CASE STUDIES

Spectrum Illumination Sales Team:

- Ensuring reliability - Everyone is involved in making sure we get it right the first time.
- Sustainable Design - Our products are designed and manufactured with environmentally sustainable materials.
- Durable construction - Our products are designed to exceed our 10 year standard & 3 year wash-down warranty and eliminate downtime due to lighting failures.
- Customer Service - We have amazing customer service before and after your purchase.
- Custom solutions - We offer custom and OEM solutions.

Finance your complete project. Ask us how.

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MACHINE VISION LIGHTING SINCE 1999

Our Customers

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Customer needed to improve quality control of their gum packaging. Color of the gum was not an issue. Packaging inspection requirements: Number of items and quality of gum per package. Production speed must be maintained while enhancing the quality inspection process to maintain product margins.

Vision & Automation Solution:
SI Engineering Lab mocked up the opportunity. SI Engineer applied IR to remove color, camera lenses and product positioning to develop repeatable quality testing solution. Spectrum Illumination’s DLD180-850 (Dome Light in Infrared), 0.8ms shutter speed. Smart camera identifies package count and product quality.
Optical Distortion in Plastic Material Inspection

Solution: BL44 - 660 Red with special distortion diffuser, 16 mm lens, 15ms shutter speed, working distance 30", light 14" from target.

Polarize film & lab setup.

Seal inspection with BL44 630 Red Light w/ distortion diffuser.

Vision & Automation Solution:
SI Engineering Lab mocked up the opportunity. SI Engineer applied LED lens Optic types, camera lenses and product positioning to develop repeatable quality testing solution. Spectrum Illumination's BL445-630 Red Back Light, with distortion diffuser, 16 mm camera lens, 15ms shutter speed, light 14" from target and working distance of 30". Smart camera & software identifies distortion in back light distortion diffuser lines.

Vision & Automation Opportunity:
Identify quality issues in polarizing film material. Looking for distortion in material and/or lamination. Production speed must be maintained while identifying rejected materials.
Vision & Automation Opportunity:
Lighting conveyors and assembly lines to meet the demands of today's advanced manufacturing environment can be a challenge. Custom embedding back lights into conveyors and assembly lines is standard for Spectrum Illumination.

Vision & Automation Solution:
SI Engineering Lab mocked up the opportunity. SI Engineer applied back light, removed diffuser mounting screws from the top of the light. Diffuser is now secured to the light from inside the unit. EBL1212-660 Red Standard Series Back Light was the perfect solution. 24 VDC to match the conveyor setup with no driver required. Smart camera identifies parts on the conveyor and assembly line. Robot used the machine vision solution to Pick n Place parts.
**Case Study - Product Application**

**Paper Inspection**

Solution: MLLD117.25 - WHI Quantity = 4
LED Optics 16 degree frosted, 15 degree light mounting angle, light 22” from target with diffuser.

**Vision & Automation Opportunity:**
Customer’s paper inspection process needed a solution to identify staples in the paper. All metal staples and foreign objects must be removed before paper is recycled. Production speed must be maintained while identifying and removing rejected materials.

SI Engineering Lab mocked up the opportunity. SI Engineer applied LED lens Optic types, light mounting angles, camera lenses and product positioning to develop repeatable quality testing solution. Spectrum Illumination’s MLLD117.25 Linear Light in White (Qty 4), LED Optics - 16 Degree Frosted, 15 degree light mounting angle, light 22” from target. Smart camera identifies staples in paper.

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Dental Implant Inspection

Solution: EL300-395 UV, Optics 16 degree.

Vision & Automation Opportunity:
Dental implant inspection for quality and material consistency. Teeth, one of the most important factors in human physical and mental health require consistent look and feel. Manufacturing is not an exact science therefore inspection is required. Inspection is for spots and finish damage.

Vision & Automation Solution:
SI Engineering Lab mocked up the opportunity. SI Engineer applied LED lens Optic types, light mounting angles, camera lenses and product positioning to develop repeatable quality testing solution. Spectrum Illumination's EL300-395 UV Linear Light, LED Optics - 16 Degree Frosted, 15 degree light mounting angle, light 22" from target. Smart camera identifies spots and surface damage.
Solution: MRLD5.5 - 630 Red, (Backlight Option) 16 mm lens, 15ms shutter speed, light 3" from target.

Seal inspection with MRL5.5 630 Red Ring Light.

Vision & Automation Opportunity:
Customer's bottling process required product inspection before filling. Seal surface defects cause product failure and product line down time. Defective bottles must be rejected before entering automated filling process. Production speed must be maintained while identifying rejected materials.

Vision & Automation Solution:
SI Engineering Lab mocked up the opportunity. SI Engineer applied LED lens Optic types, camera lenses and product positioning to develop repeatable quality testing solution. Spectrum Illumination’s MRLD5.5-630 Red Ring Light, backlight option with no LED lens and white diffuser, 16 mm camera lens, 15ms shutter speed, light 3" from target. Smart camera identifies seal defects in bottle.
Bolt inspection with MRL5.5 365 UV Ring Light.

Soluition: MRLD5.5 - 365 UV, 100ms Shutter Speed, with Camera UV Blocker.

Vision & Automation Opportunity:
Automotive, Aerospace and Industrial environments count on 100% compliance when it comes to safety. Bolts must be coated to remain secure. Bolts without coating must be rejected before entering production and shipping process. Production speed must be maintained while identifying rejected materials.

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Case Study - Product Application

Food Packaging Inspection

Solution: MDL12.25-WHI 6mm lens, 1ms shutter speed, light 400mm from target.

Very reflective surface - Choco Cono Packaging

Dome light removes glare. Splice and open packages, glue and bar code can be detected by camera system.

Vision & Automation Solution:

SI Engineering Lab mocked up the opportunity. SI Engineer applied 12.25" white dome light, 6mm camera lens and product positioning to develop repeatable quality testing solution. SI MDL12.25-WHI Dome Light. Vision system identifies defects and removes product from production line.
Case Study - Product Application

Circuit board Inspection

Illumination - Inspection Setup

Solution: MDLD12.25-WHI with 70mm camera hole

Very reflective surface - AdamONE Circuit Board.

Dome light removes glare, microscope with camera attached captures image of defective circuit board.

Vision & Automation Solution:

Adams Test Lab mock up. Adams Engineer applied white dome light, microscope, camera and product positioning to develop repeatable quality testing solution. Spectrum Illumination’s MDLD12.25-WHI with 70mm camera hole, microscope with attached camera captures defective circuit board.

Vision & Automation Opportunity:
Customer requires circuit board inspection for quality control. Production speed must be maintained while enhancing the quality inspection process to maintain product standards.
**BACK LIGHTS**

**STANDARD & CONVEYOR SERIES**
- Low profile
- Strobe & constant
- Direct Connect 24 VDC
- 4 colors & IR / 25 sizes (1” to 12”)

**MONSTER SERIES**
- Medium profile
- Strobe & constant
- 5 times brighter than standard series
- High power driver included
- 4 colors & IR / 12 sizes (2” to 103.5”)

**10 YEAR WARRANTY**
100,000 HOURS!

**DOME LIGHTS**

**MONSTER SERIES** (Cloudy Day)
- Strobe & Constant
- Direct Connect 24 VDC (3 sizes)
- High power driver included (8 sizes)
- 6 colors, UV & IR / 8 sizes (85mm to 743mm)
- Multi-color/channel options (85mm, 180mm, and 311mm)

**OXY** (Flat Dome)
- Direct Connect 24 VDC (2 sizes)
- 2 colors & IR / 2 sizes (6” and 12”)

**RING LIGHTS**

**STANDARD SERIES “BRIGHT FIELD”**
- Direct connect 24 VDC
- Strobe & Constant
- 3 colors, IR & UV / 7 sizes (3” to 8”)

**MONSTER SERIES “BRIGHT FIELD”**
- 5 times brighter than standard series
- Strobe & constant
- Direct connect 24 VDC (3 sizes)
- High power driver included (7 sizes)
- 8 colors, IR & UV / 7 sizes (2.5” to 30.5”)
**LINEAR (BAR) LIGHTS**

**“BRIGHT FIELD”**

**STANDARD SERIES**
- Strobe & constant
- Direct Connect 24 VDC
- 1 color & IR / 6 sizes (4” to 24”)

**E & X-SERIES**
- Strobe & constant
- Direct Connect 24 VDC
- Slim line aluminum thermo housing
- Thermal protection
- Vibration resistant integrated circuit board
- 4 colors, UV & IR
- 5 sizes (150mm to 300mm and 40mm spotlight)

**MONSTER SERIES**
- 5 times brighter than standard series
- Strobe & constant
- Direct Connect 24 VDC
- High power driver included (14 sizes)
- 4 colors & IR / 12 sizes (2” to 103.5”)

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**WASHDOWN LIGHTS**

**STANDARD SERIES**
- IP68 & FDA Compliant
- Strobe & constant
- Direct Connect 24 VDC
- 4 colors & IR
- Back lights (4 sizes) and 1 ring light

**MONSTER SERIES**
- 5 times brighter than standard series
- IP68 & FDA Compliant
- Strobe & constant
- High power driver included
- 7 colors, UV & IR
- Linear lights (4 sizes) and 2 spotlights
- 1 ring light and 1 dome light

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**3 YEAR WARRANTY**
**100,000 HOURS!**
**Case Study - Product Application**

**Food Packaging Inspection**

**Solution:** WMDL7-WHI Washdown Dome 2.5ms Shutter Speed, light 1" from target.

**Ground beef lot tracking code and freshness code.**

**Vision & Automation Solution:**
SI Engineering Lab mocked up the opportunity. SI Engineer applied White color, camera lenses and product positioning to develop repeatable quality testing solution. Spectrum Illumination's WMDL7-WHI (Dome Light in White), 2.5ms shutter speed, light 1" from target. Smart camera identifies package lot information.

**Illumination - Inspection Setup**

Packaging inspection requirements: Read product tracking code from plastic wrapping and also identify the presents of freshness sticker. Production speed must be maintained while enhancing the quality inspection process to maintain product margins.
Food Packaging Inspection

Packaging inspection requirements: Read UPC code on reflective packaging. Production speed must be maintained while enhancing the quality inspection process to maintain product margins.

Vision & Automation Solution:
SI Engineering Lab mocked up the opportunity. SI Engineer applied White color, camera lenses and product positioning to develop repeatable quality testing solution. Spectrum Illumination's WMDL7-WHI (Dome Light in White), 2.5ms shutter speed, light 1" from target. Smart camera identifies package lot information.

Solution: WMDL7-WHI Washdown Dome 2.5ms Shutter Speed, light 1" from target.
**Vision & Automation Opportunity:**
Safety, cleanliness and tracking is very important in the food and beverage industry. Lot tracking and date code reading required. Production speed must be maintained while enhancing the quality inspection process to maintain product margins.

**Solution:** WMDL7-WHI Washdown Dome 2.5ms Shutter Speed, light 1" from target.

**Vision & Automation Solution:**
SI Engineering Lab mocked up the opportunity. SI Engineer applied White color, camera lenses and product positioning to develop repeatable quality testing solution. Spectrum Illumination’s WMDL7-WHI (Dome Light in White), 2.5ms shutter speed, light 1" from target. Smart camera identifies package lot information.
Customer needed to validate that the center hand label is applied to controller. Production speed must be maintained while enhancing the quality inspection process to maintain product standards.

**Vision & Automation Solution:**

SI Engineering Lab mocked up the opportunity. SI Engineer applied white lights, camera lenses and product positioning to develop repeatable quality testing solution. Spectrum Illumination's DL12.25-WHI & MDA2-WHI Smart camera identifies center label is applied to controller.
Vision & Automation Opportunity:
Customer's tire and wheel inspection wanted a solution to identify & verify key markings on the tire. Production speed must be maintained while enhancing the quality inspection process to maintain product margins and reduce product failure liability.

Vision & Automation Solution:
SI Engineering Lab mocked up the opportunity. SI Engineer applied light colors, camera lenses and product positioning to develop repeatable quality testing solution. Spectrum Illumination's DL29.25 Dome Light in White, color camera 1.5ms shutter speed with red gain boost. Smart camera identifies tire markings on both Chrome and Aluminum wheels.
Case Study - Product Application

Stamp Metal Part Inspection

Solution: OL66 - WHI, 25 mm lens, .8ms shutter speed, light 1.188” from target.

Part inspection with OL66-WHI Oxy Flat Dome Light.

Vision & Automation Solution:
SI Engineering Lab mocked up the opportunity. SI Engineer applied LED lens Optic types, camera lenses and product positioning to develop repeatable quality testing solution. Spectrum Illumination's OL66-WHI "Oxy" Flat Dome Light, .25 mm camera lens, .8ms shutter speed, light 1.188” from target. Smart camera identifies text & numbers on stamped part.

Vision & Automation Opportunity:
Metal stamping process required product inspection. Printed text area is flat, medium tapered or full tapered. Inspection process must be able to identify text under all three conditions. Parts with missing id text must be rejected. Production speed must be maintained while identifying part text.
Syringe Inspection

Solution: OL66 - WHI, 16 mm lens, light 4.5" from target.

Syringe Device.

Syringe top with OL66-WHI "Oxy" Flat Dome Light.

Vision & Automation Solution:
SI Engineering Lab mocked up the opportunity. SI Engineer applied LED lens Optic types, camera lenses and product positioning to develop repeatable quality testing solution. Spectrum Illumination’s OL66-WHI "Oxy" Flat Dome Light, .16m camera lens, light 4.5" from target. Smart camera identifies text numbers on syringe tops mounted on both grey and natural colored plunger.

Vision & Automation Opportunity:
Customer required the ability to inspect syringe tops for part number. The plunger is grey and natural. Inspection process must be able to identify text under both conditions. Parts with missing text must be rejected. Production speed must be maintained while identifying part text.

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