanical-T hardware

Center Strut, with mechanical-X hardware