### A-2.6 PRODUCT INFORMATION SHEETS

The following pages contain a compendium of Product Information Sheets, as available for the Project at this time.

**LANDSCAPING**
- Urban Accessories, 'Jamison', 4'x6' Natural Raw Unfinished Cast Aluminum
- Trojan Industries Tree Well Frame 406
- City of Calgary Roads ‘Typical Tree Trench’ 454.2012.004

**TACTILE STRIPS**
- Kinetik Advantage Cast Iron Tactile Strip

**METAL GRATING**
- JSG Aluminum Bar Grating, Imperial Type 7-4
- SlipNOT Grating 7 - 4, Grade 2 (Medium) Stainless on Aluminum
- SlipNOT Grate Plate, Grade 2 (Medium) Aluminum on Aluminum

**POLYCARBONATE**
- 3-Form Koda XT
- 3-Form Chroma

**PUBLIC ART LIGHTING**
- Traxon Nano Linear Allegro AC XB RGB
- Traxon String RGB

**STREET LIGHTING**
- Cooper Lighting 'Gleon' Galleon LED 1 - 10 Light Squares
- Kensington Street Light Pole
- GYA STR05 Monochromatic Linear LED

**SECURITY SYSTEM**
- Command CSH02 Call Box/USM931A Substation/AP 50-Watt Amplifier AF 501 & IP-Subscriber Cards G8-IP
- SH-931 Station Heater
- DNH Loudspeaker
- Alcatel-Lucent Omniswitch 6850E
- Panasonic Super Dynamic Full HD Vandal Resistant Dome Network Camera WV-SW528
**Material**
- Cast in four pieces.
- Grate is 1-1/2" thick at edge.
- Center opening expansions at 1'-2" and 1'-10" square.
- No openings greater than 5-16", in conformance with ADA Accessibility Guidelines.
- Grate weighs 570 lbs.

**Notes**
- Cast in four pieces.
- Grate is 1-1/2" thick at edge.
- Center opening expansions at 1'-2" and 1'-10" square.
- No openings greater than 5-16", in conformance with ADA Accessibility Guidelines.
- Grate weighs 570 lbs.

**Dimensions**
- 4' x 6' Jamison

**Color**
- Brush (bronze/nickel/aluminum only)
- Polish (bronze/nickel/aluminum only)
- Galvanized (grey iron and ductile iron only)

**Other**
- 8" open
- 8" solid

**Plan**
- Material will be high quality 100% recycled grey iron, ASTM A48 class 35b or better; hardness 170-223 brinnell (unless specified otherwise; see below).

**Finish**
- Raw (standard)
- Rust conditioner
- Polyester Powder Coat*
- Liquid Coat (wet paint)*

**Specifications**
- Material:
  - Grey iron ASTM A48 (standard)
  - Aluminum, ASTM B26
  - Ductile iron, (required for all load ratings higher than pedestrian) ASTM A536 class 65-45-12.
  - Nickel bronze (ASTM B30)
  - Bronze (ASTM B26)

- Finish:
  - Raw (standard)
  - Rust conditioner
  - Polyester Powder Coat*
  - Liquid Coat (wet paint)*

*Please specify desired color or color code.

**Color**
- Brush (bronze/nickel/aluminum only)
- Polish (bronze/nickel/aluminum only)
- Galvanized (grey iron and ductile iron only)
- Other:
  - 8" open
  - 8" solid
1 of 1 1 of 2

ANDSCAPING - City of Calgary Roads 'Typical Tree Trench' 454.102.004

4th Street SW Underpass Enhancement Project

Appendix A-2.6

1 of 1 1 of 2

Landscape - City of Calgary Roads 'Typical Tree Trench' 454.102.004

4th Street SW Underpass Enhancement Project

Appendix A-2.6

1 of 1 1 of 2

Designed for Durability
Engineered for Ultimate Strength

Advantage™ Cast Iron Tactile Walking Surface Indicator (TWSI) plates are manufactured in strict accordance with ASTM A-48, Class 35B Grey Cast Iron. The Advantage™ Cast in Place System is lightweight with exceptional high strength, and utilizes the most advanced metallurgical Engineering Science and Technology to meet and exceed the most stringent municipal standards. Advantage™ Cast Iron is aesthetically pleasing, has exceptional longevity and incorporates integral texture for a permanent slip resistant surface.

PRODUCT FEATURES

• Lightweight and easy to install
• Bolted connection allows for easy connectability between two or more plates
• Available in various sizes and radii
• Engineered to withstand abuse of heavy vehicular traffic such as snow plows, forklifts, and other rolling loads
• Maintenance-free natural patina
• ASTM A48, Class 35B Grey Cast Iron
• Can be recycled after its lifecycle
• Largest selection of standard and radius tiles
• 10 year manufacturer’s warranty

COMPLIANCE

Advantage™ Cast Iron Tactile Systems are in full compliance with Canadian Accessibility Codes. Kinesik tactile walking surface indicators meet the most recent AODA, CSA, and ISO, provincial and national building codes. Kinesik Engineered Products Incorporated is your one stop source for all tactile systems for people who have visual impairments, and only Kinesik provides a complete range of products designed for safety and convenience.

See back for details.
Appendix A-2.6

PROFESSIONAL ASSOCIATIONS
Kinesik is proud to be a member of the following organisations

STANDARD COLOUR

ADVANTAGE CAST IRON SIZES

Standard Partial

<table>
<thead>
<tr>
<th>Size</th>
<th>Load Rate (in lbs per foot)</th>
<th>Deflection (in)</th>
</tr>
</thead>
<tbody>
<tr>
<td>19-4</td>
<td>10.8</td>
<td>0.036</td>
</tr>
<tr>
<td>19-2</td>
<td>12.32</td>
<td>0.046</td>
</tr>
<tr>
<td>8-4</td>
<td>6.3</td>
<td>0.036</td>
</tr>
<tr>
<td>7-4</td>
<td>4.339D</td>
<td>0.046</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

PLATE SPECIFICATIONS

<table>
<thead>
<tr>
<th>Standardisation</th>
<th>Test Dimension</th>
<th>Tensile Strength</th>
<th>Elastic Modulus</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASTM E1000</td>
<td>765 MPa</td>
<td>210 MPa</td>
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</tr>
<tr>
<td>ASTM A 177</td>
<td></td>
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<tr>
<td>ASTM A 38</td>
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<td></td>
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<tr>
<td>ASTM C 101</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

APPLICATIONS

TWSI – Truncated Domes

- An unprotected drop off edge, such as a transit platform where the change in elevation is greater than 250mm or the slope is steepener than in a ratio of 1:3 (33%).
- The unprotected edges of a reflecting pool.
- An entry into a vehicular route or area where no curbs or other elements separate it from a pedestrian route such as curb ramps, wheel chair ramps, top of stairs/escalators and blended transitions.

KINESIK Engineered Products Incorporated
3013 North Sheridan Way
Mississauga, Ontario, L4X 1A3
Canada: 855.364.7763
Fax: 604.769.9460
www.kinesik.ca

Bar Grating - Aluminum

TABLE of SAFE LOADS - IMPERIAL

<table>
<thead>
<tr>
<th>SIZE OF PLATE (Inches)</th>
<th>LOAD RATE (lbs per foot)</th>
<th>DEFLECTION (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>19-4</td>
<td>10.8</td>
<td>0.036</td>
</tr>
<tr>
<td>19-2</td>
<td>12.32</td>
<td>0.046</td>
</tr>
<tr>
<td>8-4</td>
<td>6.3</td>
<td>0.036</td>
</tr>
<tr>
<td>7-4</td>
<td>4.339D</td>
<td>0.046</td>
</tr>
</tbody>
</table>

Note: Spans to the right of heavy line not recommended. Deflections shown based on tabulated loadings. For lesser design loads reduce deflection in direct proportion. For overlaid surface increase deflection by 1/4" for load rate.

GENERAL

Loads and deflections are theoretical and based on static loading.
METAL GRATING- SlipNOT Grating 7-4, Grade 2 (Medium) Aluminum on Aluminum

<table>
<thead>
<tr>
<th>SPAN</th>
<th>WIDTH</th>
</tr>
</thead>
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<td>7/16&quot;</td>
<td>4-1/8&quot;</td>
</tr>
<tr>
<td>7/32&quot;</td>
<td>5-7/16&quot;</td>
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<tr>
<td>1/8&quot;</td>
<td>6-3/32&quot;</td>
</tr>
<tr>
<td>1/4&quot;</td>
<td>11-1/2&quot;</td>
</tr>
<tr>
<td>3/8&quot;</td>
<td>17-1/2&quot;</td>
</tr>
<tr>
<td>1&quot;</td>
<td>20-1/2&quot;</td>
</tr>
</tbody>
</table>

Bearing Bar Options

- 1/4” Cross Bars
- 1-1/4” x 3/16”
- 1-1/2” x 3/16”
- 1-3/4” x 3/16”
- 2” x 3/16”
- 2-1/4” x 3/16”
- 2-3/4” x 3/16”

Available Alloys

- Steel
- Galvanized Steel
- Stainless Steel
- Aluminum

- Trim Banded
- Same Size As Bearing Bars
- Swaged or Press-Locked Construction

ADA Compliant Spacing

7/16” c-c spacing

SlipNOT® Metal Safety Flooring

3045 Beaufait Street
Detroit, MI 48207
Phone: 313.923.0400 | Toll Free: 800.SlipNOT | Fax: 313.923.4555

SlipNOT® Bar Grating 7-4

- Bearing Bar Options
- Cross Bar Spacing
- Ends Open

SLIPNOT® Specifications for Grade 2:

**STEEL**

SlipNOT®, grit-free, steel Grip Plate® / Grip Grate® Grade #2 – Medium, as manufactured by the W.S. Molnar Company (1-800-SlipNOT) is available in stock sizes or manufactured to detailed specifications on drawings. Steel Grip Plate® / Grip Grate® shall incorporate an anti-slip primarily martensitic steel surface covering 100% of the substrate consisting of a random hatch matrix with a surface hardness between 55 – 63 on the Rockwell “C” scale and a surface to substrate bond strength of at least 4,000 psi. The non-slip surface shall have a minimum coefficient of friction of 0.8 and be listed as slip resistant by Underwriters Laboratories.

**STAINLESS STEEL**

SlipNOT®, grit-free, stainless steel Grip Plate® / Grip Grate® Grade #2 – Medium, as manufactured by the W.S. Molnar Company (1-800-SlipNOT) is available in stock sizes or manufactured to detailed specifications on drawings. Stainless steel Grip Plate® / Grip Grate® shall incorporate an anti-slip stainless steel surface covering 100% of substrate consisting of a random hatch matrix with a surface hardness between 55 – 63 on the Rockwell “C” scale and a surface to substrate bond strength of at least 4,000 psi. The non-slip surface shall have a minimum coefficient of friction of 0.8 and be listed as slip resistant by Underwriters Laboratories.

**ALUMINUM**

SlipNOT®, grit-free, aluminum Grip Plate® / Grip Grate® Grade #2 – Medium, as manufactured by the W.S. Molnar Company (1-800-SlipNOT) is available in stock sizes or manufactured to detailed specifications on drawings. Aluminum Grip Plate® / Grip Grate® shall incorporate an anti-slip aluminum surface covering 100% of substrate consisting of a random hatch matrix and a bond strength of at least 2,000 psi. The non-slip surface shall have a minimum coefficient of friction of 0.8 and be listed as slip resistant by Underwriters Laboratories.
Appendix A-2.6

METAL GRATING - SlipNOT Grate Plate Grade 2 (Medium) Aluminum on Aluminum

**Specifications for Grade 2:**

**STEEL**

SlipNOT® grit-free, steel Grip Plate® / Grip Grate® Grade #2 – Medium, as manufactured by the W.S. Molnar Company (1-800-SlipNOT) is available in stock sizes or manufactured to detailed specifications on drawings. Steel Grip Plate® / Grip Grate® shall incorporate an anti-slip primarily martensitic steel surface covering 100% of the substrate consisting of a random hatch matrix with a surface hardness between 55 – 63 on the Rockwell “C” scale and a surface to substrate bond strength of at least 4,000 psi. The non-slip surface shall have a minimum coefficient of friction of 0.8 and be listed as slip resistant by Underwriters Laboratories.

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**SlipNOT® Metal Safety Flooring**

**OUR PRIORITY: YOUR SAFETY**

SlipNOT® Metal Safety Flooring products may be covered by one or more of the following patents: 5,711,119, 6,839,951 and 6,863,932.

2545 Beaufait Street | Detroit, MI 48207 | Phone: 313.923.0400 | Toll Free: 800.SlipNOT | Fax: 313.923.4555

www.slipnot.com | info@slipnot.com
3Form Koda™ offers color, durability and design freedom for the most extreme environments and applications. These panels exhibit the highest performance of any engineered resin panels. Color, finish, and transparency coupled with endless shaping options, Koda™ is the perfect medium for your exterior architectural application. A product line developed specifically for exterior projects, Koda™ has the added benefits of being constructed from polycarbonate, offering high design and performance.

**Product Description**

3form Koda™ is a product line developed specifically for exterior projects, Koda™ less shaping options, Koda™ panels exhibit the highest performance of any engineered resin panels. Color, finish, and translucency coupled with end-

**FEATURES AND BENEFITS**

- Form and shape to create eye-catching installations
- Extremely tough, allowing for easy fabrication and maximum installed durability
- Extremely versatile, enabling designers to achieve full design potential
- Lightweight, half the density of glass, making for easier installation and reducing structural support requirements
- Good chemical resistance, reducing potential harm incurred by cleaning agents

**AVAILABLE COLORS**

- Crystal Clear
- Koda Color

**CUSTOM COLORS**

3form Koda™ can be customized to match nearly any translucent or transparent color. Minimums will apply.

**TEXTURES/PATTERNS/FINISHES**

3form provides the option of substituting between 4 optional finishes. In most cases, you can even pick different front and back finishes. Finishes include:

- **Pebble**: A high gloss finish with highest light transmission
- **Putty**: A non-glare finish with smooth appearance
- **Polish**: A glass-like finish
- **Sandstone**: A durable finish with Pebble texture
- **Stucco**: A durable finish with a textured finish

* Polish finish is only available on Crystal Clear.

---

**3form Koda XT Panel Specifications**

**Thickness**

<table>
<thead>
<tr>
<th>Thickness (inches)</th>
<th>Weight (fl. oz./sq. ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4 (0.63)</td>
<td>3.1 (150 g/m²)</td>
</tr>
<tr>
<td>1/2 (1.27)</td>
<td>1.8 (90 g/m²)</td>
</tr>
</tbody>
</table>

**Ultraviolet Exposure Performance**

3form Koda XT panels incorporate ultraviolet stabilisation technologies that are proven to maintain aesthetics and performance. The following charts provide an overview of the effectiveness of the UV stabilisation technology that is incorporated with 3form Koda XT panels.

---

**Specifications**

**Flammability & Smoke Test Results – Building Code Approvals**

Koda XT panels have been independently tested and meet the criteria for approved interior finishes and light transmitting resin materials as described in the 2009 International Building Code.

<table>
<thead>
<tr>
<th>Test</th>
<th>3form Koda XT</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASTM E84-03</td>
<td>Class B: ≤450</td>
<td>PASS</td>
</tr>
<tr>
<td>ASTM D 2843</td>
<td>Smoke Density</td>
<td>≤75</td>
</tr>
<tr>
<td>ASTM D 635</td>
<td>Flame Spread</td>
<td>Self extinguishing</td>
</tr>
</tbody>
</table>

**Deflection**

3form Koda XT will exhibit different amounts of deflection given a variety of factors: fastening techniques, loads, panel thickness and panel dimensions to list a few. The 3form Technical Help desk can assist you with general deflection guidelines for your application with the Koda XT Deflection Charts technical white paper. If your application has specific engineering requirements, please contact the 3form Product Technology team for additional detailed.

**Heat Forming/Gold Bending**

3form Koda XT can be heat formed to incorporate shape and structure into your application. Please contact 3form Technical Service for details.

**Edge Finishing**

Edges of 3form Koda XT panels are able to be machined or routed into a variety of different forms. In addition to a straight edge, edges may accept beveling, rounding, etc. Sanding, buffing, chemical polishing and heat/ flame polishing are not recommended for exterior applications due to added stress that is imparted on the material from these techniques.
### Chemical Resistance of 3form Koda XT to Select Compounds

**6 DAY FULL IMMERSION TESTING @ 73°F (23°C)**

Polymer materials are affected by chemicals in different ways. Changes in performance or appearance can be attributed to fabrication methods, exposure conditions, concentration of chemical substances or exposure duration. Such factors can often influence the final effect of substances that 3form Koda XT is considered "Resistant" to under test conditions. Further details are explained below:

#### Fabrication

Stresses generated from sanding, grinding, polising, machining, sawing and/or forming (hot or cold)

#### Exposure

Exposure duration, stress imparted during the application life-cycle, due to loads, temperature changes, heat, environments, etc.

#### Application of Chemicals

Application from contact, rubbing, wiping, spraying, soaking, etc. Also having an effect is the relative concentration of the chemical in question.

The following data is based on complete immersion of Koda XT in the chemical or material shown. Samples remained immersed and were stored at 23°C (73°F) for a period of six days. Following the test period the samples were removed from immersion and inspected. This table represents the changes in appearance of the immersed samples over the testing period.

The following table provides indicative performance of the chemical resistance characteristics of Koda XT. The following codes are used to describe the chemical resistance characteristics:

- **R** = RESISTANT
- **L** = LIMITED RESISTANCE
- **NR** = NOT RESISTING

**Chemical Resistance of 3form Koda XT to Select Compounds**

<table>
<thead>
<tr>
<th>Property</th>
<th>ASTM Method</th>
<th>SI (mm/km/ºC)</th>
<th>U.S. (in/in/ºF)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cuts</strong></td>
<td></td>
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<tr>
<td>General</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Hand Cuts, 15/72</td>
<td>D 1175</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>Saw Cuts, 15/72</td>
<td>D 1175</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>Angle Cuts, 30/150</td>
<td>D 1175</td>
<td>0.023</td>
<td>0.560</td>
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<tr>
<td><strong>Impact</strong></td>
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<tr>
<td>Notch Impact, 15/72</td>
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<td>60</td>
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<td>Izod Impact, 15/72</td>
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<td><strong>Density</strong></td>
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<tr>
<td>D 792</td>
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<td>1.20</td>
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<tr>
<td>D 695</td>
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<td>2380</td>
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<td>2344</td>
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<td><strong>Elongation</strong></td>
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<td><strong>Transverse Modulus</strong></td>
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<td>D 638</td>
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<td>108</td>
<td>1550</td>
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<td><strong>Puncture, Energy @</strong></td>
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<td></td>
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<tr>
<td>32°F</td>
<td>D 256</td>
<td>600</td>
<td>12 ft·lbf/in.</td>
</tr>
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<td><strong>Impact Strength</strong></td>
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</tr>
<tr>
<td>D 695</td>
<td></td>
<td>2380</td>
<td>345,000</td>
</tr>
<tr>
<td><strong>Impact Strength, Max</strong></td>
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<tr>
<td>D 695</td>
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<td>2380</td>
<td>345,000</td>
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<tr>
<td><strong>Shear Strength</strong></td>
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<td>D 256</td>
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<td><strong>Shear Deflection</strong></td>
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<td>D 256</td>
<td></td>
<td>86.4</td>
<td>1600</td>
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<td><strong>Density</strong></td>
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<tr>
<td>D 1505</td>
<td></td>
<td>1200</td>
<td>0.43</td>
</tr>
</tbody>
</table>
| **Sound Transmission Class (STC) Values for 3form Koda XT**

*Unless noted otherwise, all tests are run at 23°C (73°F) and 50% relative humidity, using specimens stored in darkened chambers with a thickness as indicated. Properties.*

**Cleaning Instructions**

3form Koda XT, like all thermoplastic resin materials, should be cleaned periodically. A regular, quarterly cleaning program will dramatically help prevent noticeable weathering and dirt build-up.

Rinse the sheets with lukewarm water. Remove dust and dirt from Koda XT with a soft non-abrasive cloth or sponge and a solution of mild soap and/or liquid detergent in water. A 50:50 solution of isopropyl alcohol and water also works well. Rinse thoroughly with lukewarm water.

Always use a soft, damp cloth to blot dry. Rubbing with a dry cloth can scratch the material and create a static charge. Never use scrapers or squeegees on Koda XT. Also avoid scouring compounds, gasoline, benzene, xylene, certain deicing fluids, lacquer thinner or other strong solvents.

**COMPATIBLE CLEANERS**

- Top Job, Joy®
- Palmolive Liquid®
- Windex® Ammonia Free

[Top Job and Joy are registered trademarks of Proctor & Gamble, Palmolive is a registered trademark of Colgate Palmolive, Windex is a registered trademark of Drackett Products Company]

**DO NOT:**

- Use a squeegee.
- Strong solvents, highly alkaline or abrasive cleaning agents.
- Clean in hot sun or elevated temperatures.
- Rub with a dry cloth.

**Pressure Washing**

Pressure washing can also be an effective way to remove miscellaneous debris from surfaces of 3form Koda XT installations.

Pre-soak panels with a light water spray to loosen and remove incidental debris from surfaces of 3form Koda XT installations. Pressure washing can also be an effective way to remove miscellaneous debris from surfaces of 3form Koda XT installations.

If debris or dirt is not removed by pressure washing attempt to clean with manual procedures described in preceding section. Important:

If a cleaning material is found to be incompatible in a short-term test, it will usually be found to be incompatible in the field. The converse, however, is not always true. Favorable performance is no guarantee that actual end-use conditions have been duplicated. Therefore, these results should be used as a guide only and it is recommended that the user test the products under actual end-use conditions.

For more information, please visit 3-form.com or call 877-649-2670.
Product Description

3form Chroma is produced from optical grade engineered resin. Chroma is available in thick-gauge formats which lends itself well for use in many horizontal applications. Chroma is a highly functional material that brings impact when color is introduced. Chroma is produced with brilliant colors that can be layered (up to 5 colors) to create an enormous range of hues, opacities and amazing effects. The surface of Chroma features a standard durable renewable matte texture that can be easily refreshed throughout its lifetime. Chroma incorporates 38% recycled content (29% pre-consumer, 9% post-consumer) without compromising its amazing clarity. "x" Chroma does not contain recycled content.

Chroma x is exterior grade Chroma suitable for use as signage, lighting, awnings, tables or canopies. Use Chroma x to bring amazing color and design to your exterior applications.

FEATURES AND BENEFITS

- Great for edge lighting – tremendous optical properties and high light transmission
- Rigid - stable and study material for horizontal applications
- Qualifies for '3form Reclaim™’ keeping end-of-life material out of landfills
- Combines up to five colors to create any color imaginable
- Renewable Matte Surface is able to be completely refinished to maintain product “newness”

AVAILABLE COLORS

3form Chroma comes in a variety of translucent warm and cool colors. Colors can be made opaque with the addition of the color - White Out. (Visit www.3-form.com for the complete list of available color options.)

CHROMA REFLECT

3form Reflect panels are C3 colors with a reflective opaque mirror. 3form Reflect can be paired with up to three layers of Chroma color. The back finish of Chroma Reflect panels are 1-sided and opaque. Chroma Reflect can maintain product “newness” can be easily refinished throughout its lifetime. Chroma incorporates 38% recycled content (29% pre-consumer, 9% post-consumer) without compromising its amazing clarity. "x” Chroma does not contain recycled content.

Chroma panels that are opaque (unless specified differently) are finished with a gloss backside texture to allow for more versatility during fabrication. Chroma is also available with an optional Patent finish. Patent is a high gloss finish with the highest light transmission, but does not allow for refinishing. (Chroma Reflect is not available with Patent finishes)

PANEL SIZES AND TOLERANCES

All dimensions and squareness (standard or custom) are subject to a ±1/4” or 3/16” (6 mm or 5 mm) tolerance. Squareness (standard or custom) is subject to a ± 1/8” (3.1 mm) tolerance.

Chroma is available in 1/4” thickness (6.3 mm), 1/2” thickness (12.7 mm), 1” thickness (25.4 mm) and 2” thickness (50.8 mm) thicknesses.

EXPANSION/CONTRACTION ALLOWANCES

The building code is the authoritative reference for most applications of light-transmitting plastics. The provisions of these codes provide adequate regulation for most applications of light-transmitting plastics. The following formula provides allowances which should be made in themed or fitted applications:

\[
\text{Amount of Linear Expansion/Contraction (inches)} = \frac{\text{Longest length of panel (inches)} \times \text{temperature change of the sheet (°F)} \times 0.00004}{18\text{ inches}}
\]

FLATNESS TOLERANCE

Chroma panels shall not have deviation in the form of a wrinkle, twist or scallop along the perimeter of the sheet. Warp is in the form of a curve (bow warp) extending across the sheet permitted to a maximum of 1/4” (6.3 mm) at each 48” (1.2 m), or fraction thereof. Panel is to be measured laying horizontally under its own weight on a flat continuous surface.

ETCHING

Following are some limitations to the etching process:

- Etch must be greater than 1/8” deep
- UV EXPOSURE PERFORMANCE

Chroma XT products are not able to accept etching as the etching process creates part stress that could induce crazing.

DEFORMATION

Chroma XT products are not able to accept etching as the etching process creates part stress that could induce crazing.

HEAT FORMING/COLD BENDING

3form Chroma can be heated and formed to produce simple or even complex curves and shapes. The table below lists the minimum radius for a heat formed shape. Tighter radii may be possible, contact 3form Technical Support for details.

STICKING

3form Chroma may be stuck with two different finishing options to produce patterns, text, or anything imaginable. When sticking, two different surface finishes may be specified. Polished and Renewable matte. Following are some limitations to the sticking process:

Chroma XT products are not able to accept sticking as the sticking process creates part stress that could induce crazing.

Only 1/2" / 2" Chroma may be etched.
- Limited to 1/8” deep
- Etch must be greater than 1/8” deep

USBAGE LIMITATIONS

3form Chroma should never come in direct contact with metal fasteners. Non-metallized gaskets, washers, and tubing are to be utilized in conjunction with mechanical connections such as point supports and frames. Holes for fasteners must be located a minimum of 2” from the edge of the hole to the edge of the panel. Please contact the 3form Technical Help Line should you have any questions regarding the use of Chroma with mechanical fasteners.

Chroma XT products are not able to accept etching as the etching process creates part stress that could induce crazing.

The etching process creates part stress that could induce crazing.

The etching process creates part stress that could induce crazing.

The etching process creates part stress that could induce crazing.

The etching process creates part stress that could induce crazing.

The etching process creates part stress that could induce crazing.
Appendix A-2.6

Select Mechanical and Physical Properties for 3form Chroma

<table>
<thead>
<tr>
<th>Property</th>
<th>Method</th>
<th>1/2” (12.7 mm)</th>
<th>1” (25.4 mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tensile Modulus D638</td>
<td>Kg/m^2</td>
<td>330,000</td>
<td>400,000</td>
</tr>
<tr>
<td>Rockwell Hardness D785</td>
<td>M-93</td>
<td>95</td>
<td>93</td>
</tr>
<tr>
<td>Barcol Hardness D2583</td>
<td>48</td>
<td>48</td>
<td></td>
</tr>
<tr>
<td>Compressive Strength</td>
<td>Kg/cm^2</td>
<td>890</td>
<td>890</td>
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<tr>
<td>Dynamic Coef. of Friction</td>
<td>ANSI A137.1</td>
<td>.043</td>
<td></td>
</tr>
<tr>
<td>Light Transmission</td>
<td>D1003</td>
<td>92%</td>
<td>92%</td>
</tr>
<tr>
<td>Deflection Temperature</td>
<td>D648</td>
<td>195ºF</td>
<td></td>
</tr>
<tr>
<td>Vicat Softening Point</td>
<td>D1525</td>
<td>239ºF</td>
<td></td>
</tr>
<tr>
<td>Temperature Forming</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coefficient of Thermal Contraction (internal strain)</td>
<td>D547</td>
<td></td>
<td></td>
</tr>
<tr>
<td>THERMAL INSULATION VALUES FOR CHROMA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insulation values are a function of both the convective properties (U-Values and shading coefficients) and the conductive properties (thermal conductivity).</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Cleaning Instructions

3form Chroma, like all thermoplastic materials should be cleaned periodically. A regular cleaning program will help to maintain the aesthetics and life of the material. 3form recommends the use of Countertop Magic®, Neutra® No. 1 and Brilliant® plastic cleaners. Rinse or wipe the sheet with lukewarm water. Remove dust and dirt from 3form Chroma with a damp, soft cloth or sponge and a solution of mild soap and/or liquid detergent in warm water. Rinse or wipe the 3form Chroma again thoroughly with lukewarm water. For more stubborn stains, dirty spots or grease, surface cleaners like Fantastik® or Formula 409® also work well. A soft cloth or sponge can also help to remove tough greasy stains. After all cleaning steps, be sure to rinse thoroughly with lukewarm water. Always use a soft, damp cloth to dry. Rubbing with a dry cloth can scratch the material and create a static charge. Never use scrapers or squeegees on 3form Chroma. Avoid scouring compounds, gasoline, benzene, acetone, carbon tetrachloride, certain cleaning fluids, lacquer thinner or other strong solvents.

DO: • Use sponges or squeegees as they may scratch the sheet • Use scouring compounds or solvents such as acetone, gasoline, benzene, or carbon tetrachloride to clean the sheet • Use abrasives or highly alkaline cleaners • Use a dry cloth or cloth of synthetic fibers such as rayon or polyester as they may scratch the sheet • Use WinTech® or Glass Plus® cleaners

DON'T: • Use warm water, mild detergent and a soft cloth or chroma • Rinse surface thoroughly after cleaning with lukewarm water • Use bit of slightly damp, soft cloth or chroma

THERMAL INSULATION VALUES FOR CHROMA

<table>
<thead>
<tr>
<th>Thickness (in.)</th>
<th>R-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2”</td>
<td>1.09</td>
</tr>
<tr>
<td>1”</td>
<td>2.18</td>
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THERMAL INSULATION VALUES FOR CHROMA

<table>
<thead>
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<th>Temperature Forming</th>
<th>D702</th>
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<tr>
<td>2%</td>
<td>2%</td>
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THERMAL INSULATION VALUES FOR CHROMA

<table>
<thead>
<tr>
<th>Temperature Forming</th>
<th>D696</th>
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<tbody>
<tr>
<td>@ 264 psi</td>
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<tr>
<td>@ 200°F</td>
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</table>

THERMAL INSULATION VALUES FOR CHROMA

<table>
<thead>
<tr>
<th>Temperature Forming</th>
<th>D547</th>
</tr>
</thead>
<tbody>
<tr>
<td>@ 264 psi</td>
<td></td>
</tr>
<tr>
<td>@ 200°F</td>
<td></td>
</tr>
</tbody>
</table>

THERMAL INSULATION VALUES FOR CHROMA

<table>
<thead>
<tr>
<th>Temperature Forming</th>
<th>D648</th>
</tr>
</thead>
<tbody>
<tr>
<td>@ 264 psi</td>
<td></td>
</tr>
<tr>
<td>@ 200°F</td>
<td></td>
</tr>
</tbody>
</table>

THERMAL INSULATION VALUES FOR CHROMA

<table>
<thead>
<tr>
<th>Temperature Forming</th>
<th>D1003</th>
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<tbody>
<tr>
<td>92%</td>
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</table>

THERMAL INSULATION VALUES FOR CHROMA

<table>
<thead>
<tr>
<th>Temperature Forming</th>
<th>D1525</th>
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</thead>
<tbody>
<tr>
<td>239ºF</td>
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THERMAL INSULATION VALUES FOR CHROMA

<table>
<thead>
<tr>
<th>Temperature Forming</th>
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<tbody>
<tr>
<td>48</td>
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THERMAL INSULATION VALUES FOR CHROMA

<table>
<thead>
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<th>Temperature Forming</th>
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<td>400,000</td>
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THERMAL INSULATION VALUES FOR CHROMA

<table>
<thead>
<tr>
<th>Temperature Forming</th>
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<td>M-93</td>
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THERMAL INSULATION VALUES FOR CHROMA

<table>
<thead>
<tr>
<th>Temperature Forming</th>
<th>D256</th>
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</thead>
<tbody>
<tr>
<td>Notched ≤0.25 ft-lb/in</td>
<td>≤13.3 J/m</td>
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</tbody>
</table>

THERMAL INSULATION VALUES FOR CHROMA

<table>
<thead>
<tr>
<th>Temperature Forming</th>
<th>D256</th>
</tr>
</thead>
<tbody>
<tr>
<td>Un-notched 3 lbf*in/in</td>
<td>3.17 kgf*cm/cm</td>
</tr>
</tbody>
</table>

36 of 90

the mercurial architectural collaborative inc. with Krysztof Wodiczko
Nano Liner Allegro AC XB RGB

The Nano Liner Allegro AC XB RGB series is a slim-profile, AC-line powered high brightness luminaire. The series is controllable via DMX512, and is available in four lengths, from 310mm to 1216mm with 16.7 million additive RGB colors, and various optics. The simplicity of the luminaire’s topology means it can be easily delayed-chained to form long runs.

- Light Source: LED chip technology with diffused light output
- Color Range: Full color spectrum
- Luminous Flux: 398lm, 795lm, 1691lm, 3382lm
- Efficiency: 100lm/W typ.
- Lumen Maintenance: 100%
- Cover Lens: Tempered glass cover
- Housing: Aluminum
- Adjustment Options: ±90° tilt
- Dimensions (W x D x H): 12cm x 1.7cm x 3cm
- Weight: 1.5kg/3.3lbs, 2.7kg/5.9lbs, 3.7kg/8.1lbs, 5.0kg/11lbs
- Weight for 10m: 1.8m, 2.7m, 3.6m, 4.5m
- Power Consumption: 12.5W max.
- Input Voltage: 230V AC nominal
- Power Factor: ≥0.9
- Colour: White (full on)

Photometrics

- Efficacy (lm/W): 100%
- Candela Distribution Light Output
- Lumens: 398lm, 795lm, 1691lm, 3382lm
- Photometric Measurement
- Beam Angle: 40°, 50° x 10°
- Color Range: 16.7 million additive RGB colors
- Color Luminous Flux: 27.29, 39.30, 109.17, 245.63, 982.52, 1.8m, 1.4m, 1.1m, 0.7m, 0.4m, 2.0m, 1.7m, 1.0m, 0.7m, 0.3m
- HV: 90°, 15°, 30°, 45°, 90°
- Candela Distribution Light Output
- Luminous Flux (lm): 27.29, 39.30, 109.17, 245.63, 982.52, 1.8m, 1.4m, 1.1m, 0.7m, 0.4m, 2.0m, 1.7m, 1.0m, 0.7m, 0.3m
- Candela Distribution Light Output
- Candela Distribution Light Output
- Candela Distribution Light Output

www.traxontechnologies.com

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Nano Liner Allegro AC XB RGB

Dimensions

- 42mm/1.7"
- 78mm/3"
- 310mm, 612mm, 913mm, 1216mm / 12", 24", 36", 48"
- 6.4mm/0.25"
- 284mm, 444mm, 604mm, 844mm / 11.2", 17.5", 23.8", 33.2"
- 10mm/0.4" (XB-9 only)
- XB-18, XB-27, XB-36
- 6.2mm/0.24"
- ±90°
- 16mm/0.63" (Lock screw included)
- 306mm, 488mm, 648mm, 888mm / 12", 19.2", 25.5", 35"

Mounting:

1. Rotate fixture to gain access to mounting holes. Fix screws to mounting brackets.
2. Rotate fixture to desired angle and tighten lock screws with hex key.

2.5mm Hex Key (not included)

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Nano Liner Allegro AC XB RGB System Diagram

Nano Liner Allegro AC XB RGB

Fixtures (MULTI-PXL version) 230V

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Description</th>
<th>Item Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>xB.n0.5316140</td>
<td>nano liner allegro AC XB-9 RGB 40deg (CE 230v)</td>
<td>aa614490155</td>
</tr>
<tr>
<td>xB.n0.5314140</td>
<td>nano liner allegro AC XB-9 RGB 50x10deg (CE 230v)</td>
<td>aa614480155</td>
</tr>
<tr>
<td>xB.n1.5316140</td>
<td>nano liner allegro AC XB-18 RGB 40deg (CE 230v)</td>
<td>aa614610155</td>
</tr>
<tr>
<td>xB.n1.5314140</td>
<td>nano liner allegro AC XB-18 RGB 50x10deg (CE 230v)</td>
<td>aa614600155</td>
</tr>
<tr>
<td>xB.n2.5316140</td>
<td>nano liner allegro AC XB-27 RGB 40deg (CE 230v)</td>
<td>aa614820155</td>
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<tr>
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<td>nano liner allegro AC XB-27 RGB 50x10deg (CE 230v)</td>
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<tr>
<td>xB.n3.5316140</td>
<td>nano liner allegro AC XB-36 RGB 40deg (CE 230v)</td>
<td>aa614980155</td>
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<td>xB.n3.5314140</td>
<td>nano liner allegro AC XB-36 RGB 50x10deg (CE 230v)</td>
<td>aa614970155</td>
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Fixtures (1PXL version) 230V

<table>
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<th>Model No.</th>
<th>Description</th>
<th>Item Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>xB.n1.5316141</td>
<td>nano liner allegro AC XB-18 RGB 1pxl 40deg (CE 230v)</td>
<td>aa614630155</td>
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<tr>
<td>xB.n1.5314141</td>
<td>nano liner allegro AC XB-18 RGB 1pxl 50x10deg (CE 230v)</td>
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<tr>
<td>xB.n2.5316141</td>
<td>nano liner allegro AC XB-27 RGB 1pxl 40deg (CE 230v)</td>
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<tr>
<td>xB.n2.5314141</td>
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<tr>
<td>xB.n3.5316141</td>
<td>nano liner allegro AC XB-36 RGB 1pxl 40deg (CE 230v)</td>
<td>aa615000155</td>
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<tr>
<td>xB.n3.5314141</td>
<td>nano liner allegro AC XB-36 RGB 1pxl 50x10deg (CE 230v)</td>
<td>aa614990155</td>
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Accessories

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Description</th>
<th>Item Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>xB.ac.3100001</td>
<td>Allegro AC Data Injector II (CE / ETL) (120v / 230v / 277v)</td>
<td>aa792880055</td>
</tr>
<tr>
<td>xB.ac.2302000</td>
<td>5-pin field installable AC Connector Plug IP66</td>
<td>aa438580235</td>
</tr>
<tr>
<td>xB.ac.2303000</td>
<td>5-pin field installable AC Connector Socket IP66</td>
<td>aa438570235</td>
</tr>
<tr>
<td>xB.ac.3106000</td>
<td>3-pin field installable AC Connector Socket IP66 Green</td>
<td>aa792890035</td>
</tr>
<tr>
<td>xe.id.9999910</td>
<td>AC XB Interconnection Cable, 5-wire, CE (100m/328ft reel)</td>
<td>aa556610055</td>
</tr>
<tr>
<td>xe.if.9999910</td>
<td>AC XB Power Cable, 3-wire, CE (100m/328ft reel)</td>
<td>aa556620055</td>
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<tr>
<td>xB.ac.2304000</td>
<td>5-pin Connector Socket End Cap IP66</td>
<td>aa508870335</td>
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<td>de.ac.0100000</td>
<td>RJ45 Male Connector Housing IP67</td>
<td>aa556100155</td>
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<td>de.ic.0030000</td>
<td>TX Connect Data Outdoor Cable 0.3m/1ft</td>
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<tr>
<td>de.ic.0060000</td>
<td>TX Connect Data Outdoor Cable 0.6m/2ft</td>
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<td>de.ic.0300000</td>
<td>TX Connect Data Outdoor Cable 3m/10ft</td>
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Ordering
## Nano Liner Allegro AC XB RGB

### Accessories - Light Directing

<table>
<thead>
<tr>
<th>Description</th>
<th>Item Code</th>
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<tbody>
<tr>
<td>Nano Liner Allegro AC XB-9 Symmetrical Louver 12”</td>
<td>AA788210054</td>
</tr>
<tr>
<td>Nano Liner Allegro AC XB-18 Symmetrical Louver 24”</td>
<td>AA788220054</td>
</tr>
<tr>
<td>Nano Liner Allegro AC XB-27 Symmetrical Louver 36”</td>
<td>AA788230054</td>
</tr>
<tr>
<td>Nano Liner Allegro AC XB-36 Symmetrical Louver 48”</td>
<td>AA788240054</td>
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<tr>
<td>Nano Liner Allegro AC XB-9 Asymmetrical Louver 12”</td>
<td>AA788250054</td>
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<tr>
<td>Nano Liner Allegro AC XB-18 Asymmetrical Louver 24”</td>
<td>AA788260054</td>
</tr>
<tr>
<td>Nano Liner Allegro AC XB-27 Asymmetrical Louver 36”</td>
<td>AA788270054</td>
</tr>
<tr>
<td>Nano Liner Allegro AC XB-36 Asymmetrical Louver 48”</td>
<td>AA788280054</td>
</tr>
<tr>
<td>Wall Mount Arm 12”-24”</td>
<td>AA788290054</td>
</tr>
</tbody>
</table>

### Accessories - Mounting

#### Symmetrical Louver
- Mounting holes to suit 4” Box: 85mm / 3.3”, 127mm / 5"

#### Asymmetrical Louver
- Mounting holes to suit 4” Box: 85mm / 3.3”, 127mm / 5"

#### Wall Mount Arm
- Mounting holes to suit 4” Box: 85mm / 3.3”, 127mm / 5"
PUBLIC ART LIGHTING - Traxon String RGB

String RGB

Each String RGB consists of 32 high intensity Nichia LEDs in series per string with a 62.5mm pitch. The LEDs on the string are single dot controllable by DMX or api and is connected using the Traxon TV Control system. Each package comes with 5 String RGBs and a Pixel Distributor. The String RGB is the perfect all-purpose solution for challenging surfaces where unique, eye-catching decoration is desired.

Product Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>String RGB</th>
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<tbody>
<tr>
<td>Light Source</td>
<td>LED</td>
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<tr>
<td>Color Range</td>
<td>16.7 Million additive RGB colors</td>
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<tr>
<td>Color Resolution</td>
<td>3 x 14-bit (gamma correction)</td>
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<td>Viewing Angle</td>
<td>120°</td>
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<tr>
<td>LED Pitch</td>
<td>62.5mm / 2.46&quot;</td>
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<tr>
<td>Color Limit</td>
<td>Clear PVC / PC diffuser dome</td>
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<tr>
<td>Housing</td>
<td>Thermoplastic Polyurethane Elastomer</td>
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<tr>
<td>Housing Color</td>
<td>White / grey</td>
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<tr>
<td>Adjustment Options</td>
<td>DMX512 / e:pix</td>
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<tr>
<td>Power Supply</td>
<td>Led engine smart 150w indoor / outdoor</td>
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<td>Dimensions</td>
<td>2300 x 18.8 x 10.5mm (per string)</td>
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<tr>
<td>Weight</td>
<td>0.3kg / 0.66lbs (per string), 0.9kg / 2lbs (pixel distributor)</td>
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<tr>
<td>Power Consumption</td>
<td>98w max. (pixel distributor and 5 strings)</td>
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<tr>
<td>Operating Voltage</td>
<td>24v dc</td>
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<tr>
<td>Humidity</td>
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<tr>
<td>Environment</td>
<td>Outdoor (strings - IP67 rated; pixel distributor - IP66 rated)</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>–20°C to 70°C / –40°F to 158°F</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>–20°C to 60°C / –4°F to 140°F</td>
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<td>Regulatory Listing &amp; Safety</td>
</tr>
<tr>
<td>Electrical Specifications</td>
<td>Power/Data Interface: TX CONNECT Smart</td>
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<tr>
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<td>Power Supply: 24VdC/500mA (pixel distributor / LED strings)</td>
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<table>
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<tr>
<th>Model</th>
<th>String RGB</th>
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<tbody>
<tr>
<td>Light Source</td>
<td>LED</td>
</tr>
<tr>
<td>Color Range</td>
<td>16.7 Million additive RGB colors</td>
</tr>
<tr>
<td>Color Resolution</td>
<td>3 x 14-bit (gamma correction)</td>
</tr>
<tr>
<td>Viewing Angle</td>
<td>120°</td>
</tr>
<tr>
<td>LED Pitch</td>
<td>62.5mm / 2.46&quot;</td>
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<tr>
<td>Color Limit</td>
<td>Clear PVC / PC diffuser dome</td>
</tr>
<tr>
<td>Housing</td>
<td>Thermoplastic Polyurethane Elastomer</td>
</tr>
<tr>
<td>Housing Color</td>
<td>White / grey</td>
</tr>
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<td>Adjustment Options</td>
<td>DMX512 / e:pix</td>
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<tr>
<td>Power Supply</td>
<td>Led engine smart 150w indoor / outdoor</td>
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<tr>
<td>Dimensions</td>
<td>2300 x 18.8 x 10.5mm (per string)</td>
</tr>
<tr>
<td>Weight</td>
<td>0.3kg / 0.66lbs (per string), 0.9kg / 2lbs (pixel distributor)</td>
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<tr>
<td>Power Consumption</td>
<td>98w max. (pixel distributor and 5 strings)</td>
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<tr>
<td>Operating Voltage</td>
<td>24v dc</td>
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<tr>
<td>Humidity</td>
<td>0 to 90%, non-condensing</td>
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<tr>
<td>Environment</td>
<td>Outdoor (strings - IP67 rated; pixel distributor - IP66 rated)</td>
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<tr>
<td>Storage Temperature</td>
<td>–20°C to 70°C / –40°F to 158°F</td>
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<tr>
<td>Operating Temperature</td>
<td>–20°C to 60°C / –4°F to 140°F</td>
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<td>Power Supply: 24VdC/500mA (pixel distributor / LED strings)</td>
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For more information on the products please visit: www.traxontechnologies.com

Appendix A-2.6
String RGB

Dimensions

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<th>Dimension</th>
<th>Unit</th>
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<tr>
<td>Ø12mm/0.47&quot;</td>
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<tr>
<td>290mm/11.42&quot;</td>
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</tr>
<tr>
<td>321.60mm/12.66&quot;</td>
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<td>89.80mm/3.54&quot;</td>
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<tr>
<td>99.30mm/3.91&quot;</td>
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</tr>
<tr>
<td>56.50mm/2.22&quot;</td>
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</tr>
<tr>
<td>77.80mm/3.06&quot;</td>
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</tr>
<tr>
<td>312.50mm/12.30&quot;</td>
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</tr>
<tr>
<td>10.50mm/0.41&quot;</td>
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</tr>
<tr>
<td>1.50mm/0.06&quot;</td>
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<tr>
<td>18.80mm/0.74&quot;</td>
<td></td>
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<tr>
<td>20.70mm/0.81&quot;</td>
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<tr>
<td>7.80mm/0.31&quot;</td>
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<tr>
<td>18.80mm/0.74&quot;</td>
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<tr>
<td>39mm/1.54&quot;</td>
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<tr>
<td>62.5mm/2.46&quot; (pitch)</td>
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</tr>
<tr>
<td>10.54mm/0.42&quot;</td>
<td></td>
</tr>
</tbody>
</table>

**Mounting**

Mounting on Wire

ø2mm/0.08" stainless steel wires (not included)

Mounting Accessories

2 x ST Screws

2 x Mount Brackets

String RGB

Pixel Distributor

Mounting on wall with bracket

ø2mm/0.08" stainless steel wires

2 x Mount Brackets

Mounting on wire
String RGB

Mounting

Optional Dot Clip:

- Clips can be mounted on 15mm wide DIN rail (EN 50045, BS 6273).
- "Ears" on clip can be snipped off.
- Clip onto DIN rail.
- Clips can be dovetailed together.
- Not: Clips need to keep the same orientation.

NOTE:

- Strings need to keep the same orientation.

OPTION 1: Using top Clip only for horizontal cable run.

OPTION 2: Using top and bottom Clips together for horizontal cable run.

OPTION 3: Using top Clip only for vertical cable run.

OPTION 4: Using top and bottom Clips together for vertical cable run.

String RGB System Diagram

System Diagram - Outdoor System

- TX Connect Smart Outdoor Interconnection Cable: 5m/16.4ft, 15m/49.2ft, 30m/98.4ft available.
- Butler S2 DMX/RDM Output Engine: EN.BU.0000001
- Pixel Distributor (Included with String)
- Cabling Lengths:
  - A to B: 100 meters
  - C to D: 35 meters

- Indoor/Outdoor Bridge Cable (5m/16.4ft)
- RJ45 Male Connector Housing IP67
- To additional unit.

- Butler S2 Controller
- To construct a longer Data Bridge Cable, use Indoor Data Cable and Outdoor RJ45 Housing.

- Power Supply to Fixture.
- Butler S2 Controller to Fixture.
- A to B: 100 meters
- C to D: 35 meters

- 512 DMX Channels per output

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Appendix A-2.6

String RGB System Diagram

System Diagram - Indoor System

AC 110V/220V 50/60Hz

TX Connect Smart Interconnection Cable

TX Connect Smart Indoor/Outdoor Bridge Cable (5m/16.4ft)

INDOOR OUTDOOR

TX Connect Smart Indoor Extension Cable

Available in 0.5m, 1m, 3m, 5m, 10m

Extend using Pixel Distributor (Included with String)

A to B: 100 meters

CONTROLLER to FIXTURE.

C to D: 35 meters

POWER SUPPLY to FIXTURE.

CABLING LENGTHS

TX Connect Data Indoor/Outdoor Bridge Cable (5m/16.4ft)

TX Connect Data Indoor/Outdoor Bridge Cable (5m/16.4ft)

Butler S2 DMX/RDM Output Engine

EN.BU.0000001

String

512 DMX Channels per output

CONTROLLER

62.5mm/2.46"

Dot Pitch:

1937.5mm/76.28"

32 Dots

Mesh/String Lead Extension Cable (2.5m/8.2ft)

(Max. 2 extensions per lead)

Fixtures

Model No. Description Item Code

DO.TA.7014100 String RGB NA095000005

DO.TA.70141100 String RGB with Diffuser Cone NA095000005

Standard Accessories (Included in Delivery)

Model No. Description Item Code

N/A 1x Pixel Distributor, 2x Mounting Brackets, 2x ST Cables N/A

Optional Accessories

Model No. Description Item Code

DO.AC.0000800 Connector End Cap M12 NA438670055

DO.AC.0002300 Dot Clip NA438670055

DO.AC.0002300 Dot Clip (for dot with dome) NA438680055

TX Control

Model No. Description Item Code

EN.LC.9300000 LC2E NA000980055

EN.LC.9400000 LC2E T NA000980055

EN.BU.0000001 Butler S2 NA000980055

160185 Video Micro Converter (DMX/e:pix) NA000980055

Ordering

www.traxontechnologies.com

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Product Specification 02/16 v1.8 7 of 9 8 of 9
**STREET LIGHTING - Cooper Lighting 'Gleon' Galleon LED 1-10 Light Squares**

**DESCRIPTION**

The Gallo®n LED luminaire delivers exceptional performance in a highly scalable, two-profile design. Patented, high-efficiency AccuLED Optics™ system provides uniform and energy conscious illumination to walkways, parking lots, roadways, building areas and security lighting applications. IP66 rated.

**SPECIFICATION FEATURES**

**Construction**

- Extruded aluminum driver enclosure thermally isolated from Light Squares for optimal thermal performance. Heavy-duty, die-cast aluminum end caps enclose housing and die-cast aluminum heat sinks. A unique, patent pending interlocking housing and fastener design ensures superior structural rigidity. 3G vibration rated for tool-less hardware available for ease of entry into electrical chamber. Housing is IP66 rated.

- Optics

  - Choice of 16 patented, high-efficiency AccuLED Optics. The optics are precisely designed to shape the distribution maximizing efficiency and application spacing. SL1, SL2, 90° SL3, SL4 or AFL optics. SL3, SL4 seamlessly integrate with the SL2, SL1, house side shield is designed to be field or factory installed. The SL3 and SL4 optics are offered standard in distributions with the scalability to meet customized application requirements. Standard offered in 6000K 120°, 2700K and minimum 70 CRI. Optional 6000K 120°, 2700K and 3000K CRI. For the ultimate level of spill light control, an optional house side shield accessory can be field or factory installed. The house side shield is designed to align seamlessly with the SL2, SL3, SL4 or AFL optics.

- Electrical

  - LED drivers are mounted to removable tray assembly for ease of maintenance. 120-277V 50/60Hz, 347V & 480V 60Hz operation. Standard with 0-10V dimming. Shipped standard with Cooper Lighting proprietary circuit module designed to withstand 10kV of transient line surge. The Galloon LED luminaire is suitable for operation in -40°C to 40°C ambient environments. For applications with ambient temperature exceeding 40°C, specify the HA (High Ambient) option. Light Squares are IP66 rated. Greater than 90% lumen maintenance for 50,000 hours. Available in standard 12V drive current and optional 50mA and 700mA drive currents.

- Mounting

  - Extruded aluminum arm includes internal bolt guides allowing for easy positioning of fixture during assembly. Designed for pole or wall mounting. When mounting two or more luminaires at 30° or 120° apart, the EA extended arm may be required. Refer to arm mounting requirement table on page 3. For wall mounting, specify wall mount bracket option. 3G vibration rated.

- Finish

  - Housing finished in superior durable TGIC polyester powder coat paint. 2.0 mil nominal thickness for superior protection against fade and wear. Heat sink is powder coated black. Standard colors include black, bronze, gray, white, dark platinum and graphite metallic. RAL and custom color options available. Cooper Lighting’s complete color range can be found in their Color brochure for the complete selection.

- Warranty

  - Five-year warranty.

**DIMENSIONS**

- **POLE MOUNT**

- **WALL MOUNT**

**ENERGY DATA**

- **LED Driver**

  - Lumen: 1950 Lumen
  - Wattage: 195 Watt
  - Efficiency: 10.00 efficiency
  - 0-10V Dimming: >0.90 Power Factor
  - 3-phase: >0.90 Power Factor
  - Forward Bias: IP66 Rated
  - Backward Bias: IP66 Rated
  - Efficacy: >0.90 Power Factor

**CERTIFICATION DATA**

- UL/cUL Wet Location Listed
- DLC Listed
- Energy Star Listed
- ETL Listed
- IESNA Listed
- ANSI Listed
- ISO 9001
- CSA Listed
- AGL, Ballymore, Interconnect, and UL Listed
- IP66 Listed
- MCM Listed
- UL listed

**ORDERING**

- Model No. Description
  - PS.AC.0000100 Ac Power Cord (2m/6.6ft) - AU AA556310055
  - PS.AC.0000200 Ac Power Cord (2m/6.6ft) - UK AA556300155
  - PS.AC.0000300 Ac Power Cord (2m/6.6ft) - EU AA553860055
  - PS.OA.0010000 LED Engine Smart 150W 24V Outdoor AA6241000HA
  - PS.IC.0010000 LED Engine Smart 150W 24V Indoor AA5571301HA

**EQUIPMENT**

- **Model No. Description**
  - TX Connect
  - DO.AC.0000100 TX Connect Data Outdoor Cable, 3m/9.84ft AA438810055
  - DI.AC.0000000 TX Connect Data Cable, 10m/32.8ft A6341040055
  - DI.IC.0000000 TX Connect Data Cable, 5m/16.4ft AA556140055
  - DI.IC.0000000 TX Connect Data Cable, 1m/3.28ft AA556130055
  - TE.AC.0000100 TX Connect Smart Indoor/Outdoor Bridge Cable, 5m/16.4ft AA438890055
  - DO.AC.0000710 String Lead Extension Cable (White), 2.5m/8.4ft AA639100055

**COOPER LIGHTING**

- McGRAW-EDISON

- GLEON GALLEON LED

- 1-10 Light Squares Solid State LED

- AREA/SITE LUMINAIRE

- Catalog # Type
  - Project
  - Comments
  - Code

**Prepared by**

- 2014-03-28 09:40:23

**Prepared by**

- 2014-03-28 09:40:23

**Prepared by**

- 2014-03-28 09:40:23

4th Street SW Underpass Enhancement Project

Appendix A-4of6

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### NOMINAL POWER AND LUMENS (700mA)

<table>
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<tbody>
<tr>
<td>0.20</td>
<td>0.31</td>
<td>0.41</td>
<td>0.51</td>
<td>0.60</td>
<td>0.70</td>
<td>0.80</td>
<td>0.90</td>
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**Input Current @ 120V**

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<th>Drive Current</th>
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<tbody>
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<td>0.51</td>
<td>0.67</td>
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**Input Current @ 240V**

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<th>Drive Current</th>
<th>Drive Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.20</td>
<td>0.29</td>
<td>0.40</td>
<td>0.51</td>
<td>0.69</td>
<td>0.80</td>
<td>0.91</td>
<td>1.02</td>
<td>1.20</td>
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**Input Current @ 277V**

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<th>Drive Current</th>
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<tbody>
<tr>
<td>0.20</td>
<td>0.29</td>
<td>0.40</td>
<td>0.51</td>
<td>0.69</td>
<td>0.80</td>
<td>0.91</td>
<td>1.02</td>
<td>1.20</td>
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**Input Current @ 347V**

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<tbody>
<tr>
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<td>0.40</td>
<td>0.51</td>
<td>0.69</td>
<td>0.80</td>
<td>0.91</td>
<td>1.02</td>
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**NOMINAL POWER AND LUMENS (530MA)**

<table>
<thead>
<tr>
<th>Input Current @ 120V</th>
<th>Input Current @ 208V</th>
<th>Input Current @ 240V</th>
<th>Input Current @ 277V</th>
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<tbody>
<tr>
<td>0.21</td>
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<td>0.86</td>
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**Drive Current**

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<th>Input Current @ 240V</th>
<th>Input Current @ 277V</th>
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**NOMINAL POWER AND LUMENS (500MA)**

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<th>Input Current @ 277V</th>
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<tbody>
<tr>
<td>0.20</td>
<td>0.30</td>
<td>0.40</td>
<td>0.51</td>
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**Drive Current**

<table>
<thead>
<tr>
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<th>Input Current @ 240V</th>
<th>Input Current @ 277V</th>
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</thead>
<tbody>
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<td>0.15</td>
<td>0.25</td>
<td>0.35</td>
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**NOMINAL POWER AND LUMENS (400MA)**

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<th>Input Current @ 277V</th>
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<tbody>
<tr>
<td>0.20</td>
<td>0.30</td>
<td>0.40</td>
<td>0.51</td>
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**Drive Current**

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<th>Input Current @ 240V</th>
<th>Input Current @ 277V</th>
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</thead>
<tbody>
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<td>0.15</td>
<td>0.25</td>
<td>0.35</td>
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**Specifications and Change**

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<td>Dimmable</td>
<td>Dimmable</td>
<td>Dimmable</td>
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Appendix A-2.6

LUMEN MULTIPLIER

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<th>Ambient Temperature</th>
<th>Lumen Multiplier</th>
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<tr>
<td>25°C (77°F)</td>
<td>1.00</td>
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<tr>
<td>30°C (86°F)</td>
<td>1.00</td>
</tr>
<tr>
<td>35°C (95°F)</td>
<td>0.95</td>
</tr>
<tr>
<td>40°C (104°F)</td>
<td>0.91</td>
</tr>
<tr>
<td>45°C (113°F)</td>
<td>0.88</td>
</tr>
<tr>
<td>50°C (122°F)</td>
<td>0.85</td>
</tr>
<tr>
<td>55°C (131°F)</td>
<td>0.82</td>
</tr>
<tr>
<td>60°C (140°F)</td>
<td>0.79</td>
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</table>

**LUMEN MAINTENANCE**

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Lumen Maintenance (20,000 Hours)</th>
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<tbody>
<tr>
<td>25°C (77°F)</td>
<td>≥90% of Initial Lumen</td>
</tr>
<tr>
<td>30°C (86°F)</td>
<td>≥90% of Initial Lumen</td>
</tr>
<tr>
<td>35°C (95°F)</td>
<td>≥90% of Initial Lumen</td>
</tr>
<tr>
<td>40°C (104°F)</td>
<td>≥90% of Initial Lumen</td>
</tr>
<tr>
<td>45°C (113°F)</td>
<td>≥90% of Initial Lumen</td>
</tr>
<tr>
<td>50°C (122°F)</td>
<td>≥90% of Initial Lumen</td>
</tr>
<tr>
<td>55°C (131°F)</td>
<td>≥90% of Initial Lumen</td>
</tr>
<tr>
<td>60°C (140°F)</td>
<td>≥90% of Initial Lumen</td>
</tr>
</tbody>
</table>

**TYPICAL LUMEN MAINTENANCE (5,000 Hours)**

<table>
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<tr>
<th>Temperature</th>
<th>Lumen Maintenance (5,000 Hours)</th>
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<tbody>
<tr>
<td>25°C (77°F)</td>
<td>≥90% of Initial Lumen</td>
</tr>
<tr>
<td>30°C (86°F)</td>
<td>≥90% of Initial Lumen</td>
</tr>
<tr>
<td>35°C (95°F)</td>
<td>≥90% of Initial Lumen</td>
</tr>
<tr>
<td>40°C (104°F)</td>
<td>≥90% of Initial Lumen</td>
</tr>
<tr>
<td>45°C (113°F)</td>
<td>≥90% of Initial Lumen</td>
</tr>
<tr>
<td>50°C (122°F)</td>
<td>≥90% of Initial Lumen</td>
</tr>
<tr>
<td>55°C (131°F)</td>
<td>≥90% of Initial Lumen</td>
</tr>
<tr>
<td>60°C (140°F)</td>
<td>≥90% of Initial Lumen</td>
</tr>
</tbody>
</table>

**THEORETICAL LIFE**

<table>
<thead>
<tr>
<th>Lumen Multiplier</th>
<th>Theoretical Life (Hours)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.00</td>
<td>≥50,000</td>
</tr>
<tr>
<td>0.95</td>
<td>≥49,500</td>
</tr>
<tr>
<td>0.91</td>
<td>≥49,000</td>
</tr>
<tr>
<td>0.88</td>
<td>≥48,500</td>
</tr>
<tr>
<td>0.85</td>
<td>≥48,000</td>
</tr>
<tr>
<td>0.82</td>
<td>≥47,500</td>
</tr>
<tr>
<td>0.79</td>
<td>≥47,000</td>
</tr>
</tbody>
</table>

**STREET LIGHTING** - Aluminum Single Light Pole

**STREET LIGHTING** - Aluminum Single Light Pole

[Diagram of Aluminum Single Light Pole]

**LUMENWATT WIRELESS SENSORS**

LumaWatt wireless sensors are factory installed only requiring network components such as the RF-EM1, RF-GW1, and RF-ROUT1 in appropriate quantities. See www.cooperlighting.com for LumaWatt application information.
### Monochromatic

#### Product Specification Sheet

**STREET LIGHTING - GVA STR9 Monochromatic Linear LED**

**STRENGTHEN**

**PRODUCTLINE**

**SPECIFICATION SHEET**

**Date:**

**Type:**

**Company:**

**Project:**

High performance, high power linear surface mount wall washer and wall washer for exterior applications

### Features

- Up to 3000 lumens per meter or 1200 lumens per foot
- Three power options: 5W (6565/6518), 7.5W and 15W per 300mm/18
- Superior quality of white-light, excellent LED to LED color consistency and specified color over angle
- Diffusing optical film creates uniform light output immediately adjacent to luminaire
- LED pitch is maintained within and between luminaire: no dark spots between fixtures
- DMX, DALI or 0-10V dimming through GVA’s power data equipment
- Through setting for wire-to-wire connections via snap in connectors: no junction boxes
- Small format size: 50mm x 2.0”, 72mm x 2.5” side
- Four standard nominal lengths: 600, 900, 1200 and 1500mm or 2, 3, 4 and 5ft
- UNBODIES design + proprietary sealing process for industry-best environmental protection: IP65 rated
- Projected Ballast L70 = 54,000hrs @ L-5% @120°F
- Operating temperatures: -40°C to 55°C @ 105°F to 122°F
- Optically clear tempered glass lens: no polishing over time
- 0 and 3 non-adjustable mounting brackets
- INFINITY™ GVA’s proprietary technology allows exceptionally long lighting circuits
- Guaranteed long life time and high performance: no electrolytic capacitors in all DC designs

### Options

- Custom lengths: 300’, 1000’, 2100’ or 2400’
- Glass control buttons
- Custom LED color combinations
- Non-standard beam distributions
- Maximum lumens output adjustable during commissioning

### Nominal Length

<table>
<thead>
<tr>
<th>Nominal</th>
<th>L</th>
<th>PT</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>300</td>
<td>598</td>
<td>609</td>
<td>15W</td>
</tr>
<tr>
<td>500</td>
<td>998</td>
<td>1009</td>
<td>30W</td>
</tr>
<tr>
<td>700</td>
<td>1498</td>
<td>1509</td>
<td>60W</td>
</tr>
<tr>
<td>900</td>
<td>2198</td>
<td>2209</td>
<td>90W</td>
</tr>
<tr>
<td>1200</td>
<td>3098</td>
<td>3109</td>
<td>120W</td>
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### Electrical

<table>
<thead>
<tr>
<th>Electrical</th>
<th>Nominal Input Voltage (Nominal)</th>
<th>240V, 400/480V or 380V/520V</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5W</td>
<td>598</td>
</tr>
<tr>
<td></td>
<td>10W</td>
<td>1098</td>
</tr>
<tr>
<td></td>
<td>15W</td>
<td>1598</td>
</tr>
<tr>
<td></td>
<td>30W</td>
<td>3098</td>
</tr>
<tr>
<td></td>
<td>60W</td>
<td>6098</td>
</tr>
<tr>
<td></td>
<td>90W</td>
<td>9098</td>
</tr>
</tbody>
</table>

### Optical

<table>
<thead>
<tr>
<th>Light Source</th>
<th>6 x Nichia 216 LEDs per 300mm/18</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lens Material</td>
<td>3024</td>
</tr>
<tr>
<td>Lens Output (typical)</td>
<td>3.7W</td>
</tr>
<tr>
<td>Lens Angle (65°H/45°V)</td>
<td>15W</td>
</tr>
</tbody>
</table>

### Control

<table>
<thead>
<tr>
<th>Control</th>
<th>Poly Linear</th>
<th>DMX, DALI or 0-10V control through GVA Power Data Equipment</th>
</tr>
</thead>
</table>

### Specification Logic

<table>
<thead>
<tr>
<th>FAMILY</th>
<th>NUMBER</th>
<th>BOARD COLOR</th>
<th>LED</th>
<th>POWER</th>
<th>ELECTRICAL</th>
<th>VOLTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>STR9</td>
<td></td>
<td></td>
<td>1W</td>
<td>5W</td>
<td>240V/400V</td>
<td>240V</td>
</tr>
<tr>
<td>STR9</td>
<td></td>
<td></td>
<td>5W</td>
<td>5W</td>
<td>240V/400V</td>
<td>240V</td>
</tr>
<tr>
<td>STR9</td>
<td></td>
<td></td>
<td>10W</td>
<td>10W</td>
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</tr>
<tr>
<td>STR9</td>
<td></td>
<td></td>
<td>15W</td>
<td>15W</td>
<td>240V/400V</td>
<td>240V</td>
</tr>
<tr>
<td>STR9</td>
<td></td>
<td></td>
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<td>60W</td>
<td>60W</td>
<td>240V/400V</td>
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<td></td>
<td></td>
<td>90W</td>
<td>90W</td>
<td>240V/400V</td>
<td>240V</td>
</tr>
</tbody>
</table>

### Product Configuration

[Diagram]

### Selecting Luminaires Voltage

- **24V DC** - for short runs only, up to 13.8VDC
  - use when class 2 circuit is required
- **48V DC** - for any short and medium length runs, up to 54.5V/115V
- **380V DC** - for long runs, up to 325.5V/180V
  - compatible with data center power grids
  - compatible with solar and wind power

### Maximum Run Lengths

<table>
<thead>
<tr>
<th>Input Voltage</th>
<th>Power per 300mm/18</th>
</tr>
</thead>
<tbody>
<tr>
<td>24V/150VDC</td>
<td>13.8/115V</td>
</tr>
<tr>
<td>380V/150VDC</td>
<td>325.5/180V</td>
</tr>
</tbody>
</table>

**Ratings**

For 30°C, derating will be used for higher ambient temperatures

---

**GVA Lighting, Inc., 1001 Willows Drive, P.O. Box 28, Oakville, ON L6J 3G6, Canada**

**Phone:** 1 905 808 0333 **Fax:** 1 905 808 0334 **Email:** info@gvalighting.com

gvalighting.com
Datasheet

1. CSH02 (shown with USM931A and optional text)

2. CSH02 (shown with USM931A)

Wall mount housing
- Weight: 22 lb
- Width: 11 5/8" (excluding trim rings)
- Depth: 10 3/8"
- Steel thickness: 12 gauge
- Standard voltage: 24 VAC

Applications
- Ems / 911 centers
- Mass transit
- Apartment complexes
- Hospitals
- Schools / campuses
- Jails / Correctional Facilities
- Parking garages
- Toll booth / tunnels

Data Sheet

1.0

CSH02

Stainless steel security housings

The CSH02 security wall housing is designed to house Commend’s tamper/weather resistant substations in either interior or exterior locations. Both the size and high visibility colors, provide an extremely visible and aesthetic security site for people in duress. The housing is constructed of heavy duty brushed stainless steel, which could be powder coated in a variety of durable finishes. This provides a reliable and attractive housing for the Commend security substation. The CSH02 can be configured to accept a variety of Commend security substations.

Technical Data – Benefits

- Premium grade stainless steel
- Weather / Vandal resistant
- High visibility
- Trim rings available to fit smaller substations
- Scream alarm feature in Commend stations
- Separable strobe is available
- Mass notification reliability

Compliance:
- UL 94 6H
- IEC 60068
- NFPA 72

Dust cap and double dust cap (must be used at the end of each run)

Specifications:

- Voltage: 120-277 VAC
- Power: 0-180 W
- Current: 0-1.6 A

PSE:

- ELV: 24 V
- ELV: 48 V

Power specifications

- Input voltage: 120-277 VAC
- Output power: 68 W
- Output voltage: 240 V

Control options

- DMX

Controller details

- Configuration software: CCT 800 1.1
- GE 200 (min. Pro 5.0) with G2-GED-4
- GE 700 (min. Pro 5.0) with G7-GED-4 (min. software 02.2)
- GE 300 (min. PRO 800 1.1) with G3-GED (min. G3-8-SUB 3.2)
- GE 800 (min. PRO 800 1.1) with G8-GED (min. G3-8-SUB 3.2)
- Backwards compatibility to GE 700 / GE 200:

- Individual front plate supplied with each unit
- Durable finishes - Available in a variety of colors
- Stainless steel
- Backwards compatibility to GE 700 / GE 200:
- Separate strobe is available

Ordering information:

- CSH02 (shown with USM931A and optional text)
- CSH02 (shown with USM931A)

1. CSH02 (shown with USM931A and optional text)

2. CSH02 (shown with USM931A)

Wall mount housing
- Weight: 22 lb
- Width: 11 5/8" (excluding trim rings)
- Depth: 10 3/8"
- Steel thickness: 12 gauge
- Standard voltage: 24 VAC

Specifications:

- Voltage: 120-277 VAC
- Power: 0-180 W
- Current: 0-1.6 A

PSE:

- ELV: 24 V
- ELV: 48 V

Power specifications

- Input voltage: 120-277 VAC
- Output power: 68 W
- Output voltage: 240 V

Control options

- DMX

Controller details

- Configuration software: CCT 800 1.1
- GE 200 (min. Pro 5.0) with G2-GED-4
- GE 700 (min. Pro 5.0) with G7-GED-4 (min. software 02.2)
- GE 300 (min. PRO 800 1.1) with G3-GED (min. G3-8-SUB 3.2)
- GE 800 (min. PRO 800 1.1) with G8-GED (min. G3-8-SUB 3.2)
- Backwards compatibility to GE 700 / GE 200:

- Individual front plate supplied with each unit
- Durable finishes - Available in a variety of colors
- Stainless steel
- Backwards compatibility to GE 700 / GE 200:
- Separate strobe is available

Ordering information:

- CSH02 (shown with USM931A and optional text)
- CSH02 (shown with USM931A)
Applications:
- Hospitals
- Parking garages
- Airports
- Jails / Correctional Facilities

Technical Data – Benefits

**TECHNICAL DATA:**
- Depending on desired faceplate (consult with Commend USA sales for support)

**SYSTEM REQUIREMENTS**
- Full scope of operation only with GE 800 / GE 300
  - GE 800 (min. Pro 5.0) with G2-GED (min. G4-SUB 3.2)
  - GE 300 (min. Pro 5.0 1.1) with G3-GED (min. G3-SUB 3.2)
- Configuration software min. CCT 800 1.1

**SYR**
- Backwards compatibility to GE 700 / GE 200
  - GE 700 (min. Pro 5.0) with G2-GED (min. software 02.2)
  - GE 200 (min. Pro 5.0 1.1) with G2-GED 4

**EXTENT OF SUPPLY**
- 1 security housing
- 4 3/8" x 3 Lag bolts and 3 Lag bolt anchors
- Separate grille available in Commend stations
- Screen alarm feature in Commend stations
- Separate strob is available

**APPLICATIONS**
- Airports
- Parking garages
- Mass transit
- Apartment complexes
- Toll booth / tunnels
- Schools / campuses
- Hospitals
- Schools / campuses
- Toll booth / tunnels
- Hospitals

**COLOR CHOICES**
- Red
- Blue
- White
- Black
- Yellow
- Green

**CONNECTION DIAGRAM**

**PRECAUTIONS**
- When opening the station ESD precautions must be observed.
- The stations may only be opened by authorized service engineers.

**COLOR CHOICES**
- Red
- Blue
- White
- Black
- Yellow
- Green

**CONNECTION DIAGRAM**

**PRECAUTIONS**
- When opening the station ESD precautions must be observed.
- The stations may only be opened by authorized service engineers.
Appendix A-2.6

USM931A Datasheet

- “EMERGENCY” in red text
- Mic Open LED
- Mounts in most major stanchions and security wall
- Weather resistant
- Rugged call button
- True tamper resistant construction
- Rugged 1 1/4 gauge stainless steel faceplate
- IP / DSP Substation (cable, network)

Tamper/Weather resistant security substation connects to Command servers via Cat 5 cable. It is used for either stanchion or security wall housing mounts, when both attractive appearance and extreme durability are important.

USM931A-2T
- IF+DSP Substation
- Full open duplex communications
- 3-way outputs (switched contacts for e.g. EB2E2AHE-Expansion plug for e.g. EB2E2AHE-Expansion plug for e.g. EB2E2AHE
- Microphone and loudspeaker
- Connection possibilities for:
  - IP-devices (IP-camera, parking terminals, etc.)
  - Multiple tamper resistant call buttons
  - Microphone and loudspeaker
- Integration in existing housings and panels
- Crystal clear 16 kHz speech quality for optimum intelligibility
- Communication via data networks - no additional cabling required
- Supports DSP functions such as Open Duplex®, Audio Monitoring, Loudspeaker/Microphone Surveillance, etc.
- Easy administration via internet server configuration

EXTENT OF SUPPLY
- GE800 (min PRO 800 1.0) with G8-IP-4
- GE200 (min. PRO 6.0) with G2-DSP-IP-4
- G8300 IP (PRO 800 1.0) with G8-IP-4
- G8300 IP (PRO 800 1.0) with G9-IP-4

SYSTEM REQUIREMENTS:
- Communication via data networks - no additional cabling required
- Oxygen in body: 0.9% speech quality for optimum intelligibility
- Integration in existing housings and panels
- Crystal clear 16 kHz speech quality for optimum intelligibility
- Communication via data networks - no additional cabling required
- Supports DSP functions such as Open Duplex®, Audio Monitoring, Loudspeaker/Microphone Surveillance, etc.
- Easy administration via internet server configuration

Technical Data – Benefits

INPUTS:
- Line input for feed-in of audio

OUTPUTS:
- 3-way outputs (switched contacts)

POWER CONSUMPTION:
- 12-24 VDC: 100,000 make-and-break cycles
- 30 V / 1 A: 100,000 make-and-break cycles

Frequency range:
- 50 - 16,000 Hz

EXTENT OF SUPPLY:
- GE800 (min PRO 800 1.0) with G8-IP-4
- GE200 (min. PRO 6.0) with G2-DSP-IP-4
- G8300 IP (PRO 800 1.0) with G8-IP-4
- G8300 IP (PRO 800 1.0) with G9-IP-4

SYSTEM REQUIREMENTS:
- Communication via data networks - no additional cabling required
- Oxygen in body: 0.9% speech quality for optimum intelligibility
- Integration in existing housings and panels
- Crystal clear 16 kHz speech quality for optimum intelligibility
- Communication via data networks - no additional cabling required
- Supports DSP functions such as Open Duplex®, Audio Monitoring, Loudspeaker/Microphone Surveillance, etc.
- Easy administration via internet server configuration

INTERRCOM TECHNICAL DATA

Operating temperature range:
- -20°C to +60°C
- 1°F to 140°F

Storage temperature range:
- -20°C to -60°C
- 1°F to 10°F

Relative Humidity:
- up to 95% non-condensing

Microphone input:
- for electret microphone or dynamic microphone
- Mic Input: nominal load 200k Ohm, 3.0 V peak
- Low impedance

Conversion for loudspeaker:
- 2.5 V at 11.50 Ohm

Fine microphone loudspeaker:
- Possibility for connection of e.g. headset, handset

Frequency range:
- 50 - 16,000 Hz

Line Input:
- for feed-in of audio (genuine, data conference)
- Line-input: nominal level 0.775 V at 10 kohm

Amplifier:
- Built-in amplifier class “D” with 2.5 kHz
- State indication:
- Repeatability for conversion of a 2.5 kHz
- 3 inputs for floating contacts (switches 5 input states)

Inputs:
- Microphone input: for electret microphone
- Line-Input: nominal level 0 dBu 0.775 V at 10 kohm
- Power supply: 12-24 VAC or 15-35 VDC, 500 mA or PoE
- Cabling: min. Cat. 5
- Amplifier input: nominal level 0.775 V at 10 kohm
- Power consumption of the terminal device:
- 12-24 VDC: 100,000 make-and-break cycles
- 30 V / 1 A: 100,000 make-and-break cycles

System requirements:
- Easy administration via internet server configuration

...
**Installation**

**PRECAUTIONS**
- When opening the stations ESD precautions must be observed.
- The stations may only be opened by authorized service engineers.

**LINE LENGTH IN LAN**
The maximum line length of Cat 5 wiring in a LAN is 100 m (328 ft) — e.g. from switch to ET908.

**CONNECTION DIAGRAM USM931**

**CONNECTION DIAGRAM USM931-2T (PRELIMINARY PHOTOS)**

---

**IP 50-Watt Amplifier AF 50I**

Series AF 50 provides a particularly high output range and various audio ports. Amplifiers of this series are universally suitable for any size of application up to complex public address and Intercom solutions. The devices are specifically optimised for installation either in a 19-inch rack or on-site. This added flexibility helps to save on cabling and the resulting costs.

**Features:**
- 50 watt IP amplifier with polycarbonate housing for connection to an Intercom Server.
- Output power 1 x 50 watt at 4 ohm loudspeaker or 2 x 25 watt at 8 ohm loudspeakers or 50 watt at the audio output 70V/100V.

The range of application environments is suitably flexible as well, serving the public address needs in areas from public service facilities (e.g. railway stations) to auditoriums or waiting rooms, and covering the Intercom requirements of noisy industrial facilities, garages, tunnels or office buildings.

---
**Technical Data – Benefits**

**TECHNICAL DATA**

- **I/P rating:** IP 20
- **Operating temperature range:** –20°C to +55°C / –13°F to 131°F
- **Storage temperature range:** –20°C to +70°C / –13°F to 158°F
- **Relative Humidity:** up to 95%
- **Plug:**
  - RJ 45 modular jacks with LEDs for connection to the Intercom Server (IP Uplink/Downlink)
  - Pluggable screw terminals (0.08 mm² - 1.5 mm²):
    - GE 800 / GE 300 / GE 700-UPG:
    - GE 300 (96 kBit/s)
    - GE 700-UPG (192 kBit/s)
  - RJ 45 modular jacks with LEDs for connection to the Intercom Terminal (IP-Netzwerk/Internet)

**BENEFITS**

- 70V output power
- Low resistance and 70V/100V audio output
- Class-D amplifier, optimised for high efficiency at low operating temperatures
- Short-circuit and overrange protected
- Line monitoring between amplifier and Intercom Server
- Easy integration in existing Intercom Systems
- Support of Terminal features (e.g., connection monitoring, function monitoring, DSP-funnel)
- Single or double mount in a 19" Rack
- Plugged enclosure made from polycarbonate

**LINE LENGTH**

Intercom Server - Amplifier

The maximum line length of Cat. 5 cabling in a LAN is 100 m (328 ft) — e.g. from switch to amplifier.

Amplifier - Loudspeaker

It is recommended to select the line length between amplifier and loudspeaker as short as possible.

**POWER SUPPLY**

- For the AF 50I, the PoE functionality is available.
- Configuration software min. CCT 800 1.3 build 935
- IP-subscriber card G8-IP / G3-IP min. firmware 4.2
- Configuration software min. CCT 800 1.3 build 935
- Intercom Server Software min. PRO 800 1.3 build 9

**PRECAUTIONS**

- Observe the precautions for handling of electrostatic sensitive devices!
- The device may only be installed by authorised service engineers.

---

**System/Network Requirements**

**SYSTEM REQUIREMENTS**

**MINIMUM REQUIREMENTS**

- GE 800 / GE 300 / GE 300-UPG
- Intercom Server Software min. PRO 800 1.3 build 9
- Configuration software min. CCT 800 1.3 build 935
- IP-subscriber card G8-IP / G3-IP firmware 4.2
- NET firmware min. 5.4 build 2

**REQUIREMENTS TO THE NETWORK**

**IP-Addresses and Ports**

- For the AF 50I, the DHCP functionality is available.
- In case of a changing public IP-address, dynamic registration of an AF 50I is possible.
- Communication from the AF 50I to the Intercom Server (UDP protocol) is done via port 16400 (configurable).

**GoS Requirements**

- Maximum One-Way-Delay: 100ms
- Delay jitter not above 50ms
- IP packet loss for perfect audio quality

**Bandwidth**

- Required Bandwidth for protocol overhead per AF 50I, for upload/download each: speech and data 96 kBit/s
- Speech is compressed according to G.722 standard

**SYSTEM OVERVIEW**

The following diagram shows an example of connection of Intercom terminals via an IP-network.

---

**Support of Terminal Features**

- Connection monitoring
- Function monitoring
- DSP-funnel
- Connection Errors and omissions excepted | Products may change in the interest of technical improvements without notice.
The following diagram shows an example of connection of Intercom terminals via an IP-network.

**qos Requirements**

**REquIREmENts to thE NEtwoRk**

- **system/Network Requirements**
  - Backward Compatibility to GE 700 / GE 200:
  - GE 800 / GE 300 / GE 700-UPG:
  - Required Bandwidth incl. protocol overhead per AF 50I, for upload/download each: speech and data 96 kBit/s
  - 0% packet loss for perfect audio quality
  - Delay-Jitter not above 50
  - Maximum One-Way-Delay 100 ms
  - Communication from the program IPStationConfig is done via Port 16399 (can not be configured).
  - Firmware download only possible with GE700-UPG or via IPStationCongfig!

**IP-Subscriber Cards G8-IP | G3-IP**

IP-subscriber cards for the connection of up to 8 Intercom terminals to an Intercom Server via Ethernet networks with IP-protocol. Intercom systems using the G8-IP/G3-IP can mix IP-terminals, 2-wire digital and 4-wire analogue Intercom terminals to assure maximum flexibility to answer user needs perfectly. The G8-IP/G3-IP connects directly to a LAN/WAN; no media converter or multiplexers are needed.

1. **G8-IP-4B (Rev. AC)**
   - Subscriber card for GE 900 Intercom Servers for connection of up to 8 subscribers per card. A maximum of 112 subscribers per GE 900. Connection via the ethernet port of the Intercom Server.
   - License upgrade to 8 subscribers with feature level B (basic intercom).
2. **L8-IP-8B**
   - License upgrade to 8 subscribers with feature level B (basic intercom).
3. **L8-IP-AC | L8-IP-AC**
   - License upgrade to feature level C (advanced intercom) with 4 or 8 subscribers.
4. **L8-IP-CD | L8-IP-CD**
   - License upgrade to feature level D (control desk intercom) with 4 or 8 subscribers.
5. **L8-IP-PI | L8-IP-PI**
   - License upgrade to feature level P (variable/mixed feature levels) with 4 or 8 subscribers.

Other countries:
- Middle east: JNT Sound System AB
- Other regions: ISOlectra Far East Pte. Ltd, Isolectra China, Speed Group of Companies (pty) Ltd, Sberlophone Ltd

Installation

**CONNECTION**

**MEASUREMENTS**

- Measurements in mm (inch), not scaled!

**MOUNTING**

- It is possible to mount the amplifier via Wall / Tablemountkit or Rackmountkit. Wallmountkit PP-RM (not in extent of supply)

**SETTINGS**

The volume control is carried out via the potentiometer “Volume” and via CICT 900 at Subscriber > Audio > Features

**LED STATUS INDICATION**

- **LED “Power” (front side)**
  - Permanent green: power supply exists
  - Green blinking: Power Supply over RFL - only limited operation possible!
- **LED “Fail” (front side)**
  - Permanent red: short-circuit at the loudspeaker
  - LED “Level” (back side)
  - LED red: too much amplification (Clipping)
  - LED green: orange: amplification ok
**Network Requirements**

**IP-Addresses and Ports:**
Each G8-IP | G3-IP must have an own fixed IP-address.
In case of a changing public IP-address, a dynamic registration of an IP-address via a network router is possible.
The communication via the Internet Server UDP-Protocol requires Port 16450 can be changed.

**QoS Requirements:**
- Maximum one-way delay: 100 ms
- Delay jitter: not above 50 ms
- 5% packet loss for perfect speech quality

**Bandwidth:**
- Bandwidth: minimum: protocol overhead per IP-address, for upload and download: speech data 96 kbit/s
- Speech is concentrated according to the G.723 standard

**LEGAL NOTICE**
The manufacturer guarantees the functionality of its products as described in the data sheets and/or technical documentation. For error-free operation of the system, faultless transmission paths are mandatory. The functionality of the transmission path, in particular of IP-networks, exclusively is the responsibility of the operating company of the transmission path and therefore the manufacturer cannot be responsible in any manner, for errors and problems, which result from problems or malfunctions of the transmission path.

**SYSTEM OVERVIEW**
The following diagram shows an example of connection of Intercen terminals via an Internet router.

**VLAN FUNCTIONALITY**
With the VLAN functionality the networked Intercen Servers can be protected similar to a firewall. In this way only the required connections can be allowed access to the WAN/Internet.

**G8-IP/G3-IP**

**G8-IP/G3-IP**

**G8-IP/G3-IP**

**G8-IP/G3-IP**

**G8-IP/G3-IP**

**G8-IP/G3-IP**

**G8-IP/G3-IP**

**G8-IP/G3-IP**
**SH-931 Station Heater**

**Specifications**

- Heating element is laminated between two layers of 15 mil fiberglass reinforced silicone rubber.
- Exposed temperature range: -40 F to 140 F
- Thermostat controlled
- Moisture, chemical resistant
- Vertically or horizontally mounted
- Operating voltage 24 AC/ 70VA
The Alcatel-Lucent OmniSwitch™ 6850E Stackable LAN Switch (SLS) family offers advanced stackable, gigabit Ethernet switches for the enterprise networks. The OmniSwitch 6850E is available in 24 and 48 port configurations and provides wire-rate layer-2 and layer-3 switching simultaneously for IPv4 and IPv6. The OmniSwitch 6850E supports fine grained controls for quality of service (QoS) and for security including network access control (NAC), along with full support for 802.3at compliant power over Ethernet (PoE) and additional 10Gig ports for smooth expansion of existing installations where PoE+ or SFP+ is needed.

### Features
- Gigabit and 10Gigabit interfaces
- Ieee 802.3af and 802.3at compliant PoE
- Optional 10Gigabit plug-in module delivers additional 2 10Gigabit SFP+ ports
- Hardware-based virtual routing and forwarding (VRF) support
- Low power consumption, full support for 802.3at PoE+ (providing up to 30W of PoE per port)

### Wire-rate performance
- For switching and routing at 10G and gigabit speeds. Advanced services are incorporated in the operating system for improved application performance.
- QoS, access control lists (ACL), L2/L3, VLAN stacking, and IP/IPv6.

### Redundancy
- At all levels, including power supplies, software and hot-swappable Small Form Factor Pluggable (SFP) modules.

### Extensive security features
- For network access control (NAC), policy enforcement and attack containment.
- Unified Access and Application fluent Networks provide resilient architecture with automated controls, enhanced security and simplified management for both wired and wireless users resulting in reduced operational complexity & lower cost.
- User Network Profiles add intelligence to the network to automatically adapt as users move around the enterprise line network. Integration of services enable employees to access same applications and service across wired and wireless access and thus gives a consistent, seamless user experience.

### Enterprise-wide cost reduction
- Through hardware consolidation to achieve network segmentation and security without additional hardware installation.
- The OmniSwitch 6850E ensures efficient power management, reduces operating expenses and lowers total cost of ownership (TCO). Ensures that the new devices such as CCTV cameras, WLAN access points, and full featured desktops can be supported.

### Performance
- Outstanding performance when supporting real-time voice, data, and video applications for converged scalable networks.
- High scalability and high port density, making the network highly available and resilient.
- Enhanced Unified Access for converged campus network solutions.
- SIP Flexity to provision & monitor QoS treatment of SIP flows.
- Airgroup™ Network Services for Bourgeois speaking devices.
- Integrated Policy with User Network Profile.
- Cloud computing, virtualization, and shared services.

### Conclusion
- The Alcatel-Lucent OmniSwitch™ 6850E Stackable LAN Switch (SLS) family offers advanced stackable, gigabit Ethernet switches for the enterprise networks. The OmniSwitch 6850E is available in 24 and 48 port configurations and provides wire-rate layer-2 and layer-3 switching simultaneously for IPv4 and IPv6. The OmniSwitch 6850E supports fine grained controls for quality of service (QoS) and for security including network access control (NAC), along with full support for 802.3at compliant power over Ethernet (PoE) and additional 10Gig ports for smooth expansion of existing installations where PoE+ or SFP+ is needed.
### Specifications

<table>
<thead>
<tr>
<th>Description</th>
<th>Brand</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part Details</td>
<td>Panasonic</td>
<td>WV-CP910A</td>
</tr>
</tbody>
</table>

#### Security Cameras

- **Part Names and Functions**
  - **Part Name**: Panasonic WV-CP910A
  - **Function**: Surveillance Camera

- **Appearance**
  - **Image**: [Image of Security Camera]

- **Distributor**: [Distributor Information]

- **Website**: [Panasonic Website]

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**Notes**

- Product Information
  - Panasonic WV-CP910A
  - Surveillance Camera Specifications

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Additional Information

- [Additional Panasonic Information]

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[Appendix A-2.6 Reference]
A-2.7 CASE STUDY INFORMATION SHEETS

The following pages contain additional information on the Case Study projects identified within the 'Operations and Maintenance' section of the report.

SLIPNOT SLIP-RESISTANT COATING
1. Aluminum Grated Walkway - The High Line, New York City, NY
2. SlipNot Coating to Steel Grating - Bourgeois Creek Natural Reserve, St. Matthews, KY
3. Aluminum Grip Plate - Progressive Field, Cleveland, OH

3-FORM KODA PRODUCT DURABILITY
2. Coloured Koda XT - El Paso Civic Center, El Paso, TX - 2009

TRANSLUCENT RESIN PERFORMANCE CASE STUDY
1. Engraved Acrylic - Reiss Headquarters, London, UK
The High Line
*Diller Scofidio + Renfro*

**Non-Slip Stairs Integrated into the High Line Park in New York City**

Project: The High Line  
Location: New York, NY  
Industry: Recreation  
Website: www.thehighline.org

The High Line, located on Manhattan’s West Side, is a newly renovated 1.5 mile long park that stretches from Gansevoort Street in the Meatpacking District to 34th Street. Constructed in the 1930's, the original intent of the High Line was to lift dangerous freight trains off of Manhattan streets. The abandoned elevated railroad has since been transformed into a fully functional, state of the art park, built with safety in mind.

**The Situation:**
Access points to the High Line are located at street level every two to three blocks. Heavy pedestrian usage for this popular park made safety a priority. To prevent the risk of slips, trips and falls, all of these access points required non-slip stairs, landings and walkways. Heavy pedestrian usage and weather elements were important considerations when choosing a material to incorporate. Other important aspects to the designers included corrosion resistance, longevity, low maintenance and a high coefficient of friction; wet or dry.

**SlipNOT® Project Summary**
- Manufactured slip resistant stainless steel stair treads with perforated risers, walkways and landings, customized and fabricated to architectural specifications, creating a unique and safe application.

**Project Team**
- Architectural Firm:  
  Diller Scofidio + Renfro  
  Project Designer: Matthew Johnson
- Lead/Landscape Architectural Firm:  
  Field Operations  
  Lead Project Designers: Lisa Tziona Switkin and Nahyun Hwang

**The Solution:**
After several years and numerous proposals, architects worked closely with the general contractor and metal fabricator to determine what material should be used for the non-slip stairs at the access points to the elevated park. After many contending options, *SlipNOT®* Metal Safety Flooring stood out from the rest and was specified by Diller Scofidio + Renfro for the anti-skid stairs due to the extreme slip resistance in every direction, corrosion and chemical resistance, adaptability, aesthetics, and durability. *SlipNOT®*’s ADA compliant, non-slip stairs will help ensure safety and accessibility for pedestrians.

*SlipNOT®* Metal Safety Flooring was contacted by the metal fabricator to incorporate the non-slip stairs into the overall greater project. The metal fabricator and *SlipNOT®* closely worked together for the Chelsea Street Market stairs, Southern Spur Entrance, 14th Street Landing and the Gansevoort Stair access points, following the specifications determined by Diller Scofidio + Renfro.

In order to create aesthetically pleasing yet safe non-slip stairs, ¼” stainless steel star treads were customized to detailed specifications. The specifications called for a solid non-slip surface for the tread and nosing portion, but the riser needed to consist of a perforated pattern to allow for drainage and translucence. The stairs were formed and fabricated to size then coated with the *SlipNOT®* slip resistant stainless steel surface.

**The Impact:**
Although the non-slip stairs are only one aspect of the one and a half mile long renovation, they provide safety and reliability for all residents and visitors entering the park. To provide public safety, the architect focused on minute details such as the non-slip stairs and landings that seem to have made the greatest impact on the overall transformation. The non-slip stairs indicate a subtle shift from the busy street level below to the quiet, raised setting on the High Line. The customer was pleased with the results and *SlipNOT®* continues to provide non-slip solutions for new areas of the ongoing project.

For more information please visit: http://www.thehighline.org/about/park-information

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Once all aspects and sections of The High Line are completed, it will be a one and a half mile long elevated park consisting of eco-friendly and safety materials.

**SlipNOT® Metal Safety Flooring** products may be covered by one or more of the following patents: 5,711,119, 6,839,951 and 6,863,932. Additional patents pending. ® 2010 W.S. Molnar Company. All rights reserved.

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www.slipnot.com | info@slipnot.com
Beargrass Creek Nature Preserve
St. Matthews, KY

Galvanized Steel Close Mesh Steel Dove Tail Grating used for Elevated Walkways at the Beargrass Creek Nature Preserve

Company: Beargrass Creek Nature Preserve
Location: St. Matthews, KY
Industry: Recreation
Website: www.louisvillenaturecenter.org

Beargrass Creek is a picturesque urban nature preserve located near Louisville, KY, providing visitors with extensive walking trails and unique views of nature. To help combat flooding issues on walkways, an architectural firm contacted Ohio Gratings to provide material for elevated walkways. The material used needed to be able to withstand installation in an outdoor environment and allow drainage of debris and liquids to help prevent flooding on the walkways.

The Situation:
The architectural firm contacted Ohio Gratings, Inc. in order to provide grating for a recreational project they were working on. Ohio Gratings, Inc. and SlipNOT® Metal Safety Flooring have a long-standing relationship in which a customer can order through Ohio Gratings and specify that they would like the SlipNOT® slip resistant surface. Therefore the contractor was able to purchase the grating through Ohio Gratings, Inc. with the SlipNOT® surface. The project was called the Beargrass Creek Nature Preserve, a 41 acre forest that includes recreational areas, trails and a natural retreat.

SlipNOT® Project Summary
- Galvanized steel grating
- SlipNOT® coated galvanized steel grating for the walkways in the nature park. The galvanized steel grating has provided Beargrass Creek with a corrosion resistant material that is ideal for an outdoor environment to help provide safety to park visitors.

The Beargrass Creek Nature Preserve is the only urban nature preserve owned by the Kentucky State Nature Preserves Commission, named after the Beargrass creek that runs through it. The park consists of wetlands (over 1,800 species of trees, shrubs and wildflowers), two miles of walking trails and the Louisville Nature Center.

The Solution:
To prevent issues with flooding from the creek due to storm water or increased development, SlipNOT® was chosen for elevated walkways throughout the preserve. SlipNOT® coated various pieces of close mesh steel dove tail grating for the project that is American with Disabilities Act (ADA) compliant, as well as high heel compatible. The steel grating was then galvanized to protect from rust and corrosion in the wet environment. SlipNOT® galvanized steel is low maintenance and extremely durable.

The Impact:
SlipNOT® provided a slip resistant surface for the elevated walkway that will withstand the wet environment and provide traction for visitors. Close spaced grating was the perfect solution for the requirements of this project, it will continue to supply the drainage necessary in case of high water levels, while also allowing for high heel and wheel chair traffic.

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Phone: 313.923.0400 | Toll Free: 800.754.7668 | Fax: 313.923.4555
Appendix A-2.7

MANDARIN ORIENTAL CASE STUDY

Installed in 2008

The Mandarin Oriental Hotel is one example where a clear, Koda XT product by 3-Form has been installed for a significant period of time with excellent performance. Installed primarily for the safety of guests, the polycarbonate canopy is able to withstand the impact of falling ice off the building during the winter months.
Case Study 3: El Paso Civic Center

El Paso Civic Center Case Study

Installed in 2009

Installed in a high UV index environment, coloured Koda XT is used as a canopy within the El Paso Civic Center. Koda XT is a composite material that is extruded with a UV resistant additive to ensure colourfastness. As indicated on the specification sheet below, the material displays excellent performance after 10 years of Florida level UV exposure.

Case Study 4: Reiss Headquarters

Reiss Headquarters Case Study

The Reiss Headquarters project provides a performative precedent for how the material, and material textures, perform under a variety of light conditions.

A link to the full case study can be found here: http://squireandpartners.com/rd/reiss-hq/
Appendix A.4.7

Introduction

This competitive winning project for CNES was designed to reuse a city block with five \( N \) style tower buildings and three lower floors, and design a new, housing, running, and office development space on the floors above. The assignment was for a building entertainment project of a strong brand message for Rolls to the general public, the building being located just off Oxford Street.

Design Development

Initially the facade was conceived as fabric behind a fixed glass screen, capable of changing with the seasons. However, as the design was developed, the facade became something more - a living, interactive wall. The introduction of glass, the design was developed to become more expressive and engaging. The combination of glass and the design was developed to become more expressive, the wall was introduced to create a dramatic, layered effect, branching across the facade.

Fabrication

The modelled structure at every high light calculation, which required 3D-mapping, and the final concept was created using 3D modeling software, followed by 2D drawings. The final concept was the result of a collaborative effort between the design team, the contractor, and the client. The model was then fabricated using high-quality materials, including steel, glass, and acrylic, to ensure the durability and aesthetic appeal of the final product.

The Finished Building

The finished building consists of a stainless-steel plate structure, with transparent glass panels, creating a dynamic relationship between the building and the environment. The design features an innovative design that integrates natural light into the interior spaces, while also providing a modern aesthetic that is both functional and visually appealing.