



Lightweight Signalling Handbook

Zero Maintenance Signalling



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Since the beginning of the lightweight signalling revolution on the UK network, Unipart Dorman has worked in close collaboration with Network Rail and their primary contractors to deliver the latest generation of LED railway signals. From the introduction of the Integrated Lightweight Signal (iLS) range with either standard Trunnion or the Modular/Enclosure Base Signal and from that the CLS LITE range, which was developed and delivered in a matter of weeks in response to a customer's urgent operational requirement; through to the introduction of the Assisted Lift Trunnion which eliminates the use of a separate post lifting device by employing a specifically designed internal spring that augments the manual lifting and lowering of the signal head and post.

Unipart Dorman pioneered the introduction of LED signals on the UK infrastructure and continues to build on the skills and expertise developed since the early 1990s developing, and introducing new LED signals to the market using the latest in innovative design techniques and Lean manufacturing processes.

Specifying Unipart Dorman Lightweight Signals guarantees significant savings can be delivered on any project by removing the costs associated with providing and installing signal support structures. Further savings are made through the use of plug coupled connections and simple installation procedures which do not require any heavy plant.

Safety is deeply embedded in the Unipart Dorman philosophy and this is reflected in the large portfolio of safety critical products across the Rail and Traffic business areas and also in how the company operates day to day, which has resulted in back to back wins in the Unipart Group Health and Safety Award; and a Distinction grade International Safety Award from the British Safety Council.

Choosing Unipart Dorman guarantees a complete end to end service: from the analysis of Signal Sighting Forms, production of mandatory structural documentation and delivering bespoke training packages, through to meeting stringent deadlines for manufacture and delivery. The journey doesn't stop there though; the ever evolving challenges of the UK rail sector and Unipart Dorman's constant effort to remain the supplier of choice mean new and exciting developments are never far away.



Over 130 years of Engineering Heritage as a Foundation for Excellence

Since its formation in the late 1800s, Unipart Dorman has always listened closely to customers to deliver superior products at the right time and the right price. Use of the Unipart Way 5 Systems, Customer Engagement, Operational Excellence, Innovation, Employee Engagement and Organisational Capability throughout all levels of our internal and external business relationships, is the solid foundation to achieving this and the driving force behind our success.

Sharing knowledge and ideas with our customers builds on our core skills to develop innovative solutions. Seeing the world through our customer's eyes allows better understanding of their needs and the ability to deliver them better than anyone else. Our pace to develop solutions using our expertise and knowledge gives customers insight and access to new services and products. We innovate to ensure seamless product and service introduction, competitively priced with measurable whole life cost benefits.

Unipart Dorman offers world class leadership in innovation, setting the standard for others to follow. The company continues to invest heavily in the 5500m² facility in Southport which already boasts a state of the art environmental test chamber, fully calibrated optical testing laboratories and a rapid prototyping facility. Product Innovation is led by the Engineering team to fully support design and development, production and test and customer technical support.

Compliance is a major part of any company's commitment to supplying goods into any industry, but given the critical role railway signals play in ensuring not just passenger safety, but safeguarding workers on the network, Unipart Dorman works tirelessly on both the current compliance regime and future requirements whilst fully embracing emerging requirements such as the UK government objectives surrounding BIM etc to ensure all products achieve (and mostly exceed) legislative requirements. Unipart Dorman is proud to have a company representative on a number of national trade and regulatory bodies, where our broad experience of technical matters has been invaluable in formulating standards and specifications.

Unipart Dorman is absolutely committed to robustly supporting the local and wider national economy, by designing and manufacturing all of its Rail Products at Southport and wherever possible using local suppliers which minimises our carbon footprint and secures hundreds of jobs.

Lightweight Signalling Solutions

Approval Certificate Number PA05/04240

Unipart Dorman's range of Lightweight Signals provides a new generation of signalling by delivering increased safety through the reduction of staff exposure to risk both on track & working at height and by significantly reducing both installation and lifetime ownership costs.

All Unipart Dorman Lightweight signals are fully compliant with Network Rail Line Specifications.

Lightweight Signal Options

Integrated Lightweight Signal (iLS)

Corrosion free GRP post and signal head fitted in the ALT, Trunnion or enclosure base type.

The 3 Aspect iLS head is the lightest unit on the market and is less than half the weight of the Classic Unipart Dorman, 3 Aspect, Short Housing, Colour Light Signal.

| Signal | Weight (Head/Module) |
|------------------------------|----------------------|
| Unipart Dorman Classic | 26 kg/10 kg |
| Unipart Dorman iLS (No post) | 10.9 kg /6.2 kg |
| Unipart Dorman CLS LITE | 22 kg /5.5 kg |

CLS LITE

The latest variant in the world beating range of Colour Light Signals from Unipart Dorman is the CLS LITE, which combines the cutting edge lightweight optics of the Integrated Lightweight Signal system with the Classic Signal Housing first introduced in 2003.

This allows Customers to capitalise on the advantages and economic benefits of the latest signal technology whilst retaining existing mounting structures.



Key aspects of Unipart Dorman's Lightweight Signalling range:

- Unique optical arrangement that greatly reduces the possibility of signal phantoms
- Rapid installation onto a pre-installed structure (typically less than 30 minutes)
- Increased infrastructure reliability leading to less network delay costs
- Staff safety improved by reduced exposure to railway hazards
- LED light sources give a long and predictable service life of at least 10 years
- Reduced maintenance costs through the use of self-cleaning lenses and improved reliability
- Nominal supply voltage of 110Vac or 120Vdc
- Low wattage (5W nominal) version with single and double volt free proving contacts
- LED modules sealed to IP65
- MIL 5015 Plug coupler connections compliant with Network Rail Standard T00036
- Current proved version for backwards compatibility with SSI & RRI installations
- Overall signal footprint is reduced allowing installation into restricted areas removing the need for costly or complicated support structures
- Available in Long Range ($800\text{m} \pm 3^\circ$) and Medium Range ($400\text{m} \pm 10^\circ$ Wide beam and $400\text{m} \pm 3^\circ$ Narrow beam) variants with elevated ($>2750\text{mm}$ above the running rail) or ground ($<2750\text{mm}$ above the running rail) close up viewing arrays



Integrated Lightweight Signal (iLS)

Unipart Dorman's Integrated Lightweight Signal (iLS) is a Second generation LED Signal design. Delivering increased safety by the reduction of staff exposure to risk both on track & working at height, it also significantly reduces the installation and lifetime ownership costs.

The signal is designed to interface with all standard relay systems, geographical and solid state interlocking systems used in the UK. It is quickly installed onto standard foundations and the use of modular based construction with plug coupled electrical components reduces overall test and commissioning time.

Customers can specify most combinations of signal aspects into one signal head, the complete unit is delivered to site for mounting in a new stand alone structure or onto an existing structure.

This new signalling system is suitable for both Mainline and Modular Signalling projects.

The key to the simplicity of the system is the small number of user defined elements:

Simple hinged construction for the Trunnion base which has either one or two lockable electrical connection boxes

Post and signal head constructed from lightweight Glass Reinforced Plastic (GRP)

Customer defined signal aspect configurations

Lens/hood arrangement gives excellent protection against phantom aspects and is designed to be self-cleaning

Voltage Free Contact Proving is available and signals can be specified with either single or double cut contacts

Many iLS signals are suitable for use with the Unipart Dorman Assisted Lift Trunnion (ALT) to increase worker safety and reduce installation time.



Benefits of the iLS

Cost Reduction

Because it is an extremely light, fully integrated signal including post and fixing mechanism with the capability to be raised and lowered from ground level, the iLS helps to reduce costs in a number of ways, including:

- Reduces size and complexity of foundations
- Cuts installation times from hours to minutes, due to its weight and ease of handling
- Removes working at height risks and makes the rail environment a safer place
- Reduces on site testing, as it is factory tested and plug coupled
- Maintenance free, with its self-cleaning lens technology and long life LED modules
- Removes the need for heavy plant and handling equipment
- Operating costs can also be reduced through the development of low power modules that require only 5 watts, compared to over 35 watts in the existing versions

Increased Safety

Worker safety is another key feature of the iLS, with all installation work carried out at ground level - meaning that the installer and maintainer never has to work at height and will always face oncoming trains. The signal comes complete with lightweight post and connects to the infrastructure by 'quick action' integral plug-couplers.

The signal can be erected and installed without lifting equipment or extensive installation teams. This shortens track possessions down to minutes, vastly improves network availability which minimises service disruption to TOCs and significantly reduces the workers exposure to trackside hazards.

Improved Technology

Not only will the iLS save contractors significant sums of money on installation and procurement costs, but it also takes the innovation of the original Colour Light Signal and improves on its optical performance, reducing the risk of SPADS for train drivers.

Unipart Dorman's LED technology has already drastically reduced the risk of phantom aspects when compared to filament signals, and the iLS is twice as effective.



iLS Performance characteristics in line with UK Network Rail specifications & Railway Group Standards

Compliances

| | |
|-----------------------------|------------|
| Railway Group Standards | GK/RT0057 |
| Approval Certificate Number | PA05/04240 |

Key Specifications

| | |
|-------------------------------------|-----------------|
| Ambient Operating Temperature Range | -25°C to +40°C |
| Nominal Operating Voltage (ac) | 110Vac |
| Operating Voltage Range (ac) | 88Vac to 121Vac |
| Nominal Operating Voltage (dc) | 120Vdc |
| Operating Voltage Range (dc) | 88Vdc to 145Vdc |
| LED Modules rated at IP65 | |

Lamp Proving Options

| | |
|--|----------------|
| Current Proved Version | |
| Nominal Operating Current | 300mA @ 110Vac |
| 5W (nominal) Voltage Free Contact Proved version | |
| Nominal Operating Current | 45mA @ 110Vac |

Colour Specifications (as specified in GKRT0057)

| |
|---|
| Red BS1376 Class C (Restricted) |
| Yellow BS1376 Class B |
| Green BS1376 Class C |
| Lunar White BS1376 Class C (Restricted) |
| Signal White BS1376 Class C |

Colour Light Signal (Compliant with Network Rail Standard NR/SP/SIG/10062)

| |
|---|
| Red/Yellow/Green/Double Yellow Aspects in any combination |
| Long Range 800m at $\pm 3^\circ$ |
| Medium Range: Wide Angle (400m at $\pm 10^\circ$) |
| Narrow Angle (400m at $\pm 3^\circ$) |

Position Light Junction Indicator

| |
|-------------------------------------|
| Long Range (800m at $\pm 3^\circ$) |
| Light Output - Lunar White |

Variants

| |
|----------------------------------|
| Available Arm Positions: |
| 1, 2, 4 and 5 in any combination |

Position Light Signal (Compliant with Network Rail NR/SP/SIG/10110)

| |
|----------------------------|
| Short Range (100m) |
| Light Output - Lunar White |

Banner Repeater Signal (Compliant with Network Rail GK/RT 0057)

Readability (250m)

Light Output - Signal White/Green

Variants

2 State Banner (On and Off Aspects)

3 State Banner (On, Off and Green Off Aspects)

Standard Alpha-Numeric Route Indicator (Compliant with Network Rail GK/RT 0057)

Readability (250m)

Light Output - Signal White

Variants

Up to 6 individual single character indications

Up to 3 individual double character indications (only permissible where one of the characters is a figure 1)

Miniature Alpha-Numeric Route Indicator (Compliant with Network Rail GK/RT 0057)

Readability (65m)

Light Output - Signal White

Variants

Up to four individual single character indications, three 2 character indications or two 3 character indications

Preliminary Route Indicator (Compliant with Network Rail GK/RT 0057)

Readability (250m)

Light Output - Signal White

Available Arrow Positions: 0, 1, 2, 3, 4, 5 and 6 in any combination

Modular Signal Head Configuration

- 3 Aspect Colour Light Signal

Electrical Interface

- Double Cut voltage free contact proving
- Where a flashing aspect is required, the pulsing is delivered by the infrastructure

CLS LITE

The Unipart Dorman CLS LITE Signal combines the traditional Classic Dorman LED Colour Light Signal Housing with lightweight signal modules.

This makes it ideally suited to maintenance replacement/enhancements, as it is a direct replacement for existing filament or Classic LED heads and fits with existing signals, structures and structure furniture.

The CLS LITE offers flexibility in design that complements existing signals, it can also be supplied in Voltage Free Contacts (VFC)/low power versions and 2 beam angles for medium range.

Key aspects to the innovation of the CLS LITE include:

- Compliant with Network Rail Line Specification NR/SP/SIG/10062 issue 1
- Direct replacement for existing filament & LED Signals
- Modules hinge backwards to enable easy access from a place of safety
- Unique optical arrangement that reduces the possibility of a signal phantom
- iLS light sources designed to give a longer service life
- LED modules sealed to IP65
- Fully Plug Coupled - simple plug & play connectivity
- Compatible with existing SSI & RRI installations
- Long and medium range availability across the range

CLS LITE Signal Head Configuration

3 Aspect single aperture signal

- Tall Housing
- Short Housing
- Tunnel Head

4 Aspect two aperture signal

- Standard Head
- Tunnel Head



Benefits of the CLS LITE

The CLS LITE signal delivers all the cost-down benefits of the iLS signal including faster installation, 'plug & play', and the reduction in maintenance, delivered by an innovative self-cleaning lens arrangement. This greatly reduces the exposure risk of installers and maintenance teams by reducing their time trackside.

Cost Reduction

Due to the nature of the technology and the flexibility offered, the CLS LITE can reduce costs in a variety of ways, including:

- Reduces maintenance costs as a result of the self-cleaning lens technology
- Reduces testing regimes as it is factory tested
- Retrofittable onto existing gantries and posts, therefore reducing additional costs

Additional Benefits

In addition to cost reduction, the CLS LITE Signal offers a variety of benefits to customers by combining the advanced optics and other benefits of the iLS with a standard signal head housing, providing far greater choice in the selection of the right signal for the job.

- iLS technology provides better optics and a longer and more predictable service life
- Lightweight - 5 to 10kg less than the Classic Signal
- Tiltable Module provides ease of access
- Anti-phantom technology
- Self-Cleaning Lens arrangement
- The CLS LITE can be easily integrated with Classic Unipart Dorman signals
- Standard mounting arrangement
- 'Plug & Play' coupling
- Proven Unipart Dorman LEDs and optics
- Multiple signal head configurations
- Factory tested before delivery



CLS LITE Performance characteristics in line with UK Network Rail specifications & Railway Group Standards

Compliances

| | |
|-----------------------------|------------|
| Railway Group Standards | GK/RT0057 |
| Approval Certificate Number | PA05/04240 |

Key Specifications

| | |
|-------------------------------------|-----------------|
| Ambient Operating Temperature Range | -25°C to +40°C |
| Nominal Operating Voltage (ac) | 110Vac |
| Operating Voltage Range (ac) | 88Vac to 121Vac |
| Nominal Operating Voltage (dc) | 120Vdc |
| Operating Voltage Range (dc) | 88Vdc to 145Vdc |
| LED Modules rated at IP65 | |

Lamp Proving Options

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|--|----------------|
| Current Proved Version | |
| Nominal Operating Current | 300mA @ 110Vac |
| 5W (nominal) Voltage Free Contact Proved version | |
| Nominal Operating Current | 45mA @ 110Vac |

Colour Specifications (as specified in GKRT0057)

Red BS1376 Class C (Restricted)
Yellow BS1376 Class B
Green BS1376 Class C

Variants

Red/Yellow/Green/Double Yellow Aspects in any combination and available in Top Half or Bottom Half close up viewing sectors.

4 Aspect Mainline Signal (signal with 2 modules)
3 Aspect Mainline Tall Signal (signal with 1 module)
3 Aspect Mainline Short Signal (signal with 1 module)
4 Aspect Tunnel Signal (signal with 2 modules)
3 Aspect Tunnel Short Signal (signal with 1 module)
Long Range (800m at $\pm 3^\circ$)
Medium Range Wide Angle (400m at $\pm 10^\circ$)
 Narrow Angle (400m at $\pm 3^\circ$)

Weights

4 Aspect Signal 32kg
3 Aspect Tall Signal 28kg
3 Aspect Short Signal 22kg
4 Aspect Tunnel Signal 30kg
3 Aspect Tunnel Short Signal 20kg
Module 5.5kg

Electrical Interface

- Where a flashing aspect is required, the pulsing is delivered by the infrastructure
- Compatible with Relay based, Solid State or Voltage Free Contact Interlocking Systems

Plug Coupler Contact Allocation Matrix for iLS ans CLS LITE Signals

| Equipment Type | Cable Size (2.5sqmm max) | Plug Coupler | | | | | | | | | | | | | | | |
|--------------------------------------|--------------------------|--------------------|-----|-----|--------------|-----------|----------|----------------|------------|------------|-------------------------|---------|---------|----------|---------|---------|-------|
| | | Insert Arrangement | | | Contact Size | | | No of Contacts | | | Contact Number Function | | | | | | |
| | | 1/A | 2/B | 3/C | 4/D | 5/E | 6/F | 7/G | 8 | 9 | 10 | 11 | 12 | 13 | | | |
| Signal - LED | | | | | | | | | | | | | | | | | |
| 1 Aspect R | 12c | 32-013 | 12 | 13 | SPARE | SPARE | SPARE | SPARE | SPARE | SPARE | SPARE | RGE NX | (IN 1) | (IN 2) | (OUT 1) | (OUT 2) | BLANK |
| 2 Aspect R/G | 12c | 32-013 | 12 | 13 | SPARE | SPARE | DGE NX | DGE NX | DGE NX | DGE NX | DGE NX | RGE NX | (IN 1) | (IN 2) | (OUT 1) | (OUT 2) | BLANK |
| 2 Aspect V/G | 12c | 32-013 | 12 | 13 | SPARE | SPARE | DGE NX | DGE NX | DGE NX | DGE NX | HGE NX | HGE NX | (IN 1) | (IN 2) | (OUT 1) | (OUT 2) | BLANK |
| 2 Aspect R/Y | 12c | 32-013 | 12 | 13 | SPARE | SPARE | SPARE | SPARE | SPARE | SPARE | HGE NX | HGE NX | (IN 1) | (IN 2) | (OUT 1) | (OUT 2) | BLANK |
| 2 Aspect R/Y/G | 12c | 32-013 | 12 | 13 | SPARE | SPARE | DGE NX | DGE NX | DGE NX | DGE NX | HGE NX | HGE NX | (IN 1) | (IN 2) | (OUT 1) | (OUT 2) | BLANK |
| 3 Aspect Y/Y/G | 12c | 32-013 | 12 | 13 | HHGE | HHGE NX | DGE NX | DGE NX | DGE NX | DGE NX | HGE NX | SPARE | (IN 1) | (IN 2) | (OUT 1) | (OUT 2) | BLANK |
| 3 Aspect R/Y/Y | 12c | 32-013 | 12 | 13 | HHGE | HHGE NX | SPARE | SPARE | SPARE | SPARE | HGE NX | RGE NX | (IN 1) | (IN 2) | (OUT 1) | (OUT 2) | BLANK |
| 4 Aspect R/Y/Y/G | 12c | 32-013 | 12 | 13 | HHGE | HHGE NX | DGE NX | DGE NX | DGE NX | DGE NX | HGE NX | RGE NX | (IN 1) | (IN 2) | (OUT 1) | (OUT 2) | BLANK |
| Standard/Preliminary Route Indicator | 12c | 32-013 | 12 | 13 | 1st UGE | 2nd UGE | 3rd UGE | 4th UGE* | 5th UGE* | 6th UGE* | 7th UGE* | 8th UGE | 9th UGE | 10th UGE | SPARE | UGE NX | BLANK |
| Position Light Junction Indicator | 10c | 32-013 | 12 | 13 | 1st UGE | 2nd UGE | 3rd UGE | 4th UGE | 5th UGE | 6th UGE | (PW) UGE | UGE NX | SPARE | SPARE | BLANK | BLANK | BLANK |
| Miniature Indicator | 7c | 20-2 | 12 | 7 | 1st UGE | 2nd UGE | 3rd UGE | 4th UGE* | 5th UGE | 6th UGE | OFF UGE | UGE NX | SPARE | SPARE | BLANK | BLANK | BLANK |
| Banner Resistor (2 or 3 State) | 7c | 24-2 | 12 | 7 | (ON) GE | (ON) NX | (OFF) GE | (OFF) NX | (OFF) DGE* | (OFF) DGE* | (OFF) UGE | SPARE | SPARE | SPARE | BLANK | BLANK | BLANK |
| Position Light Subsidiary Signal | 2c | 20-4 | 12 | 4 | (P) GE | (P) GE NX | BLANK | BLANK | BLANK | BLANK | BLANK | BLANK | BLANK | BLANK | BLANK | BLANK | BLANK |

Note 1

Note 2

*



All these signal variants made from R/Y/G

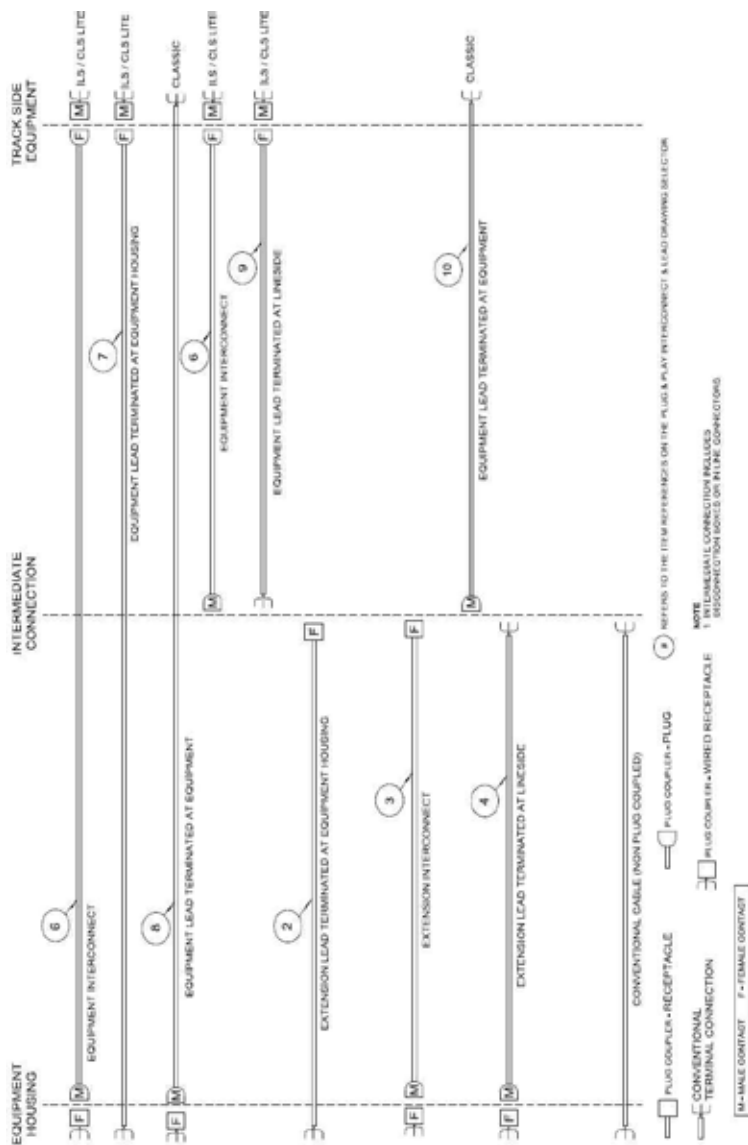
All these signal variants made from R/Y/Y/G

Subject to indicator configuration

Not Available

Taken from Network Rail Standard Drawing T00036 for information only

Plug & Play Interconnect Lead Selector



| Plug and Play Interconnect and Lead Drawing Selector for use with Unipart Dorman Signals | | | | | | | | | |
|--|--|------------------------|--------------------------------------|------------------------|--|--|--------------------------------------|--|--|
| IB/CLS LITE/Classic Cable Guidance Unipart Dorman drawing | 2 | 3 | 4 | 6 | 7 | 8 | 9 | 10 | |
| Trackside Equipment | Extension lead terminated at cable connector housing | Extension Interconnect | Extension lead terminated at Busside | Equipment Interconnect | Equipment lead terminated at equipment housing | Equipment lead terminated at equipment | Equipment lead terminated at Busside | Equipment lead terminated at equipment | |
| | No. of cable cores | | | | | | | | |
| Colour Light Signal (LS) | 12 | SE-SK 0843 | SE-SK 0846 | SE-SK 0661/2SE-SK0909 | SE-SK 0905 | MA | SE-SK 0665 | NA | |
| Colour Light Signal (CLS LITE) | 12 | SE-SK 0848 | SE-SK 0848 | SE-SK 0661/2SE-SK0909 | SE-SK 0905 | MA | SE-SK 0665 | NA | |
| Colour Light Signal (Classic) | 12 | SE-SK 0848 | SE-SK 0846 | NA | NA | SE-SK 0666 | NA | SE-SK 0846 | |
| Position Light Junction Box Indicator (ILS) | 10 | SE-SK 0830 | SE-SK 0838 | SE-SK 0663 | SE-SK 0957 | MA | SE-SK 0957 | NA | |
| Position Light Junction Box Indicator (Classic) | 10 | SE-SK 0840 | SE-SK 0838 | NA | NA | SE-SK 0858 | NA | SE-SK 0958 | |
| Pre-Injury Brake Indicator (ILS) | 12 | SE-SK 0848 | SE-SK 0846 | SE-SK 0661/2SE-SK0909 | SE-SK 0905 | MA | SE-SK 0665 | NA | |
| Pre-Injury Brake Indicator (Classic) | 12 | SE-SK 0848 | SE-SK 0846 | NA | NA | SE-SK 0666 | NA | SE-SK 0846 | |
| Miniature Alpha Numeric Route Indicator (ILS) | 7 | SE-SK 0832 | SE-SK 0830 | SE-SK 0661/2SE-SK0917 | SE-SK 0849 | MA | SE-SK 0849 | NA | |
| Miniature Alpha Numeric Route Indicator (Classic) | 7 | SE-SK 0832 | SE-SK 0830 | NA | NA | SE-SK 0860 | NA | SE-SK 0850 | |
| Standard Alpha Numeric Route Indicator (ILS) | 12 | SE-SK 0848 | SE-SK 0846 | SE-SK 0661/2SE-SK0909 | SE-SK 0905 | MA | SE-SK 0665 | NA | |
| Standard Alpha Numeric Route Indicator (Classic) | 12 | SE-SK 0848 | SE-SK 0846 | NA | NA | SE-SK 0666 | NA | SE-SK 0846 | |
| Banner Repeating Signal (ILS) | 7 | SE-SK 0832 | SE-SK 0830 | SE-SK 0661/2SE-SK0917 | SE-SK 0849 | MA | SE-SK 0849 | NA | |
| Banner Repeating Signal (Classic) | 7 | SE-SK 0832 | SE-SK 0830 | NA | NA | SE-SK 0860 | NA | SE-SK 0850 | |
| Line of Sight (Classic) | 4 | SE-SK 0834 | SE-SK 0822 | NA | NA | SE-SK 0642 | NA | SE-SK 0642 | |
| Position Light Short Signal (Classic) | 7 | SE-SK 0832 | SE-SK 0830 | NA | NA | SE-SK 0850 | NA | SE-SK 0850 | |
| Position Light Sidelight Signal (ILS) | 2 | SE-SK 0808 | SE-SK 0806 | SE-SK 0629 | SE-SK 0833 | MA | SE-SK 0833 | NA | |
| Position Light Sidelight Signal (Classic) | 2 | SE-SK 0808 | SE-SK 0806 | NA | NA | SE-SK 0834 | NA | SE-SK 0834 | |

Plug&Play

by Unipart Rail

Innovation through Plug & Play - An integrated approach to trackside systems

The Unipart Plug & Play system is an end-to-end solution from signal box through to track-side components.

The problem

The whole process of managing a possession is a huge undertaking. There are immediate effects on the running of trains, as well as time-consuming installation tasks. The risk of having workers at the track sites is also considerable.

Problems faced by contractors on a daily basis include:

- Complicated designs
- Ensuring the correct skills are available
- Wiring diagrams to be studied and interpreted
- Theft & vandalism
- Testing and re-working
- Large amount of equipment to be identified, transported and installed

The solution

The Plug & Play range includes pre-installed tails with plug couplers on the equipment, pre-cut, terminated and coupled cable lengths, and location/equipment housing manufactured and pre-wired with interface racks.

It all fits together with no hard-wiring and limited trackside testing as all the equipment is pre-tested in the factory.



Benefits of the Plug & Play range

Reduced Costs

Everything about our Plug & Play range delivers lower costs for customers.

- Overall project costs are reduced through standardisation of component parts
- Replacements are available off-the-shelf
- Reduced manpower costs
- Reduced risk of project over-run and fines
- Fewer REBs making installation of enclosures faster



Easier Installation

Removing hard-wiring and testing requirements reduces installation time leading to less equipment on-site, fewer control enclosures, less train down-time and off-the-shelf component availability.

Worker Safety & Skills

Fewer staff on-site, for less time and with less equipment means that the risk of injury is reduced and the reduced complexity of installations - including limited hard-wiring - means that less skilled labour is required trackside.

Flexibility

Another benefit of the Plug & Play range is that we can provide a bespoke, flexible solution for each project.

Please contact a member of the team to discuss your individual requirements on 01270 847708 or email engineeringssupport@unipartrail.com

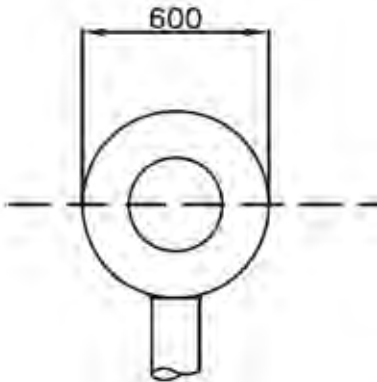
You can also download a copy of the Plug & Play brochure online at www.unipartrail.com/Plug&Play



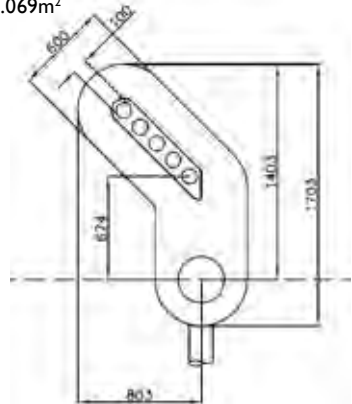
Integrated Lightweight Signals (iLS)

Lightweight 3 Aspect Colour Light Signals

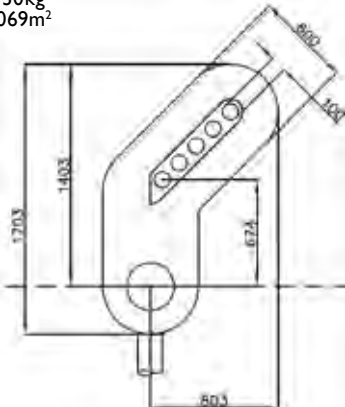
Type 1. 0086/009397
3 Aspect Colour Light Signal
Weight - 111kg
Area - 0.283m²



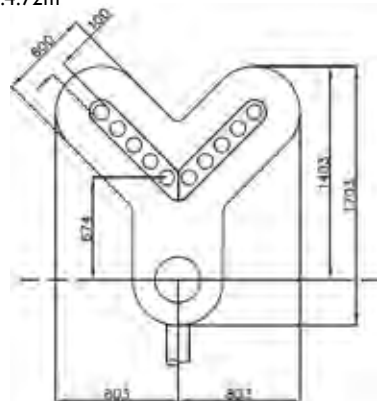
Type 2. 0086/009398
3 Aspect Colour Light Signal with Position 1
Junction Indicator
Weight - 30kg
Area - 1.069m²



Type 3. 0086/009399
3 Aspect Colour Light Signal with Position 4
Junction Indicator
Weight - 30kg
Area - 1.069m²

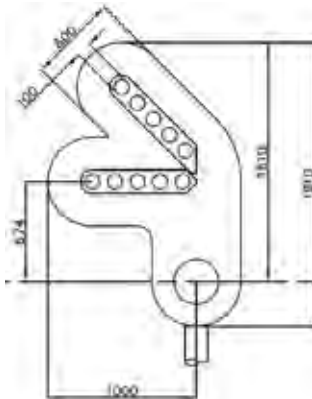


Type 4. 0086/009400
3 Aspect Colour Light Signal with Position 1+4
Junction Indicator
Weight - 43kg
Area - 1.472m²

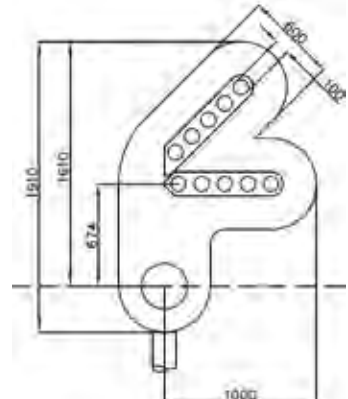


All dimensions are in mm

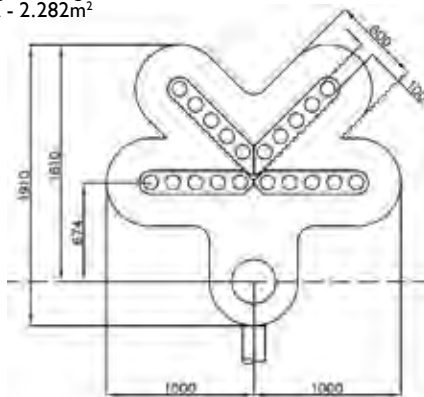
Type 5. 0086/009401
3 Aspect Colour Light Signal with Position 1+2
Junction Indicator
Weight - 43kg
Area - 1.527m²



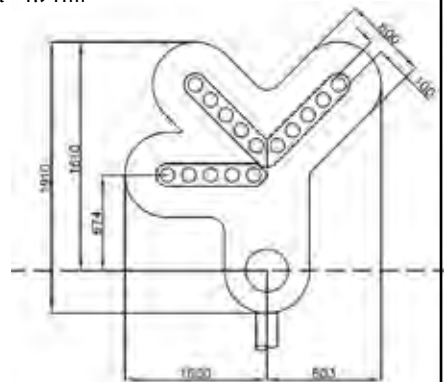
Type 6. 0086/009402
3 Aspect Colour Light Signal with Position 4+5
Junction Indicator
Weight - 43kg
Area - 1.527m²



Type 7. 0086/009403
3 Aspect Colour Light Signal with Position 1+2+4+5
Junction Indicator
Weight - 69kg
Area - 2.282m²

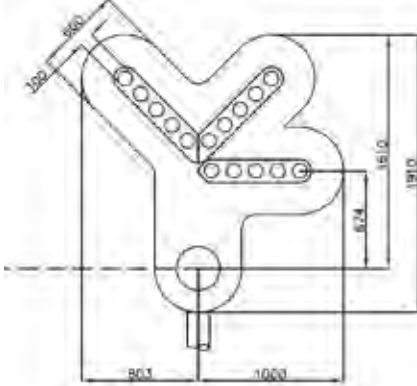


Type 8. 0086/009404
3 Aspect Colour Light Signal with Position 1+2+4
Junction Indicator
Weight - 56kg
Area - 1.941m²

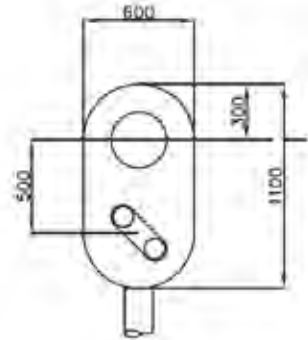


For signals that will be mounted in the Unipart Dorman Assisted Lift Trunnion please see page 39-45

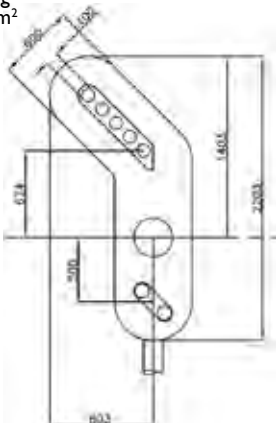
Type 9. 0086/009405
3 Aspect Colour Light Signal with Position 1+4+5
Junction Indicator
Weight - 56kg
Area - 1.941m²



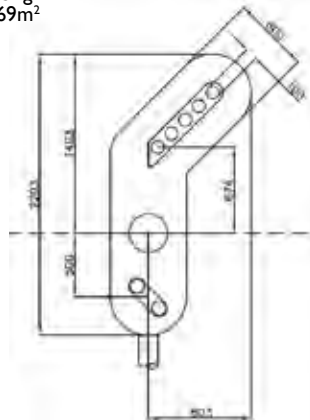
Type 10. 0086/009406
3 Aspect Colour Light Signal with Position Light
Signal
Weight - 19kg
Area - 0.582m²



Type 11. 0086/009407
3 Aspect Colour Light Signal with Position 1
Junction Indicator and Position Light Signal
Weight - 33kg
Area - 1.369m²



Type 12. 0086/009408
3 Aspect Colour Light Signal with Position 4
Junction Indicator and Position Light Signal
Weight - 33kg
Area - 1.369m²



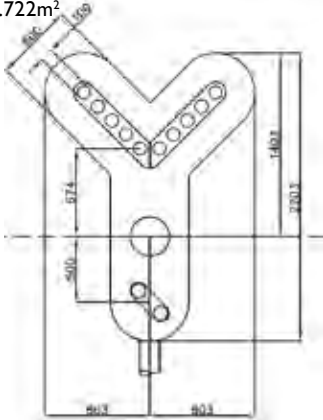
All dimensions are in mm

Type 13. 0086/009409

3 Aspect Colour Light Signal with Position 1+4
Junction Indicator and Position Light Signal

Weight - 46kg

Area - 1.722m²

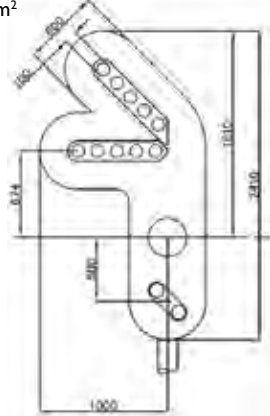


Type 14. 0086/009410

3 Aspect Colour Light Signal with Position 1+2
Junction Indicator and Position Light Signal

Weight - 46kg

Area - 1.827m²

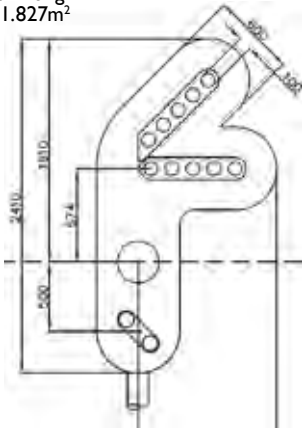


Type 15. 0086/009411

3 Aspect Colour Light Signal with Position 4+5
Junction Indicator and Position Light Signal

Weight - 46kg

Area - 1.827m²

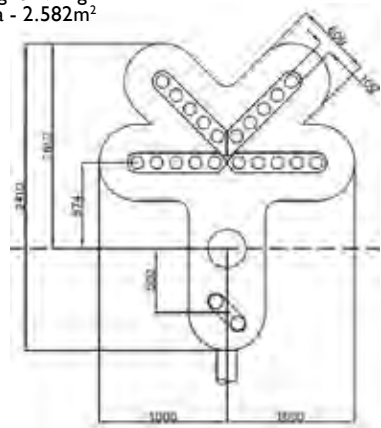


Type 16. 0086/009412

3 Aspect Colour Light Signal with Position 1+2+4+5
Junction Indicator and Position Light Signal

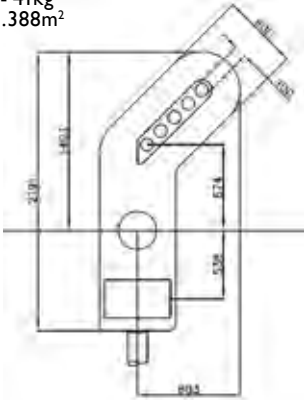
Weight - 72kg

Area - 2.582m²

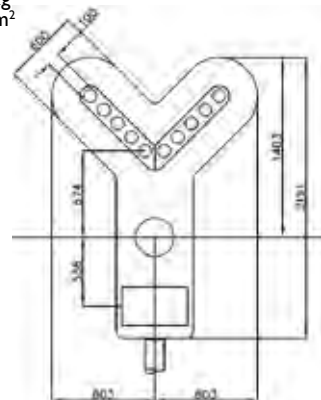


For signals that will be mounted in the Unipart Dorman Assisted Lift Trunnion please see page 39-45

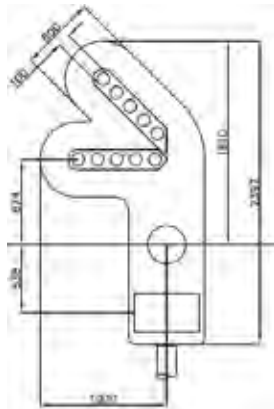
Type 21. 0086/009417
 3 Aspect Colour Light Signal with Position 4
 Junction Indicator and Miniature Alphanumeric
 Route Indicator (Stencil)
 Weight - 41kg
 Area - 1.388m²



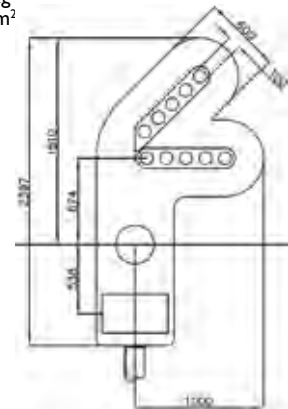
Type 22. 0086/009418
 3 Aspect Colour Light Signal with Position 1+4
 Junction Indicator and Miniature Alphanumeric
 Route Indicator (Stencil)
 Weight - 54kg
 Area - 1.791m²



Type 23. 0086/009419
 3 Aspect Colour Light Signal with Position 1+2
 Junction Indicator and Miniature Alphanumeric
 Route Indicator (Stencil)
 Weight - 54kg
 Area - 1.857m²

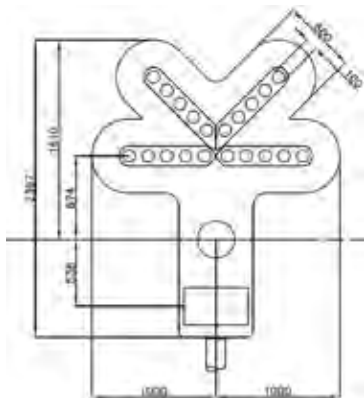


Type 24. 0086/009420
 3 Aspect Colour Light Signal with Position 4+5
 Junction Indicator and Miniature Alphanumeric
 Route Indicator (Stencil)
 Weight - 54kg
 Area - 1.857m²

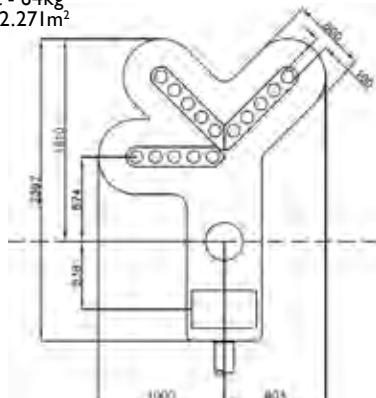


For signals that will be mounted in the Unipart Dorman Assisted Lift Trunnion please see page 39-45

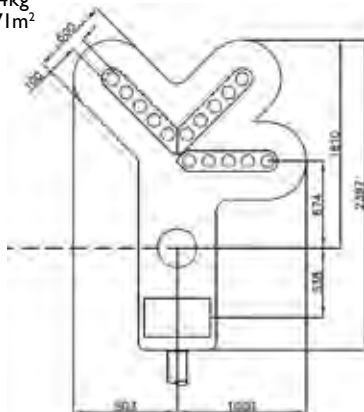
Type 25. 0086/009421
3 Aspect Colour Light Signal with Position 1+2+4+5
Junction Indicator and Mi
Weight - 77kg
Area - 2.612m²



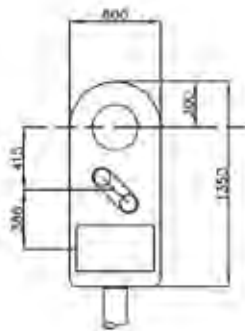
Type 26. 0086/009422
3 Aspect Colour Light Signal with Position 1+2+4
Junction Indicator and Miniature Alphanumeric
Route Indicator (Stencil)
Weight - 64kg
Area - 2.271m²



Type 27. 0086/009423
3 Aspect Colour Light Signal with Position 1+4+5
Junction Indicator and Miniature Alphanumeric
Route Indicator (Stencil)
Weight - 64kg
Area - 2.271m²



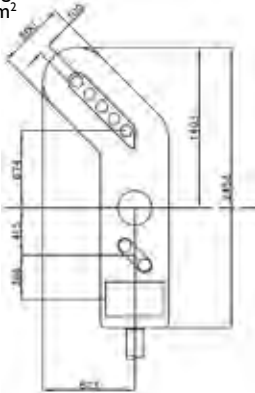
Type 28. 0086/0094024
3 Aspect Colour Light Signal with Position Light
Signal and Miniature Alphanumeric Route Indicator
(Stencil)
Weight - 30kg
Area - 0.770m²



All dimensions are in mm

Type 29. 0086/009425

3 Aspect Colour Light Signal with Position 1
Junction Indicator and Position Light Signal and
Miniature Alphanumeric Route Indicator (Stencil)
Weight - 46kg
Area - 1.557m²



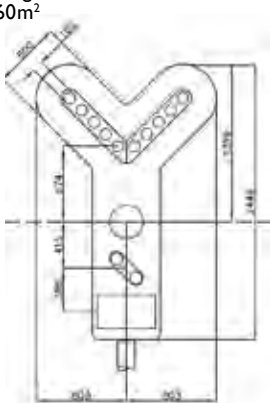
Type 30. 0086/009426

3 Aspect Colour Light Signal with Position 4
Junction Indicator and Position Light Signal and
Miniature Alphanumeric Route Indicator (Stencil)
Weight - 46kg
Area - 1.557m²



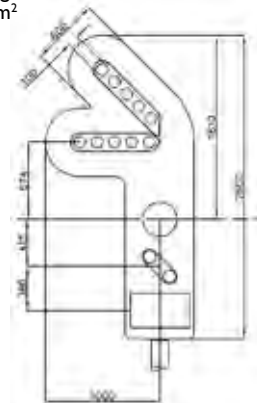
Type 31. 0086/009427

3 Aspect Colour Light Signal with Position 1+4
Junction Indicator and Position Light Signal and
Miniature Alphanumeric Route Indicator (Stencil)
Weight - 59kg
Area - 1.960m²



Type 32. 0086/009428

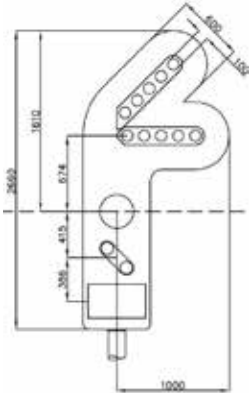
3 Aspect Colour Light Signal with Position 1+2
Junction Indicator and Position Light Signal and
Miniature Alphanumeric Route Indicator (Stencil)
Weight - 59kg
Area - 2.015m²



For signals that will be mounted in the Unipart Dorman Assisted Lift Trunnion please see page 39-45

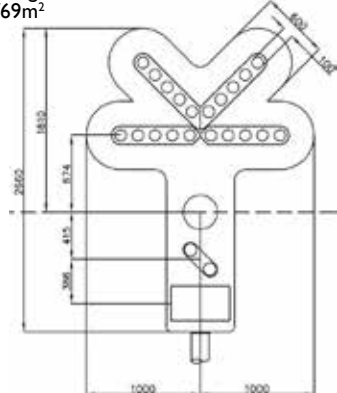
Type 33. 0086/009429

3 Aspect Colour Light Signal with Position 4+5
Junction Indicator and Position Light Signal and
Miniature Alphanumeric Route Indicator (Stencil)
Weight - 59kg
Area - 2.015m²



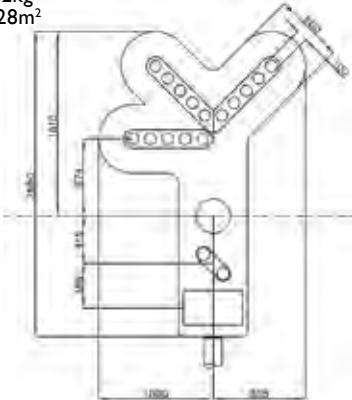
Type 34. 0086/009430

3 Aspect Colour Light Signal with Position 1+2+4+5
Junction Indicator and Position Light Signal and
Miniature Alphanumeric Route Indicator (Stencil)
Weight - 85kg
Area - 2.769m²



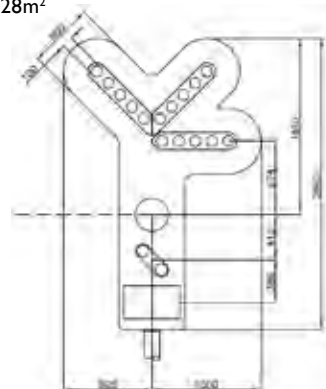
Type 35. 0086/009431

3 Aspect Colour Light Signal with Position 1+2+4
Junction Indicator and Position Light Signal and
Miniature Alphanumeric Route Indicator (Stencil)
Weight - 72kg
Area - 2.428m²



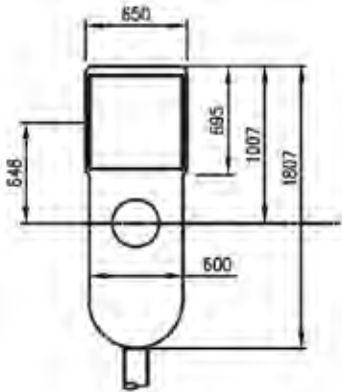
Type 36. 0086/009432

3 Aspect Colour Light Signal with Position 1+4+5
Junction Indicator and Position Light Signal and
Miniature Alphanumeric Route Indicator (Stencil)
Weight - 72kg
Area - 2.428m²

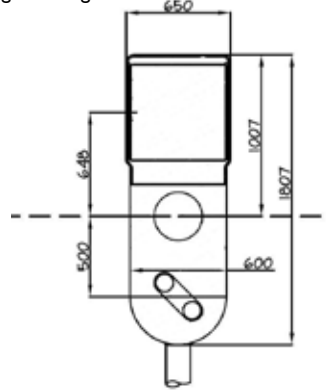


All dimensions are in mm

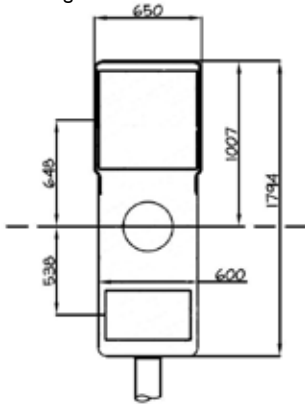
Type 37. 0086/009433
3 Aspect Colour Light Signal with Standard
Alphanumeric Route Indicator (Theatre)
Weight - 34kg
Area - 2.015m²



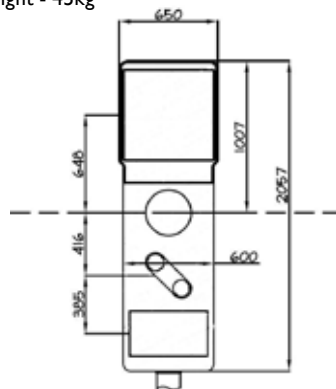
Type 38. 0086/009434
3 Aspect Colour Light Signal with Standard
Alphanumeric Route Indicator (Theatre) and
Position Light Signal
Weight - 37kg



Type 39. 0086/009435
3 Aspect Colour Light Signal with Standard
Alphanumeric Route Indicator (Theatre) and
Miniature Alphanumeric Route Indicator (Stencil)
Weight - 42kg



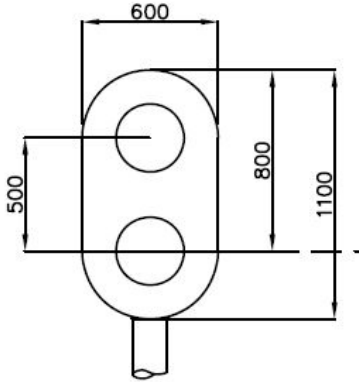
Type 40. 0086/009436
3 Aspect Colour Light Signal with Standard
Alphanumeric Route Indicator (Theatre) and
Position Light Signal and Miniature Alphanumeric
Route Indicator (Stencil)
Weight - 45kg



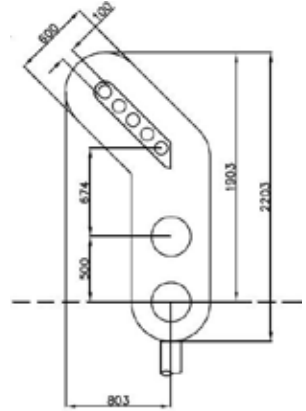
For signals that will be mounted in the Unipart Dorman Assisted Lift Trunnion please see page 39-45

Lightweight 4 Aspect Colour Light Signals

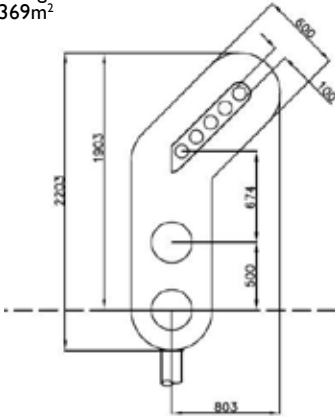
Type 50. 0086/009437
4 Aspect Colour Light Signal
Weight - 20kg
Area - 0.583m²



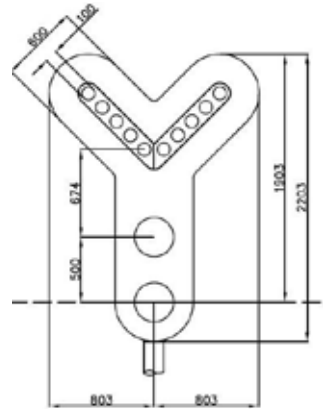
Type 51. 0086/009438
4 Aspect Colour Light Signal with Position 1
Junction Indicator
Weight - 38kg
Area - 1.369m²



Type 52. 0086/009439
4 Aspect Colour Light Signal with Position 4
Junction Indicator
Weight - 38kg
Area - 1.369m²

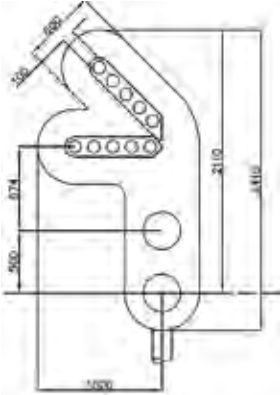


Type 53. 0086/009440
4 Aspect Colour Light Signal with Position 1+4
Junction Indicator
Weight - 51kg
Area - 1.772m²

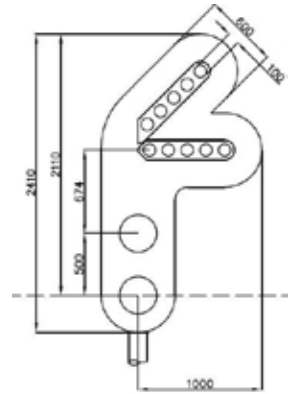


All dimensions are in mm

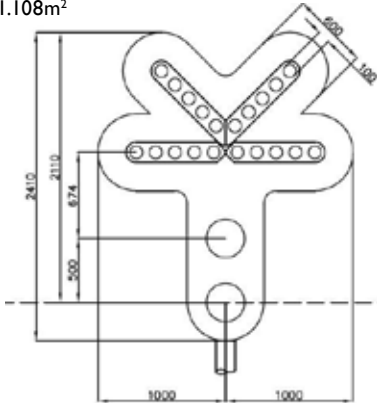
Type 54. 0086/009441
4 Aspect Colour Light Signal with Position 1+2
Junction Indicator
Weight - 51kg
Area - 1.827m²



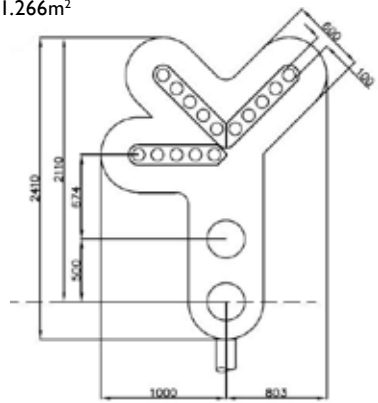
Type 55. 0086/009442
4 Aspect Colour Light Signal with Position 4+5
Junction Indicator
Weight - 51kg
Area - 1.827m²



Type 56. 0086/009443
4 Aspect Colour Light Signal with Position 1+2+4+5
Junction Indicator
Weight - 77kg
Area - 1.108m²

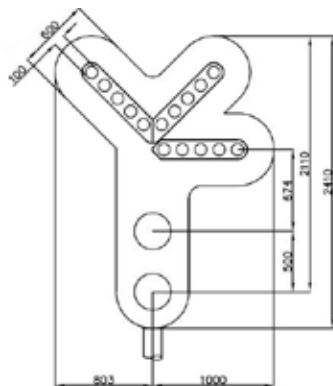


Type 57. 0086/009444
4 Aspect Colour Light Signal with Position 1+2+4
Junction Indicator
Weight - 64kg
Area - 1.266m²

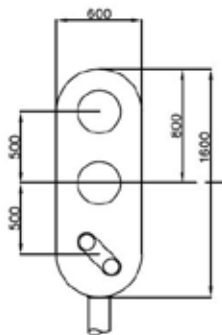


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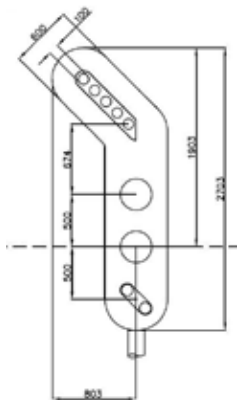
Type 58. 0086/009445
4 Aspect Colour Light Signal with Position I+4+5
Junction Indicator
Weight - 64kg
Area - 2.241m²



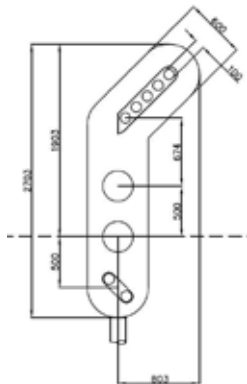
Type 59. 0086/009446
4 Aspect Colour Light Signal with Position Light
Signal
Weight - 27kg
Area - 0.882m²



Type 60. 0086/009447
4 Aspect Colour Light Signal with Position I
Junction Indicator and Position Light Signal
Weight - 45kg
Area - 1.080m²

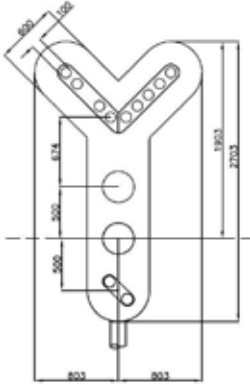


Type 61. 0086/009448
4 Aspect Colour Light Signal with Position 4
Junction Indicator and Position Light Signal
Weight - 45kg
Area - 1.080m²

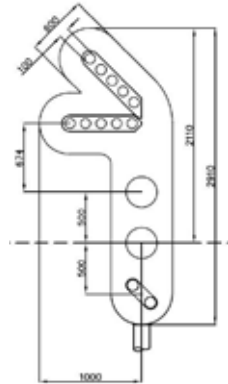


All dimensions are in mm

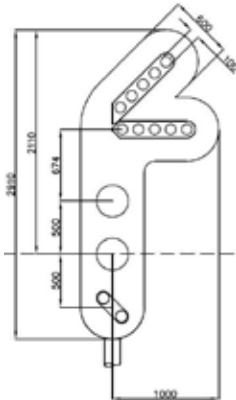
Type 62. 0086/009449
 4 Aspect Colour Light Signal with Position 1+4
 Junction Indicator and Position Light Signal
 Weight - 56kg
 Area - 2.072m²



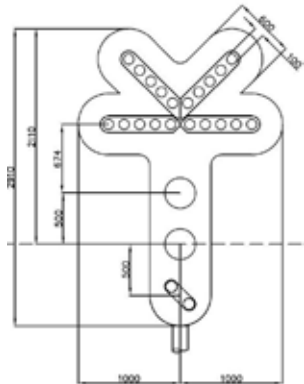
Type 63. 0086/009450
 4 Aspect Colour Light Signal with Position 1+2
 Junction Indicator and Position Light Signal
 Weight - 56kg
 Area - 2.127m²



Type 64. 0086/009451
 4 Aspect Colour Light Signal with Position 4+5
 Junction Indicator and Position Light Signal
 Weight - 56kg
 Area - 2.127m²



Type 65. 0086/009452
 4 Aspect Colour Light Signal with Position 1+2+4+5
 Junction Indicator and Position Light Signal
 Weight - 84kg
 Area - 2.882m²

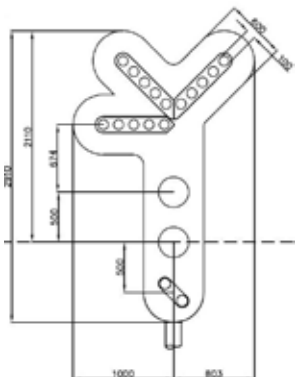


For signals that will be mounted in the Unipart Dorman Assisted Lift Trunnion please see page 39-45

Type 66. 0086/009453

4 Aspect Colour Light Signal with Position 1+2+4
Junction Indicator and Position Light Signal

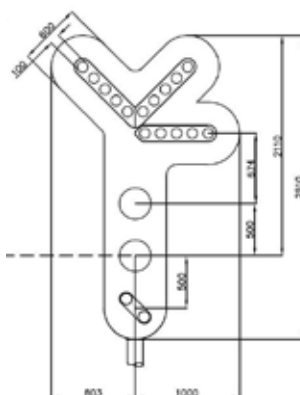
Weight - 71kg
Area - 2.541m²



Type 67. 0086/009454

4 Aspect Colour Light Signal with Position 1+4+5
Junction Indicator and Position Light Signal

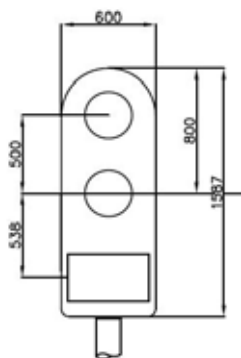
Weight - 71kg
Area - 2.541m²



Type 68. 0086/009455

4 Aspect Colour Light Signal with Miniature
Alphanumeric Route Indicator (Stencil)

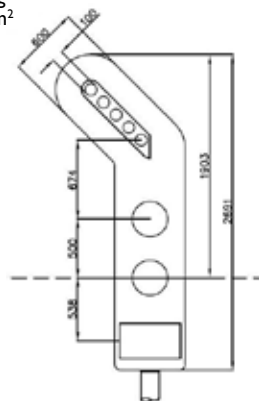
Weight - 32kg
Area - 0.901m²



Type 69. 0086/009456

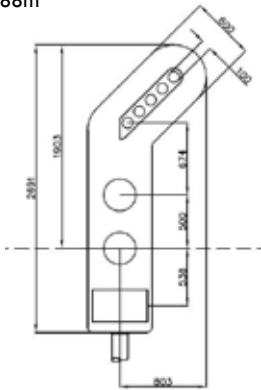
4 Aspect Colour Light Signal with Position 1
Junction Indicator and Miniature Alphanumeric
Route Indicator (Stencil)

Weight - 60kg
Area - 1.688m²

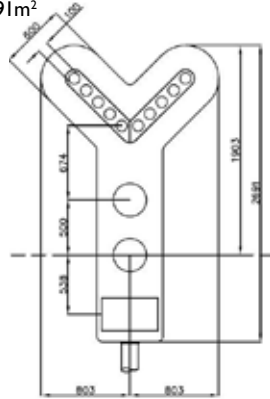


All dimensions are in mm

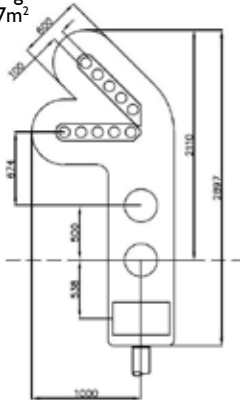
Type 70. 0086/009457
 4 Aspect Colour Light Signal with Position 4
 Junction Indicator and Miniature Alphanumeric
 Route Indicator (Stencil)
 Weight - 60kg
 Area - 1.688m²



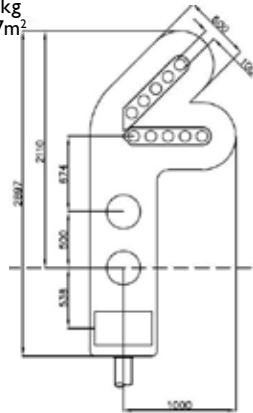
Type 71. 0086/009458
 4 Aspect Colour Light Signal with Position 1+4
 Junction Indicator and Miniature Alphanumeric
 Route Indicator (Stencil)
 Weight - 63kg
 Area - 2.091m²



Type 72. 0086/009459
 4 Aspect Colour Light Signal with Position 1+2
 Junction Indicator and Miniature Alphanumeric
 Route Indicator (Stencil)
 Weight - 63kg
 Area - 2.157m²

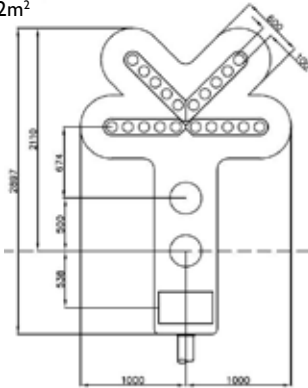


Type 73. 0086/009460
 4 Aspect Colour Light Signal with Position 4+5
 Junction Indicator and Miniature Alphanumeric
 Route Indicator (Stencil)
 Weight - 63kg
 Area - 2.157m²

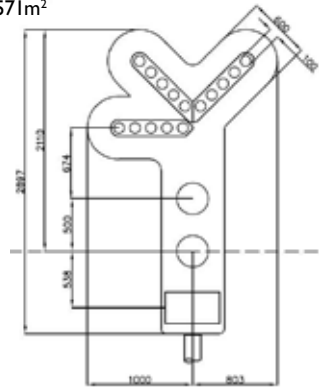


For signals that will be mounted in the Unipart Dorman Assisted Lift Trunion please see page 39-45

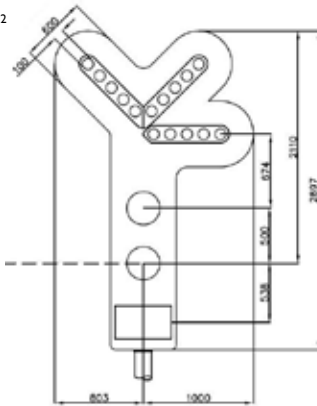
Type 74. 0086/009461
 4 Aspect Colour Light Signal with Position 1+2+4+5
 Junction Indicator and Miniature Alphanumeric
 Route Indicator (Stencil)
 Weight - 89kg
 Area - 2.912m²



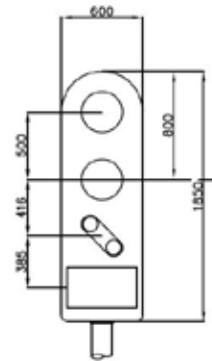
Type 75. 0086/009462
 4 Aspect Colour Light Signal with Position 1+2+4
 Junction Indicator and Miniature Alphanumeric
 Route Indicator (Stencil)
 Weight - 76kg
 Area - 2.571m²



Type 76. 0086/009463
 4 Aspect Colour Light Signal with Position 1+4+5
 Junction Indicator and Miniature Alphanumeric
 Route Indicator (Stencil)
 Weight - 76kg
 Area - 2.571m²

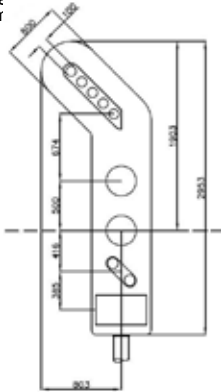


Type 77. 0086/009464
 4 Aspect Colour Light Signal with Position Light
 Signal and Miniature Alphanumeric Route Indicator
 (Stencil)
 Weight - 39kg
 Area - 1.070m²

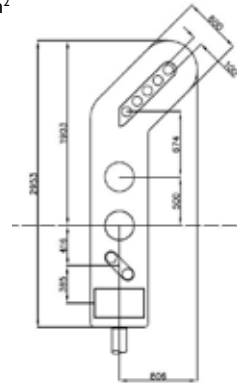


All dimensions are in mm

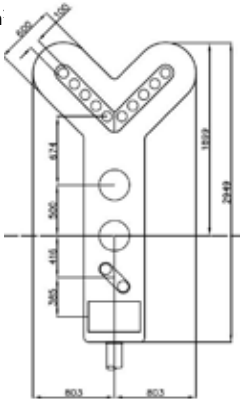
Type 78. 0086/009465
 4 Aspect Colour Light Signal with Position 1
 Junction Indicator, Position Light Signal and
 Miniature Alphanumeric Route Indicator (Stencil)
 Weight - 67kg
 Area - 1.857m²



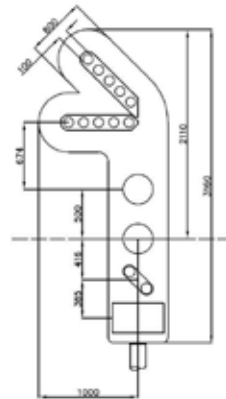
Type 79. 0086/009466
 4 Aspect Colour Light Signal with Position 4
 Junction Indicator, Position Light Signal and
 Miniature Alphanumeric Route Indicator (Stencil)
 Weight - 67kg
 Area - 1.857m²



Type 80. 0086/009467
 4 Aspect Colour Light Signal with Position 1+4
 Junction Indicator, Position Light Signal and
 Miniature Alphanumeric Route Indicator (Stencil)
 Weight - 70kg
 Area - 2.260m²



Type 81. 0086/009468
 4 Aspect Colour Light Signal with Position 1+2
 Junction Indicator, Position Light Signal and
 Miniature Alphanumeric Route Indicator (Stencil)
 Weight - 70kg
 Area - 2.315m²

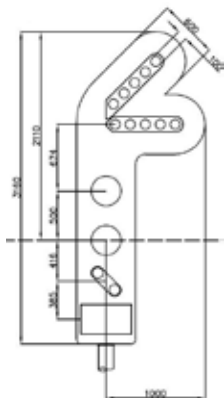


For signals that will be mounted in the Unipart Dorman Assisted Lift Trunnion please see page 39-45

Type 82. 0086/009469

4 Aspect Colour Light Signal with Position 4+5
Junction Indicator, Position Light Signal and
Miniature Alphanumeric Route Indicator (Stencil)

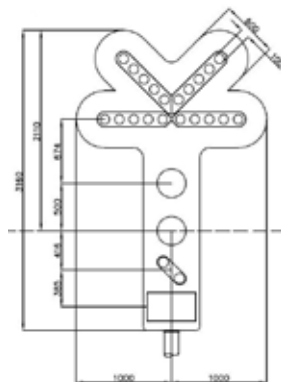
Weight - 70kg
Area - 2.315m²



Type 83. 0086/009470

4 Aspect Colour Light Signal with Position 1+2+4+5
Junction Indicator, Position Light Signal and
Miniature Alphanumeric Route Indicator (Stencil)

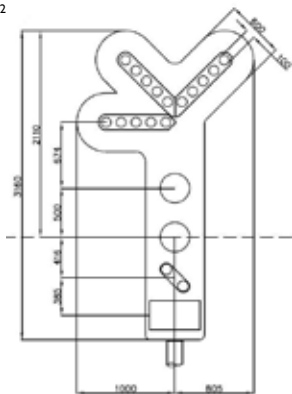
Weight - 96kg
Area - 3.069m²



Type 84. 0086/009471

4 Aspect Colour Light Signal with Position 1+2+4
Junction Indicator, Position Light Signal and
Miniature Alphanumeric Route Indicator (Stencil)

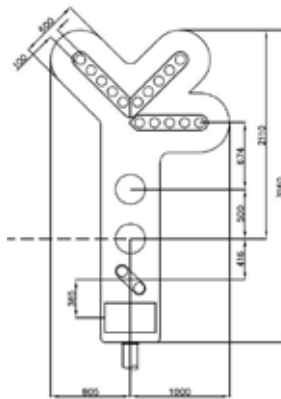
Weight - 83kg
Area - 2.729m²



Type 85. 0086/009472

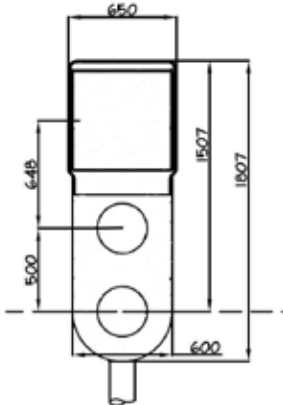
4 Aspect Colour Light Signal with Position 1+4+5
Junction Indicator, Position Light Signal and
Miniature Alphanumeric Route Indicator (Stencil)

Weight - 83kg
Area - 2.729m²

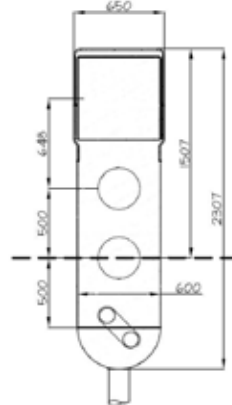


All dimensions are in mm

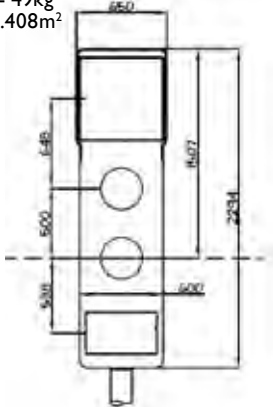
Type 86. 0086/009473
 4 Aspect Colour Light Signal with Standard
 Alphanumeric Route Indicator (Theatre)
 Weight - 37kg
 Area - 1.080m²



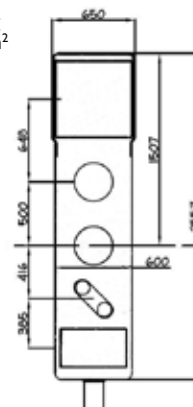
Type 87. 0086/009474
 4 Aspect Colour Light Signal with Standard
 Alphanumeric Route Indicator (Theatre) and PLS
 Weight - 41kg
 Area - 1.380m²



Type 88. 0086/009475
 4 Aspect Colour Light Signal with Standard
 Alphanumeric Route Indicator (Theatre) and
 Miniature Alphanumeric Route Indicator (Stencil)
 Weight - 49kg
 Area - 1.408m²

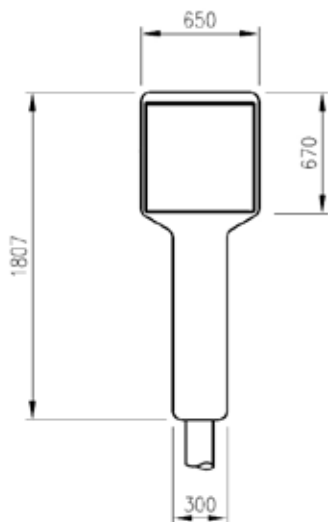


Type 89. 0086/009476
 4 Aspect Colour Light Signal with Standard
 Alphanumeric Route Indicator (Theatre) and
 PLS and Miniature Alphanumeric Route Indicator
 (Stencil)
 Weight - 56kg
 Area - 1.566m²



For signals that will be mounted in the Unipart Dorman Assisted Lift Trunnion please see page 39-45

Type 100. 0086/007471
Banner Repeater Signal or Preliminary Route
Indicator or Theatre
Weight - 31kg
Area - 0.792



For signals that will be mounted in the Unipart Dorman Assisted Lift Trunnion please see page 39-45

iLS Base Options

Unipart Dorman has developed three different solutions for the iLS, one for modular signalling and two for next generation lightweight mainline signalling.

- Trunnion Unit
- Equipment Enclosure for modular Lightweight Signal (MLS)
- Assisted Lift Trunnion

All base types fit the standard Network Rail BRS-SC 45 foundation footprint.

The concept of Modular Signalling involves developing low-cost, efficient and easy-to-install technology that can be used to re-signal low density, rural routes.



MLS Equipment Enclosure

Some locations do not require separate Location Cases as there is very little control equipment. Here the Equipment Enclosure can be used to house the componentry required for the signal, as well as control for TPWS, AWS and Axle counters etc.

Standard mounting and plug-coupled connections also make the installation quick and risk free.



Trunnion Unit

Where a signalling scheme has Location Cases, REBs or Signal Box control, the signal is supported in a simple 'Trunnion' unit.

Mounted on a standard concrete foundation (for existing locations) or on a more cost-effective alternate (for new locations), the Trunnion is simply lifted into position and bolted down. The integrated Plug Coupler point enables speedy and risk-free connection.

Assisted Lift Trunnion (ALT)

Certificate of Acceptance PA05/06503

As part of our continual drive to deliver safer solutions to our rail customers we identified that the majority of signals being ordered were 3 and 4 aspect head types and strong customer feedback indicated a need to reduce the amount of support equipment required to install and maintain signals.

The ALT increases worker safety and reduces installation time, this new development from Unipart Dorman uses progressive rate spring technology to reduce the lifting force required as the post is moved from horizontal to the vertical plane.

- Suitable for use with a wide range of signals including the Unipart Dorman Classic signal range, iLS, CLS LITE, Banner Repeaters, Route Indicators and Level Crossing Wig Wags
- Simplified installation using basic handtools
- Permanent lifting eye provided allows the use of a variety of readily available mechanical handling devices
- Complies with PAN/E/CE/ 0017 (Project Advice Note - Signal Structures - 'Form A Guidance for Loading Performance') and is subject to its own generic F001, F002, and F003 submission
- Signal sighting is done from ground level, allowing the trunnion to be installed and sighted in advance of signal post and head delivery to site
- After sighting the trunnion can be secured in the horizontal position for extended periods using the hold down pin secured with a standard padlock



CLS LITE Heads for use with Assisted Lift Trunnion

| Catalogue No. | Description | Part No. |
|---------------|--|---------------|
| 0094/019338 | 3 Aspect CLS LITE Long Range Short UHQ and interface bracket. To be used only with the Assisted Lift Trunnion and associated post | CALH/SRYG/AAE |
| 0094/019339 | 3 Aspect CLS LITE Medium Range Narrow Angle Short UHQ and interface bracket. To be used only with the Assisted Lift Trunnion and associated post | CANH/SRYG/AAE |
| 0094/019340 | 3 Aspect CLS LITE Medium Range Narrow Angle Short BHQ and interface bracket. To be used only with the Assisted Lift Trunnion and associated post | CANF/SRYG/AAG |
| 0094/019341 | 3 Aspect CLS LITE Medium Range Wide Angle Short UHQ and interface bracket. To be used only with the Assisted Lift Trunnion and associated post | CAWH/SRYG/AAE |
| 0094/019342 | 3 Aspect CLS LITE Medium Range Wide Angle Short BHQ and interface bracket. To be used only with the Assisted Lift Trunnion and associated post | CAWF/SRYG/AAG |
| 0094/019343 | 3 Aspect CLS LITE Long Range UHQ and interface bracket. To be used only with the Assisted Lift Trunnion and associated post | CALH/3RYG/AAE |
| 0094/019344 | 3 Aspect CLS LITE Medium Range Wide Angle UHQ and interface bracket. To be used only with the Assisted Lift Trunnion and associated post | CAWH/3RYG/AAE |
| 0094/019345 | 3 Aspect CLS LITE Medium Range Narrow Angle UHQ and interface bracket. To be used only with the Assisted Lift Trunnion and associated post | CANH/3RYG/AAE |
| 0094/019346 | 3 Aspect CLS LITE Long Range Short BHQ and interface bracket. To be used only with the Assisted Lift Trunnion and associated post | CALF/3RYG/AAG |
| 0094/019347 | 3 Aspect CLS LITE Tunnel Long range Short BHQ and interface bracket. To be used only with the Assisted Lift Trunnion and associated post | CALT/3RYG/AAG |

For signals that will be mounted in the Unipart Dorman Standard Trunnion please see page 16-38

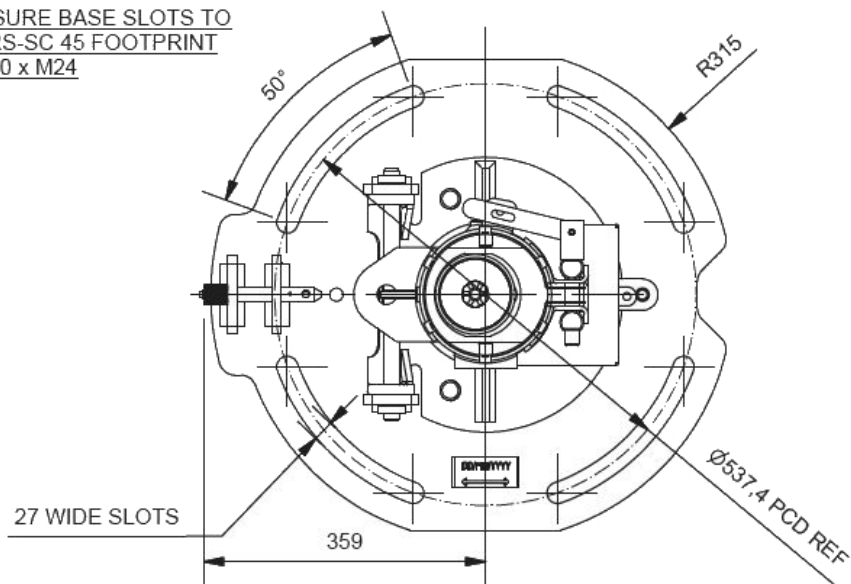
| Catalogue No. | Description | Part No. |
|----------------------|---|-----------------|
| 0094/019348 | 4 Aspect CLS LITE Long Range BHQ, and interface bracket. To be used only with the Assisted Lift Trunnion and associated post | CALF/RYG/AAG |
| 0094/019349 | 4 Aspect CLS LITE Tunnel Long Range BHQ and interface bracket. To be used only with the Assisted Lift Trunnion and associated post | CALT/RYG/AAG |
| 0094/019350 | 4 Aspect CLS LITE Long Range UHQ and interface bracket. To be used only with the Assisted Lift Trunnion and associated post | CALF/RYG/AAE |
| 0094/019351 | 4 Aspect CLS LITE Medium Range Wide Angle BHQ and interface bracket. To be used only with the Assisted Lift Trunnion and associated post | CAWF/RYG/AAG |
| 0094/019352 | 4 Aspect CLS LITE Medium Range Narrow Angle BHQ and interface bracket. To be used only with the Assisted Lift Trunnion and associated post | CANF/RYG/AAG |
| 0094/019353 | 4 Aspect CLS LITE Medium Range Wide Angle UHQ and interface bracket. To be used only with the Assisted Lift Trunnion and associated post | CAWH/RYG/AAE |
| 0094/019354 | 4 Aspect CLS LITE Medium Range Narrow Angle UHQ and interface bracket. To be used only with the Assisted Lift Trunnion and associated post | CANH/RYG/AAE |
| 0094/019355 | 3 Aspect CLS LITE Long Range Short UHQ (Double Cut VOLT FREE CONTACT PROVING) and interface bracket. To be used only with the Assisted Lift Trunnion and associated post | CALH/SRYG/ACE |
| 0094/019356 | 3 Aspect CLS LITE Medium Range Narrow Angle Short UHQ (Double Cut VOLT FREE CONTACT PROVING) and interface bracket. To be used only with the Assisted Lift Trunnion and associated post | CANH/SRYG/ACE |
| 0094/019357 | 3 Aspect CLS LITE Medium Range Narrow Angle Short BHQ (Double Cut VOLT FREE CONTACT PROVING) and interface bracket. To be used only with the Assisted Lift Trunnion and associated post | CANF/SRYG/ACG |

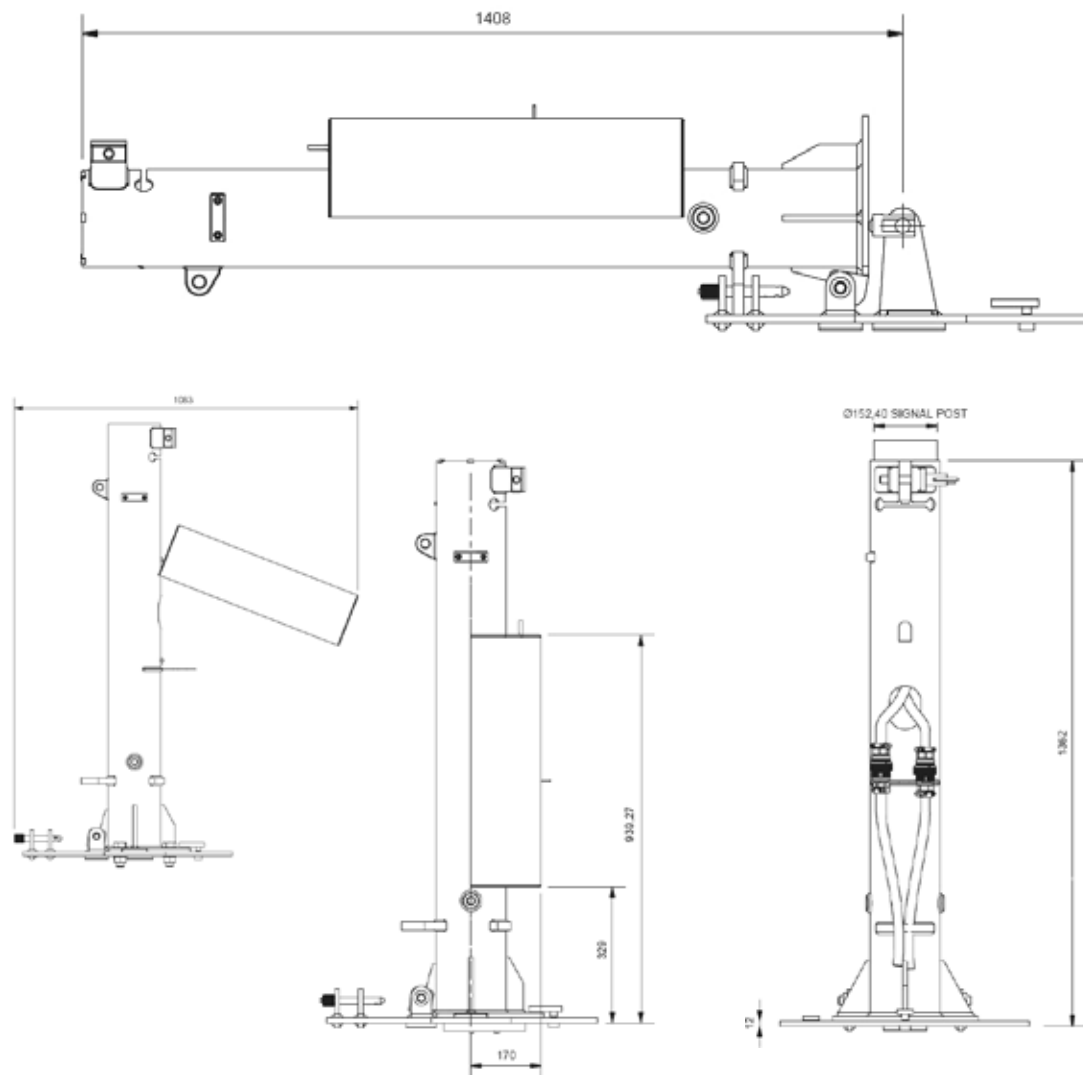
| Catalogue No. | Description | Part No. |
|---------------|---|---------------|
| 0094/019358 | 3 Aspect CLS LITE Medium Range Wide Angle Short UHQ (Double Cut VOLT FREE CONTACT PROVING) and interface bracket. To be used only with the Assisted Lift Trunnion and associated post | CAWH/SRYG/ACE |
| 0094/019359 | 3 Aspect CLS LITE Medium Range Wide Angle Short BHQ (Double Cut VOLT FREE CONTACT PROVING) and interface bracket. To be used only with the Assisted Lift Trunnion and associated post | CAWF/SRYG/ACG |
| 0094/019360 | 3 Aspect CLS LITE Long Range UHQ (Double Cut VOLT FREE CONTACT PROVING) and interface bracket. To be used only with the Assisted Lift Trunnion and associated post | CALH/3RYG/ACE |
| 0094/019361 | 3 Aspect CLS LITE Medium Range Wide Angle UHQ (Double Cut VOLT FREE CONTACT PROVING) and interface bracket. To be used only with the Assisted Lift Trunnion and associated post | CAWH/3RYG/ACE |
| 0094/019362 | 3 Aspect CLS LITE Medium Range Narrow Angle UHQ (Double Cut VOLT FREE CONTACT PROVING) and interface bracket. To be used only with the Assisted Lift Trunnion and associated post | CANH/3RYG/ACE |
| 0094/019363 | 3 Aspect CLS LITE Long Range Short BHQ (Double Cut VOLT FREE CONTACT PROVING) and interface bracket. To be used only with the Assisted Lift Trunnion and associated post | CALF/3RYG/ACG |
| 0094/019364 | 3 Aspect CLS LIT Long range Short BHQ (Double Cut VOLT FREE CONTACT PROVING) and interface bracket. To be used only with the Assisted Lift Trunnion and associated post | CALT/3RYG/ACG |
| 0094/019365 | 4 Aspect CLS LITE Long Range BHQ, (Double Cut VOLT FREE CONTACT PROVING) and interface bracket. To be used only with the Assisted Lift Trunnion and associated post | CALF/RGYG/ACG |
| 0094/019366 | 4 Aspect CLS LITE Tunnel Long Range BHQ (Double Cut VOLT FREE CONTACT PROVING) and interface bracket. To be used only with the Assisted Lift Trunnion and associated post | CALT/RGYG/ACG |

For signals that will be mounted in the Unipart Dorman Standard Trunnion please see page 16-38

| Catalogue No. | Description | Part No. |
|---------------|---|--------------|
| 0094/019367 | 4 Aspect CLS LITE Long Range UHQ (Double Cut VOLT FREE CONTACT PROVING) and interface bracket. To be used only with the Assisted Lift Trunnion and associated post | CALF/RGY/ACE |
| 0094/019368 | 4 Aspect CLS LITE Medium Range Wide Angle BHQ (Double Cut VOLT FREE CONTACT PROVING) and interface bracket. To be used only with the Assisted Lift Trunnion and associated post | CAWF/RGY/ACG |
| 0094/019369 | 4 Aspect CLS LITE Medium Range Narrow Angle BHQ (Double Cut VOLT FREE CONTACT PROVING) and interface bracket. To be used only with the Assisted Lift Trunnion and associated post | CANF/RGY/ACG |

ENCLOSURE BASE SLOTS TO
SUIT BRS-SC 45 FOOTPRINT
380 x 380 x M24





For signals that will be mounted in the Unipart Dorman Standard Trunnion please see page 16-38

iLS LITE Head types for use with Assisted Lift Trunnion

Please see pages 16 - 36 for head type configuration drawings

| Catalogue No. | Description | Head Type |
|---------------|---|------------|
| 0094/019372 | 3 asp CLS housing & GRP post only. To be used for the Assisted Lift Trunnion only. User to specify post height (height from top of foundation to top of rail and top of rail to centre of red). | TYPE 01 AL |
| 0094/019373 | 3 asp CLS and position 1 junction indicator housing & GRP post only. To be used for the Assisted Lift Trunnion only. User to specify post height (height from top of foundation to top of rail and top of rail to centre of red). | TYPE 02 AL |
| 0094/019374 | 3 asp CLS and position 4 junction indicator housing & GRP post only. To be used for the Assisted Lift Trunnion only. User to specify post height (height from top of foundation to top of rail and top of rail to centre of red). | TYPE 03 AL |
| 0094/019375 | 3 asp CLS with PLS housing & GRP post only. To be used for the Assisted Lift Trunnion only. User to specify post height (height from top of foundation to top of rail and top of rail to centre of red). | TYPE 10 AL |
| 0094/019376 | 3 asp CLS with PLS and position 1 junction indicator housing & GRP post only. To be used for the Assisted Lift Trunnion only. User to specify post height (height from top of foundation to top of rail and top of rail to centre of red). | TYPE 11 AL |
| 0094/019377 | 3 asp CLS with Stencil housing & GRP post only. To be used for the Assisted Lift Trunnion only. User to specify post height (height from top of foundation to top of rail and top of rail to centre of red) | TYPE 12 AL |
| 0094/019378 | 3 asp CLS with Stencil housing & GRP post only. To be used for the Assisted Lift Trunnion only. User to specify post height (height from top of foundation to top of rail and top of rail to centre of red) | TYPE 19 AL |
| 0094/019379 | 3 asp CLS with Stencil and position 1 junction indicator housing & GRP post only. To be used for the Assisted Lift Trunnion only. User to specify post height (height from top of foundation to top of rail and top of rail to centre of red) | TYPE 20 AL |

| | | |
|-------------|---|------------|
| 0094/019380 | 3 asp CLS with Stencil and position 4 junction indicator housing & GRP post only. To be used for the Assisted Lift Trunnion only. User to specify post height (height from top of foundation to top of rail and top of rail to centre of red) | TYPE 21 AL |
| 0094/019381 | 3 asp CLS with PLS & Stencil housing & GRP post only. To be used for the Assisted Lift Trunnion only. User to specify post height (height from top of foundation to top of rail and top of rail to centre of red) | TYPE 28 AL |
| 0094/019382 | 4 asp CLS housing & GRP post only. To be used for the Assisted Lift Trunnion only. User to specify post height (height from top of foundation to top of rail and top of rail to centre of red) | TYPE 50 AL |
| 0094/019383 | 4 asp CLS and position 1 junction indicator housing & GRP post only. To be used for the Assisted Lift Trunnion only. User to specify post height (height from top of foundation to top of rail and top of rail to centre of red) | TYPE 51 AL |
| 0094/019384 | 4 asp CLS and position 4 junction indicator housing & GRP post only. To be used for the Assisted Lift Trunnion only. User to specify post height (height from top of foundation to top of rail and top of rail to centre of red) | TYPE 52 AL |
| 0094/019385 | 4 asp CLS with PLS housing & GRP post only. To be used for the Assisted Lift Trunnion only. User to specify post height (height from top of foundation to top of rail and top of rail to centre of red). | TYPE 59 AL |

For signals that will be mounted in the Unipart Dorman Standard Trunnion please see page 16-38

Trunnion Units

Our patented iLS alignment unit may be used for aligning the signal relative to the base.

The alignment unit permits a single point of control of the orientation of the signal.

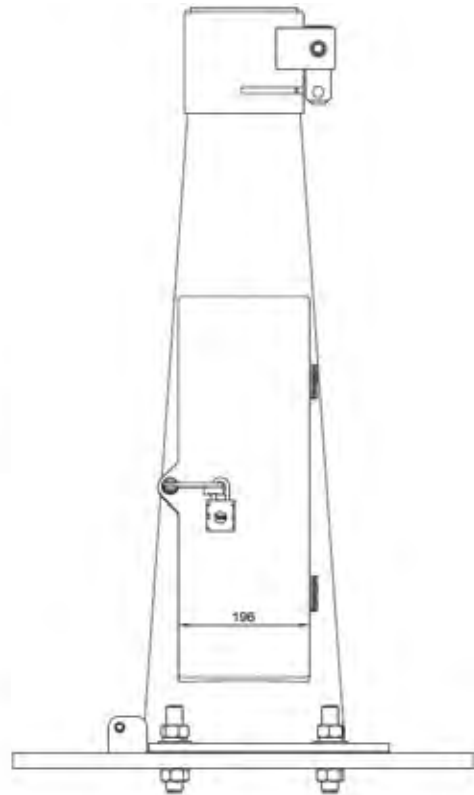
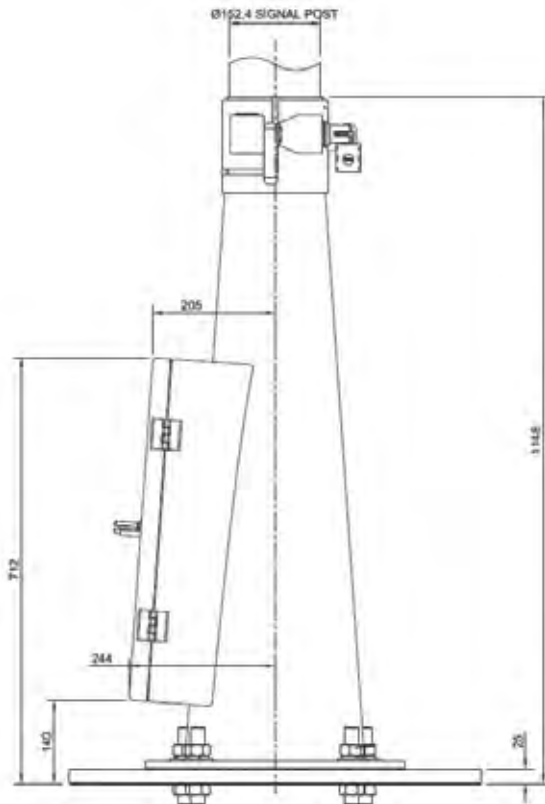
- Designed to meet the requirements of the BRS - SC 45 Footprint Drawing
- All plug coupled connections are made inside a lockable box which is an integral part of the Trunnion
- Single Connection Box variant available with the box fitted on either the left (TRUN001) or right (TRUN005) of the hinge to suit site specific conditions
- Doesn't require the use of mechanical lifting devices to install
- There is no requirement for any additional disconnection boxes as the infrastructure cable is plug coupled in the signal base
- Can be installed onto a pre-prepared foundation in less than 20 minutes

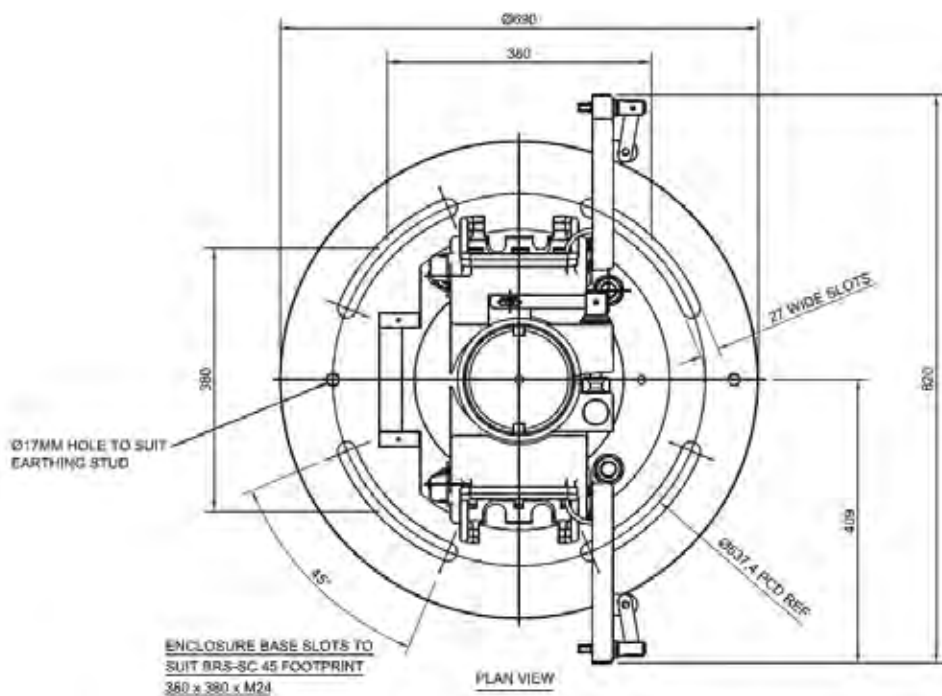
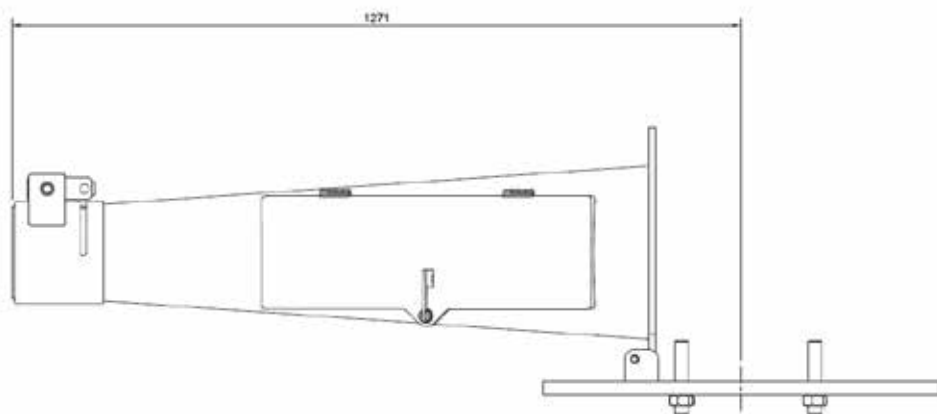


Trunnion Units

Single Connection Enclosure

| Catalogue No. | Description | Part No. |
|---------------|---|----------|
| 0086/008534 | iLS Trunnion, single connection box for up to 2 Signal Elements. For left-hand mounting | TRUN001 |
| 0086/003990 | iLS Trunnion, single connection box for up to 2 Signal Elements. For right-hand mounting | TRUN005 |

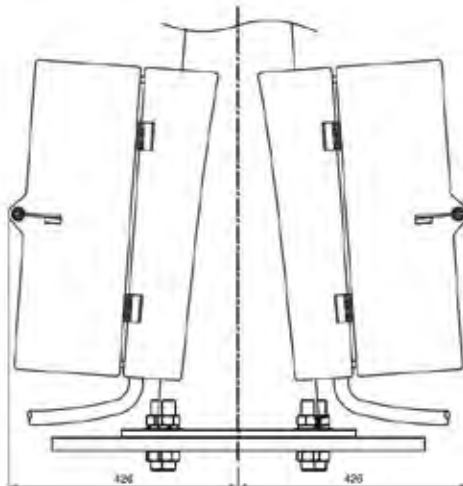
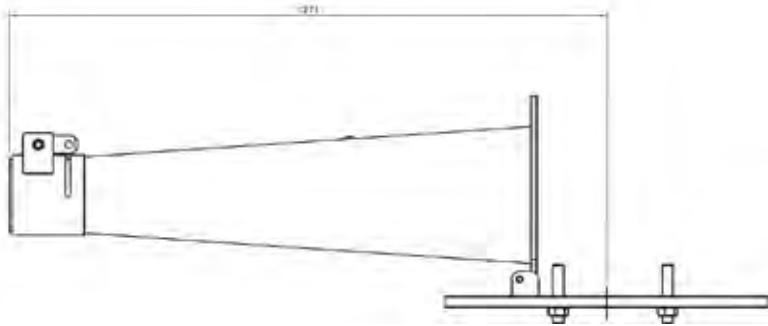




Trunnion Units

2 Connection Enclosure

| Catalogue No. | Description | Part No. |
|---------------|--|----------|
| 0086/008535 | iLS Trunnion, 2 connection enclosures for up to 4 Signal Elements. For either side of the track | TRUN002 |



MLS Equipment Enclosures

As part of the drive to reduce cost throughout the network during re-signalling works, a number of areas were identified where there was no need for a separate Location Case and associated infrastructure as there is very little control equipment.

Unipart Dorman collaborated with Signalling Solutions Limited to design and develop an Equipment Enclosure signal base which can be used to house the small amount of components required for the operation and control of the signal, as well as any additional TPWS, AWS, and Axle Counter Equipment.

Benefits of Equipment Enclosures:

- Reduces costs by eliminating the requirement for a separate location case
- Each signal uses the standard mechanical interface used across the network
- All electrical connections are made using plug couplers
- Risk free, quick installation



Initially deployed on the Ely to Norwich re-signalling project in 2012, the use of Unipart Dorman modular signals with Equipment Enclosure bases allowed the scheme to proceed at a much greater pace than other similar projects.

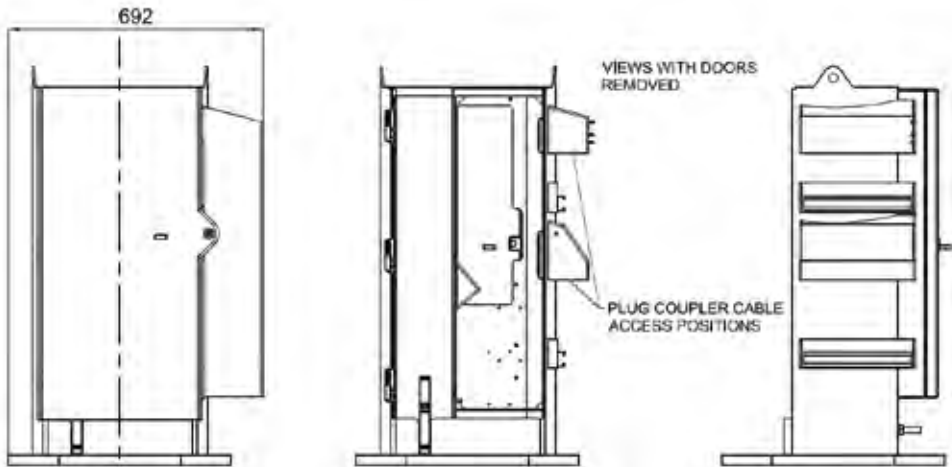
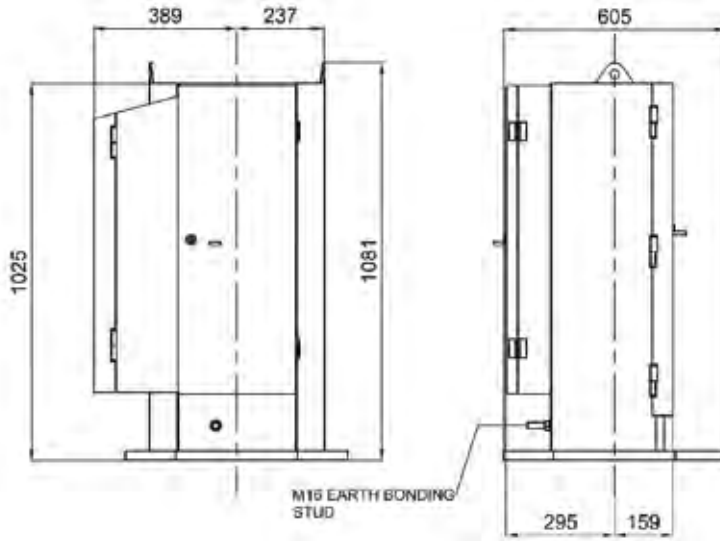
This type of modular signal is becoming increasingly popular and is seen as a quick cost effective way to bring secondary lines up to modern signalling standards.

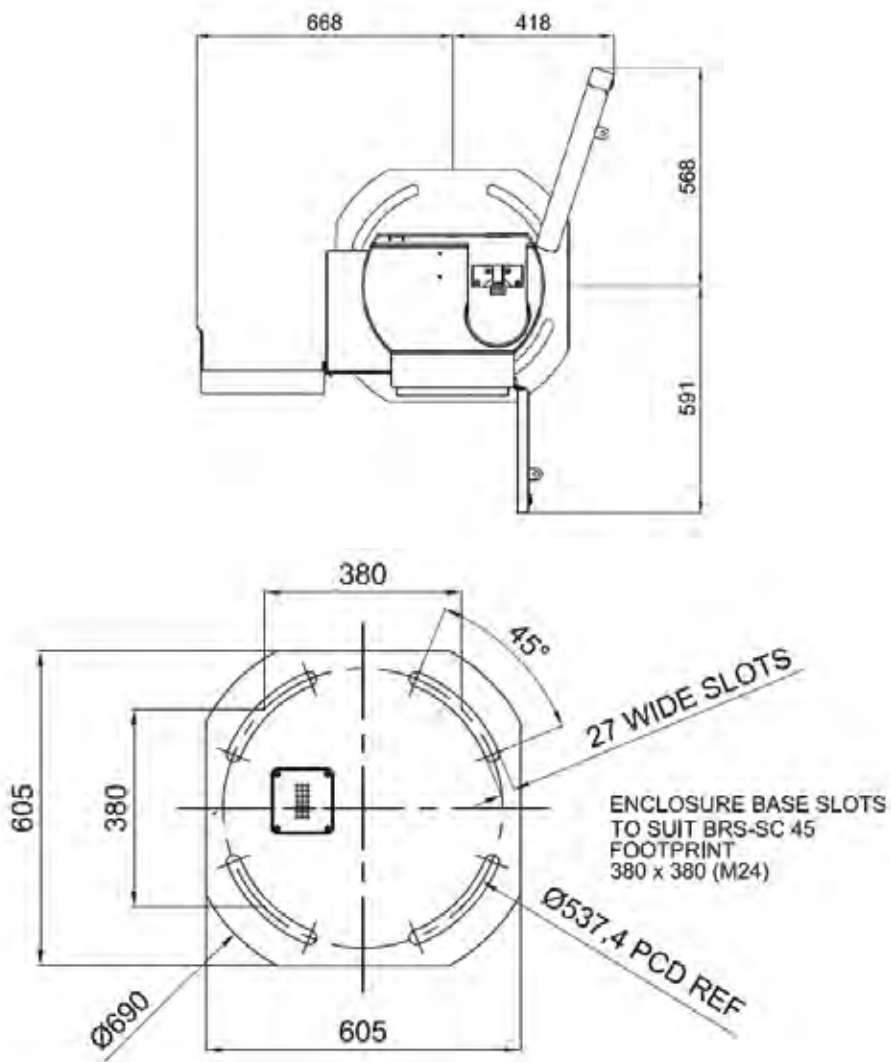
Enclosure Types

| Catalogue No. | Description | Part No. |
|---------------|--|------------|
| 0086/009477 | MLS Enclosure (Customer Specified Equipment Fit) | ENC/000 |
| | MLS Enclosure Type 11 Distant SSL | ENC/SSL/11 |
| | MLS Enclosure Type 12 Stop SSL | ENC/SSL/12 |
| | MLS Enclosure Type 13 Stop EF1 SSL | ENC/SSL/13 |
| | MLS Enclosure Type 14 Stop EF2 SSL | ENC/SSL/14 |
| | MLS Enclosure Type 15 Distant II SSL | ENC/SSL/15 |
| | MLS Enclosure Type 16 Stop II SSL | ENC/SSL/16 |



Equipment Enclosure Drawings





Lightweight Signal Post

The Unipart Dorman Lightweight signal makes extensive use of Glass Reinforced Plastic (GRP) to manufacture the signal head and signal post. Occasionally an aluminium liner is added to the GRP to guarantee its rigidity in areas where a combination of wind loading factors, signal height and the size of the head configuration determine a requirement.

Extensive research and development was undertaken to ensure that the rigidity matched the strict standards laid down, for example in Eurocode 1 (Actions on Structures, Wind Action), NR/SP/CIV/003, and PAN/E/CE/SS/0017.

Unipart Dorman will provide signals pre-fitted with Signal Identification Plates prior to delivery to site where required.

Post weights per 1000 mm

GRP Post = 3.8kg per/1000mm



GRP Post with 4mm Aluminium Liner = 4.7kg per/1000mm



GRP Post with 9mm Aluminium Liner = 10.5kg per/1000mm



The outside diameter of the post is 152.4mm

iLS Winch

Network Rail Approval Number PA05/05571

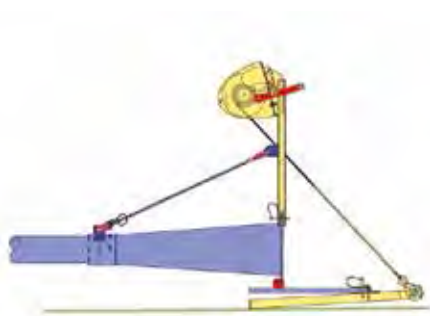
To assist in the installation of Unipart Dorman's iLS, a Network Rail Approved Winch is available.

The mechanical winch splits into three sub-assemblies for portability and comes complete with a robust storage/transportation bag.

Constructed from galvanised and powder coated frames with extensive use of stainless steel fittings wherever possible, the winch unit is suited to the arduous trackside environment and is quickly assembled for use. The winch gearing ensures that even the heaviest signals, with complex signal arrangements, can be raised easily with minimum effort.

The winch is fully compliant with the requirements of the Lifting Operations and Lifting Equipment Regulations 1998.

A full certification service and customer training is available - please contact Unipart Dorman for further details.



iLS Winch & Spares

| Description | Catalogue No. |
|---|---------------|
| Unipart Dorman iLS Winch (Complete) | 0086/008670 |
| Tie Rod Clevis Pin (Trunnion end of Tie Rod) | 0086/008671 |
| Winch Frame Pin | 0086/008672 |
| Underframe Pin | 0086/008673 |
| Tie Rod Clevis Pin (Winch Frame end of Tie Rod) | 0086/008674 |
| 'R' Pin (Trunnion end of Tie Rod) | 0086/008675 |
| Single Lanyard | 0086/008676 |
| Double Lanyard | 0086/008677 |
| 'R' Pin (Winch Frame end of Tie Rod) | 0086/008678 |

iLS Ordering

Supporting the customer throughout the procurement process is something that Unipart Dorman takes great pride in, we have detailed the information we require below and have created a form on page 56 to help you.

From the moment that customers provide the Signal details shown below, to delivering the complete signal, Unipart Dorman offers the complete package including, where specified, a suite of Structural Drawings, Signal Identification Plates and a full range of spares.

What we need from you:

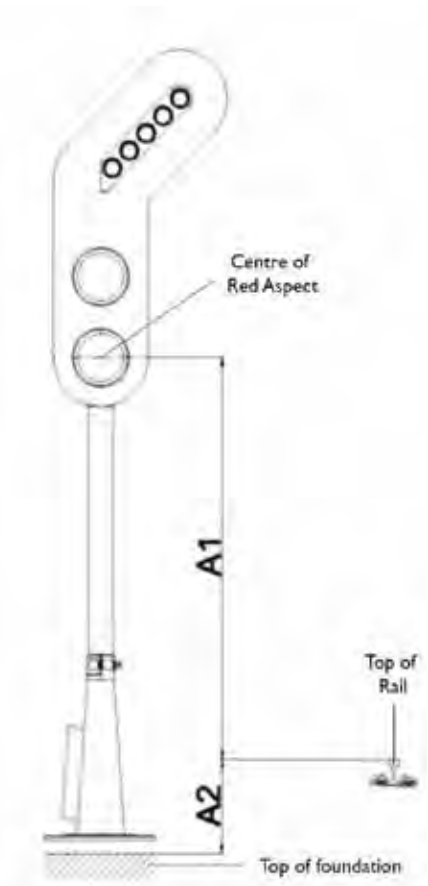
Dimension A1 - Top of rail to the centre of the most restrictive aspect. This is taken from the Signal Sighting Form.

Dimension A2 - Top of Foundation to the Top of Rail. This is provided by the customer. A clear indication of whether the Top of Foundation is above or below the Top of Rail is essential for the order process.

Whilst we can give an approximate guide price based on the head configuration, Lamp Proving type and dimension A1, we cannot provide a formal quotation without dimension A2.

Additional information required at the quotation stage:

National Grid Reference - Found on the signal sighting form, this tells us how far the signal is from the coast. This provides us with the average wind speed figure required for the structural calculations.



ILS Post Order Form

| | |
|-----------------------------|--|
| Company / Contractor | |
| Project / Location | |
| Primary Contact | |
| Telephone | |
| E-mail | |
| Date Completed | |

A Positive Symbol (+) in column A2 written in red indicates the top of foundation is BELOW rail top

| Signal ID | Dimension A1 (mm) | Dimension A2 (mm) | Voltage | Lamp Proving Type** | Range † | Required Delivery Date |
|-----------|-------------------|-------------------|---------|---------------------|---------|------------------------|
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

* Current Based or Volt Free Contact Proving

† Mainline Signals are available in Long Range 800m ±3°, Medium Range Narrow Beam 400m ±3° and Medium Range Wide Beam 400m ±10°

Structure Specific Documentation

The Unipart Dorman iLS comprises a head, post and support (ALT, Trunnion or Enclosure base) and that designates it as a complete structure. Network Rail has approved a generic version of the Form A - Approval in Principle and Form B - Detailed Design Approval/Form F001, F002, F003, which are then used to deliver structure specific documentation. Information on the signal loading characteristics can be provided to assist in foundation design on request.

Unipart Dorman offers a comprehensive documentation service as part of the signal/project order process, details of which are available on request.

Please note: The generic submission and subsequent bespoke documentation is for the signal base, post and head elements only and does not cover any foundation works.

**Generic Form F001, F002 and F003
Acceptance by Design
Statement**
For the Unipart Dorman Integrated
Lightweight Signal (iLS)

This is to certify that the generic Form F001, F002 and F003 for the following equipment has been accepted by Network Rail.

| Description | PSDS Number | Signal Details Part No. |
|---|---------------------------|---------------------------|
| 1 Box Trunnion (ALT) | 1061006534 | TRUNNION |
| 1 Box Trunnion | 1061006535 | TRUNNION |
| 1 Box Enclosure Trunnion | 1061006536 | TRUNNION |
| 1 Box Trunnion (PS) | 1061006537 | TRUNNION |
| 1 Box ALT | 1061006532 | S.T.U. |
| Signal head to Unipart Dorman Integrated iLS (formerly 'KX295') | As defined by signal type | As defined by signal type |
| Signal post to Unipart Dorman Integrated iLS (formerly 'KX295') | N/A | As defined by signal type |
| 1 Box Post (ALT) | N/A | As defined by signal type |
| 1 Box Post (PS) | N/A | As defined by signal type |
| 1 Box Post (PS) | N/A | As defined by signal type |

All the relevant structural calculations are managed using the iLS Calculator which is available by contacting Unipart Dorman.

It should be noted that with the exception of items which utilise the 1 Box Enclosure Trunnion (ALT), these structures require the use of the Unipart Dorman Post Lifter (V004) (PARTS number 1061006527) - Unipart Dorman Part Number: 048.11/3/1.

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iLS Spares & Accessories

Unipart Dorman are pleased to offer a wide range of accessories and spares for the Lightweight Signal Ranges as shown below.

If you require anything which does not appear in this section, please contact us.

iLS Spare Modules

| Catalogue No. | Description | Part No. |
|---|---|-----------------|
| iLS Colour Light Signal Modules, Current Proved to T00036 | | |
| 0086/008501 | iLS Module, Colour Light Signal, 3 Aspect, Long Range Narrow Beam, Elevated, 110V, MIL 5015, T00036, Current Proved, Long Tail Cable | LS/CMLRYG-E/AAL |
| 0086/008502 | iLS Module, Colour Light Signal, 3 Aspect, Long Range Narrow Beam, Ground, 110V, MIL 5015, T00036, Current Proved, Long Tail Cable | LS/CMLRYG-G/AAL |
| 0086/009380 | iLS Module, Colour Light Signal, 3 Aspect, Medium Range Narrow Beam, Elevated, 110V, MIL 5015, T00036, Current Proved, Long Tail Cable | LS/CMNRYG-E/AAL |
| 0086/009381 | iLS Module, Colour Light Signal, 3 Aspect, Medium Range Narrow Beam, Ground, 110V, MIL 5015, T00036, Current Proved, Long Tail Cable | LS/CMNRYG-G/AAL |
| 0086/009488 | iLS Module, Colour Light Signal, 3 Aspect, Medium Range Wide Beam, Elevated, 110V, MIL 5015, T00036, Current Proved, Long Tail Cable | LS/CMMRYG-E/AAL |
| 0086/009489 | iLS Module, Colour Light Signal, 3 Aspect, Medium Range Wide Beam, Ground, 110V, MIL 5015, T00036, Current Proved, Long Tail Cable | LS/CMMRYG-G/AAL |
| iLS Colour Light Signal Modules, SSL Modular Scheme Terminations with Single Volt-free Contact | | |
| 0086/008507 | iLS Module, Colour Light Signal, 3 Aspect, Long Range Narrow Beam, Elevated, 110V, MIL 5015, SSL Modular, Volt Free single cut, Long Tail Cable | LS/CMLRYG-E/CDL |
| 0086/008508 | iLS Module, Colour Light Signal, 3 Aspect, Long Range Narrow Beam, Ground, 110V, MIL 5015, SSL Modular, Volt Free single cut, Long Tail Cable | LS/CMLRYG-G/CDL |

| Catalogue No. | Description | Part No. |
|---|--|-----------------|
| iLS Colour Light Signal Modules, Double Volt-free Contact Proving, Terminations to T00036 | | |
| 0086/008511 | iLS Module, Colour Light Signal, 3 Aspect, Long Range Narrow Beam, Elevated, 110V, MIL 5015, T00036, Volt Free Double cut, Long Tail Cable | LS/CMLRYG-E/ACL |
| 0086/008512 | iLS Module, Colour Light Signal, 3 Aspect, Long Range Narrow Beam, Ground, 110V, MIL 5015, T00036, Volt Free Double cut, Long Tail Cable | LS/CMLRYG-G/ACL |
| 0086/009384 | iLS Module, Colour Light Signal, 3 Aspect, Medium Range Narrow Beam, Elevated, 110V, MIL 5015, T00036, Volt Free Double cut, Long Tail Cable | LS/CMNRYG-E/ACL |
| 0086/009385 | iLS Module, Colour Light Signal, 3 Aspect, Medium Range Narrow Beam, Ground, 110V, MIL 5015, T00036, Volt Free Double cut, Long Tail Cable | LS/CMNRYG-G/ACL |
| 0086/009492 | iLS Module, Colour Light Signal, 3 Aspect, Medium Range Wide Beam, Elevated, 110V, MIL 5015, T00036, Volt Free Double cut, Long Tail Cable | LS/CMMRYG-E/ACL |
| 0086/009493 | iLS Module, Colour Light Signal, 3 Aspect, Medium Range Wide Beam, Ground, 110V, MIL 5015, T00036, Volt Free Double cut, Long Tail Cable | LS/CMMRYG-G/ACL |
| Upper Yellow modules (4th Aspect) for Current proved modules to T00036 | | |
| 0086/008505 | iLS Module, Colour Light Signal, 4th Aspect, Long Range Narrow Beam, Elevated, 110V, MIL 5015, T00036, Current Proved | LS/CML4Y--E/AA- |
| 0086/008506 | iLS Module, Colour Light Signal, 4th Aspect, Long Range Narrow Beam, Ground, 110V, MIL 5015, T00036, Current Proved | LS/CML4Y--G/AA- |
| 0086/009386 | iLS Module, Colour Light Signal, 4th Aspect, Medium Range Narrow Beam, Elevated, 110V, MIL 5015, T00036, Current Proved. | LS/CMN4Y--E/AA- |
| 0086/009387 | iLS Module, Colour Light Signal, 4th Aspect, Medium Range Narrow Beam, Ground, 110V, MIL 5015, T00036, Current Proved. | LS/CMN4Y--G/AA- |
| 0086/009494 | iLS Module, Colour Light Signal, 4th Aspect, Medium Range Wide Beam, Elevated, 110V, MIL 5015, T00036, Current Proved. | LS/CMM4Y--E/AA- |
| 0086/009495 | iLS Module, Colour Light Signal, 4th Aspect, Medium Range Wide Beam, Ground, 110V, MIL 5015, T00036, Current Proved. | LS/CMM4Y--G/AA- |

| Upper Yellow modules (4th Aspect) for Volt-free contact proved modules | | |
|--|---|-----------------|
| 0086/008515 | iLS Module, Colour Light Signal, 4th Aspect, Long Range Narrow Beam, Elevated, 110V, MIL 5015, T00036, No proving (for use in conjunction with the volt-free contact proved CLS Module) | LS/CML4Y--E/AE- |
| 0086/008516 | iLS Module, Colour Light Signal, 4th Aspect, Long Range Narrow Beam, Ground, 110V, MIL 5015, T00036, No Proving (for use in conjunction with the volt-free contact proved CLS Module) | LS/CML4Y--G/AE- |
| 0086/009388 | iLS Module, Colour Light Signal, 4th Aspect, Medium Range Narrow Beam, Elevated, 110V, MIL 5015, T00036, No proving (for use in conjunction with the volt-free contact proved CLS Module) | LS/CMN4Y--E/AE- |
| 0086/009389 | iLS Module, Colour Light Signal, 4th Aspect, Medium Range Narrow Beam, Ground, 110V, MIL 5015, T00036, No Proving (for use in conjunction with the volt-free contact proved CLS Module) | LS/CMN4Y--G/AE- |
| 0086/008646 | iLS Module, Colour Light Signal, 4th Aspect, Medium Range Wide Beam, Elevated, 110V, MIL 5015, T00036, No proving (for use in conjunction with the volt-free contact proved CLS Module) | LS/CMM4Y--E/AE- |
| 0086/008647 | iLS Module, Colour Light Signal, 4th Aspect, Medium Range Wide Beam, Ground, 110V, MIL 5015, T00036, No Proving (for use in conjunction with the volt-free contact proved CLS Module) | LS/CMM4Y--G/AE- |

Junction Indicators

| Catalogue No. | Description | Part No. |
|---|---|------------|
| Position Light Junction Indicator Modules, Current Proved, Terminations to T00036 | | |
| 0086/008517 | iLS Module, Junction Indicator, Position 1, 110V, MIL5015, T00036, Current Proved | LS/JM1/AAS |
| 0086/008518 | iLS Module, Junction Indicator, Position 2, 110V, MIL5015, T00036, Current Proved | LS/JM2/AAS |
| 0086/008519 | iLS Module, Junction Indicator, Position 4, 110V, MIL5015, T00036, Current Proved | LS/JM4/AAS |
| 0086/008520 | iLS Module, Junction Indicator, Position 5, 110V, MIL5015, T00036, Current Proved | LS/JM5/AAS |

| Catalogue No. | Description | Part No. |
|---|--|------------|
| Position Light Junction Indicator Modules, Single Volt-free Contact Proved, SSL Modular Scheme Terminations | | |
| 0086/008521 | iLS Module, Junction Indicator, Position 1, 110V, MIL5015, SSL Modular, Volt free single cut | LS/JM1/CDS |
| 0086/008522 | iLS Module, Junction Indicator, Position 2, 110V, MIL5015, SSL Modular, Volt free single cut | LS/JM2/CDS |
| 0086/008523 | iLS Module, Junction Indicator, Position 4, 110V, MIL5015, SSL Modular, Volt free single cut | LS/JM4/CDS |
| 0086/008524 | iLS Module, Junction Indicator, Position 5, 110V, MIL5015, SSL Modular, Volt free single cut | LS/JM5/CDS |

Subsidiary Signal Modules

| Catalogue No. | Description | Part No. |
|--|--|---------------|
| Subsidiary Signal Modules, Current Proved, Terminations to T00036 | | |
| 0086/008525 | iLS Module, Subsidiary Signal, White/White, 110V, MIL5015, T00036, Current Proved, Long Tail Cable | LS/SSM/WW/AAL |
| 0086/008526 | iLS Module, Subsidiary Signal, White/White, 110V, MIL5015, T00036, Current Proved, Short Tail Cable | LS/SSM/WW/AAS |
| Subsidiary Signal Modules, Single Volt-free Contact Proved, SSL Modular Scheme Terminations | | |
| 0086/008527 | iLS Module, Subsidiary Signal, White/White, 110V, MIL5015, SSL Modular, Volt Free Single Cut, Short Tail Cable | LS/SSM/WW/CDS |
| Miniature Alphanumeric Route Indicator, Current Proved, Terminations to T00036 | | |
| 0086/008528 | iLS Module, Miniature Alphanumeric Route Indicator, Indication to be Specified by the Customer, 110V, MIL5015, T00036, Current Proving, Long Tail Cable | LSS/-----/AAL |
| 0086/008529 | iLS Module, Miniature Alphanumeric Route Indicator, Indication to be Specified by the Customer, 110V, MIL5015, T00036, Current Proving, Short Tail Cable | LSS/-----/AAS |
| Miniature Alphanumeric Route Indicator, Single Volt-free Contact Proved, SSL Modular Scheme Terminations | | |
| 0086/008530 | iLS Module, Colour Light Signal, 3 Aspect, Long Range Narrow Beam, Elevated, 110V, MIL 5015, SSL Modular, Volt Free single cut, Long Tail Cable | LSS/-----/CDS |

iLS Sighting Scope

| Catalogue No. | Description | Part No. |
|---------------|--|-----------|
| 0086/008542 | iLS Sighting Scope Assembly including case | D04.03082 |

Junction Indicator Harness

| Catalogue No. | Description | Part No. |
|---------------|--|-----------|
| 0086/008543 | Junction Indicator Long Harness, Position 1, T00036, Current Proved | D04.03143 |
| 0086/008544 | Junction Indicator Short Harness, Position 1, T00036, Current Proved | D04.03142 |
| 0086/008545 | Junction Indicator Long Harness, Position 4, T00036, Current Proved | D04.03145 |
| 0086/008546 | Junction Indicator Short Harness, Position 4, T00036, Current Proved | D04.03144 |
| 0086/008547 | Junction Indicator Long Harness, Position 1+4, T00036, Current Proved | D04.03147 |
| 0086/008548 | Junction Indicator Short Harness, Position 1+4, T00036, Current Proved | D04.03146 |
| 0086/008549 | Junction Indicator Long Harness, Position 1+2, T00036, Current Proved | D04.03149 |
| 0086/008550 | Junction Indicator Short Harness, Position 1+2, T00036, Current Proved | D04.03148 |
| 0086/008551 | Junction Indicator Long Harness, Position 4+5, T00036, Current Proved | D04.03151 |
| 0086/008552 | Junction Indicator Short Harness, Position 4+5, T00036, Current Proved | D04.03150 |

| Catalogue No. | Description | Part No. |
|---------------|--|-----------|
| 0086/008553 | Junction Indicator Long Harness, Position 1+2+4, T00036, Current Proved | D04.03153 |
| 0086/008554 | Junction Indicator Short Harness, Position 1+2+4, T00036, Current Proved | D04.03152 |
| 0086/008555 | Junction Indicator Long Harness, Position 1+4+5, T00036, Current Proved | D04.03155 |
| 0086/008556 | Junction Indicator Short Harness, Position 1+4+5, T00036, Current Proved | D04.03154 |
| 0086/008557 | Junction Indicator Long Harness, Position 1+2+4+5, T00036, Current Proved | D04.03157 |
| 0086/008558 | Junction Indicator Short Harness, Position 1+2+4+5, T00036, Current Proved | D04.03156 |
| 0086/008559 | 13 way to 25 way SSL Modular enclosure interface harness | D04.03088 |
| 0086/008560 | Harness EN8086 | D04.03089 |
| 0086/008561 | Harness EN8061 | D04.03090 |
| 0086/007487 | 13 way to 13 way extension cable, 400mm length (size 32 shell) | D04.03672 |

iLS Blanking Plate

| Catalogue No. | Description | Part No. |
|---------------|---|-----------|
| 0086/009391 | iLS Colour Light Signal Module Blanking Plate | B20.19380 |

iLS Visors

| Catalogue No. | Description | Part No. |
|---------------|-----------------------------------|-----------|
| 0086/009501 | Standard Visor | B20.20234 |
| 0086/007488 | Extended iLS CLS Visor 600mm Long | B20.19436 |

| | | |
|-------------|--|-----------|
| 0086/007486 | Extended 3/4 iLS CLS Visor 600mm Long (Right Hand) | B20.19434 |
| 0086/007485 | Extended 3/4 iLS CLS Visor 600mm Long (Left Hand) | B20.19433 |

Out of Use Masks

| Catalogue No. | Description | Head Type | Part No. |
|---------------|--|-----------|-----------|
| 0086/008562 | iLS Out Of Use Mask - 3 Aspect Colour Light Signal | 01 | B22.21000 |
| 0086/008563 | iLS Out Of Use Mask - 4 Aspect Colour Light Signal | 50 | B22.21001 |
| 0086/008564 | iLS Out Of Use Mask - 3 Aspect Colour Light Signal & Junction Indicator Position 1 | 02 | B22.21002 |
| 0086/008565 | iLS Out Of Use Mask - 3 Aspect Colour Light Signal & Junction Indicator Position 4 | 03 | B22.21003 |
| 0086/008566 | iLS Out Of Use Mask - 4 Aspect Colour Light Signal & Junction Indicator Position 1 | 51 | B22.21004 |
| 0086/008567 | iLS Out Of Use Mask - 4 Aspect Colour Light Signal & Junction Indicator Position 4 | 52 | B22.21005 |
| 0086/008568 | iLS Out Of Use Mask - 3 Aspect Colour Light Signal & Junction Indicator Position 1+4 | 04 | B22.21006 |
| 0086/008569 | iLS Out Of Use Mask - 4 Aspect Colour Light Signal & Junction Indicator Position 1+4 | 53 | B22.21007 |
| 0086/008570 | iLS Out Of Use Mask - 4 Aspect Colour Light Signal & Subsidiary Signal | 59 | B22.21008 |
| 0086/008571 | iLS Out Of Use Mask - 3 Aspect Colour Light Signal & Junction Indicator Position 1 & Subsidiary Signal | 11 | B22.21009 |
| 0086/008572 | iLS Out Of Use Mask - 3 Aspect Colour Light Signal & Junction Indicator Position 4 & Subsidiary Signal | 12 | B22.21010 |
| 0086/008573 | iLS Out Of Use Mask - 3 Aspect Colour Light Signal & Junction Indicator Position 1+4 & Subsidiary Signal | 13 | B22.21011 |
| 0086/008574 | iLS Out Of Use Mask - 4 Aspect Colour Light Signal & Junction Indicator Position 1 & Subsidiary Signal | 60 | B22.21012 |
| 0086/008575 | iLS Out Of Use Mask - 4 Aspect Colour Light Signal & Junction Indicator Position 4 & Subsidiary Signal | 61 | B22.21013 |
| 0086/008576 | iLS Out Of Use Mask - 4 Aspect Colour Light Signal & Junction Indicator Position 1+4 & Subsidiary Signal | 62 | B22.21014 |

| Catalogue No. | Description | Head Type | Part No. |
|---------------|--|-----------|-----------|
| 0086/008577 | iLS Out Of Use Mask - 3 Aspect Colour Light Signal & Junction Indicator Position 1 & Subsidiary Signal & Stencil/Theatre | 29 | B22.21015 |
| 0086/008578 | iLS Out Of Use Mask - 4 Aspect Colour Light Signal & Junction Indicator Position 1 & Subsidiary Signal & Stencil/Theatre | 78 | B22.21016 |
| 0086/008579 | iLS Out of Service Mask 3 Aspect CLS JI Pos 1+2 | 05 | B22.21018 |
| 0086/008580 | iLS Out of Service Mask 3 Aspect CLS JI Pos 4+5 | 06 | B22.21019 |
| 0086/008581 | iLS Out of Service Mask 3 Aspect CLS JI Pos 1+2+4+5 | 07 | B22.21020 |
| 0086/008582 | iLS Out of Service Mask 3 Aspect CLS JI Pos 1+2+4 | 08 | B22.21021 |
| 0086/008583 | iLS Out of Service Mask 3 Aspect CLS JI Pos 1+4+5 | 09 | B22.21022 |
| 0086/008584 | iLS Out of Service Mask 3 Aspect CLS + Subsidiary Signal | 10 | B22.21023 |
| 0086/008585 | iLS Out of Service Mask 3 Aspect CLS JI Pos 1+2 + Sub + Signal | 14 | B22.21024 |
| 0086/008586 | iLS Out of Service Mask 3 Aspect CLS 4+5 Sub Signal | 15 | B22.21025 |
| 0086/008587 | iLS Out of Service Mask 3 Aspect CLS 1 2 4 5 + Sub Signal | 16 | B22.21026 |
| 0086/008588 | iLS Out of Service Mask 3 Aspect CLS 1 2 4 + Sub Signal | 17 | B22.21027 |
| 0086/008589 | iLS Out of Service Mask 3 Aspect CLS 1 4 5 Sub Signal | 18 | B22.21028 |
| 0086/008590 | iLS Out of Service Mask 3 Aspect CLS + Stencil | 19 | B22.21029 |
| 0086/008591 | iLS Out of Service Mask 3 Aspect CLS JI Pos 1 + Stencil | 20 | B22.21030 |
| 0086/008592 | iLS Out of Service Mask 3 Aspect CLS JI Pos 4 + Stencil | 21 | B22.21031 |
| 0086/008593 | iLS Out of Service Mask 3 Aspect CLS JI Pos 1+4 + Stencil | 22 | B22.21032 |
| 0086/008594 | iLS Out of Service Mask 3 Aspect CLS JI Pos 1+2 + Stencil | 23 | B22.21033 |
| 0086/008595 | iLS Out of Service Mask 3 Aspect CLS JI Pos 4+5 Stencil | 24 | B22.21034 |
| 0086/008596 | iLS Out of Service Mask 3 Aspect CLS JI 1 2 4 5 + Stencil | 25 | B22.21035 |

| Catalogue No. | Description | Head Type | Part No. |
|---------------|---|-----------|-----------|
| 0086/008597 | iLS Out of Service Mask 3 Aspect CLS JI Pos 2 4 + Stencil | 26 | B22.21036 |
| 0086/008598 | iLS Out of Service Mask 3 Aspect CLS JI Pos 4 5 + Stencil | 27 | B22.21037 |
| 0086/008599 | iLS Out of Service Mask 3 Aspect CLS + Sub + Stencil | 28 | B22.21038 |
| 0086/008600 | iLS Out of Service Mask 3 Aspect CLS + JI Pos 4 + Sub + MI | 30 | B22.21039 |
| 0086/008601 | iLS Out of Service Mask 3 Aspect CLS JI Pos 4 + Sub +MI | 31 | B22.21040 |
| 0086/008602 | iLS Out of Service Mask 3 Aspect CLS JI Pos 2 + Sub + MI | 32 | B22.21041 |
| 0086/008603 | iLS Out of Service Mask 3 Aspect CLS + JI 4 5 + Sub + MI | 33 | B22.21042 |
| 0086/008604 | iLS Out of Service Mask 3 Aspect CLS JI Pos 2 4 5 + Sub + MI | 34 | B22.21043 |
| 0086/008605 | iLS Out of Service Mask 3 Aspect CLS JI Pos 2 4 + Stencil + Sub | 35 | B22.21044 |
| 0086/008606 | iLS Out of Service Mask 3 Aspect CLS JI Pos 4 5 + Sub + Stencil | 36 | B22.21045 |
| 0086/008607 | iLS Out of Service Mask 3 Aspect CLS + Theatre | 37 | B22.21046 |
| 0086/008608 | iLS Out of Service Mask 3 Aspect CLS + Sub + Theatre | 38 | B22.21047 |
| 0086/008609 | iLS Out of Service Mask 3 Aspect CLS + Stencil + Theatre | 39 | B22.21048 |
| 0086/008610 | iLS Out of Service Mask 3 Aspect CLS Sub MI + SI | 40 | B22.21049 |
| 0086/008611 | iLS Out of Service Mask 4 Aspect CLS JI Pos 1+2 | 54 | B22.21050 |
| 0086/008612 | iLS Out of Service Mask 4 Aspect CLS JI Pos 4+5 | 55 | B22.21051 |
| 0086/008613 | iLS Out of Service Mask 4 Aspect CLS JI Pos 1+2+4+5 | 56 | B22.21052 |
| 0086/008614 | iLS Out of Service Mask 4 Aspect CLS JI Pos 2 4 | 57 | B22.21053 |
| 0086/008615 | iLS Out of Service Mask 4 Aspect CLS JI 1+4+5 | 58 | B22.21054 |
| 0086/008616 | iLS Out of Service Mask 4 Aspect CLS JI Pos 1+2 + Sub | 63 | B22.21055 |
| 0086/008617 | iLS Out of Service Mask 4 Aspect CLS JI Pos 4 5 + Sub | 64 | B22.21056 |
| 0086/008618 | iLS Out of Service Mask 4 Aspect CLS JI 2 4 + 5 Sub | 65 | B22.21057 |

| Catalogue No. | Description | Head Type | Part No. |
|---------------|---|-----------|-----------|
| 0086/008619 | iLS Out of Service Mask 4 Aspect CLS JI 2 4 Sub | 66 | B22.21058 |
| 0086/008620 | iLS Out of Service Mask 4 Aspect CLS JI 4 5 Sub | 67 | B22.21059 |
| 0086/008621 | iLS Out of Service Mask 4 Aspect CLS + MI | 68 | B22.21060 |
| 0086/008622 | iLS Out of Service Mask 4 Aspect JI Pos 1 + MI | 69 | B22.21061 |
| 0086/008623 | iLS Out of Service Mask 4 Aspect JI Pos 4 + MI | 70 | B22.21062 |
| 0086/008624 | iLS Out of Service Mask 4 Aspect JI Pos 1+4 + MI | 71 | B22.21063 |
| 0086/008625 | iLS Out of Service Mask 4 Aspect JI Pos 1+2 + MI | 72 | B22.21064 |
| 0086/008626 | iLS Out of Service Mask 4 Aspect JI Pos 4+5 + MI | 73 | B22.21065 |
| 0086/008627 | iLS Out of Service Mask 4 Aspect CLS JI Pos 2 4 5 +MI | 74 | B22.21066 |
| 0086/008628 | iLS Out of Service Mask 4 Aspect CLS JI 2 4 + MI | 75 | B22.21067 |
| 0086/008629 | iLS Out of Service Mask 4 Aspect CLS JI 4 5 + MI | 76 | B22.21068 |
| 0086/008630 | iLS Out of Service Mask 4 Aspect CLS + Sub + MI | 77 | B22.21069 |
| 0086/008631 | iLS Out of Service Mask 4 Aspect CLS JI Pos 1 Sub + MI | 78 | B22.21070 |
| 0086/008632 | iLS Out of Service Mask 4 Aspect CLS JI Pos 4 Sub + MI | 79 | B22.21071 |
| 0086/008633 | iLS Out of Service Mask 4 Aspect CLS JI Pos 1 2 Sub + MI | 81 | B22.21072 |
| 0086/008634 | iLS Out of Service Mask 4 Aspect CLS JI Pos 4 5 + MI + Sub | 82 | B22.21073 |
| 0086/008635 | iLS Out of Service Mask 4 Aspect CLS JI Pos 2 4 5 + MI + Sub | 83 | B22.21074 |
| 0086/008636 | iLS Out of Service Mask 4 Aspect CLS JI Pos 2 4 Sub + MI | 84 | B22.21075 |
| 0086/008637 | iLS Out of Service Mask 4 Aspect CLS JI Pos 4 5 Sub + MI | 85 | B22.21076 |
| 0086/008638 | iLS Out of Service Mask 4 Aspect CLS + SI | 86 | B22.21077 |
| 0086/008639 | iLS Out of Service Mask 4 Aspect CLS + Sub + SI | 87 | B22.21078 |
| 0086/008640 | iLS Out of Service Mask 4 Aspect CLS + MI +SI | 88 | B22.21079 |
| 0086/008641 | iLS Out of Service Mask 4 Aspect MI + SI + Sub | 89 | B22.21080 |

| Catalogue No. | Description | Part No. |
|---------------|--------------------------------------|-----------|
| 0086/009496 | CLS LITE - Tall Out of Service Mask | B22.21082 |
| 0086/009497 | CLS LITE - Short Out of Service Mask | B22.21083 |

Preliminary Route Indicator

| Catalogue No. | Position | Part No. |
|---------------|---------------------------|-----------------|
| 0086/007459 | 0 + 1 | LSP/01/AAL |
| 0086/007460 | 0 + 1 + 2 | LSP/012/AAL |
| 0086/007461 | 0 + 4 | LSP/04/AAL |
| 0086/007462 | 0 + 4 + 5 | LSP/045/AAL |
| 0086/007463 | 0 + 1 + 4 | LSP/014/AAL |
| 0086/007464 | 0 + 1 + 2 + 4 | LSP/0124/AAL |
| 0086/007465 | 0 + 1 + 4 + 5 | LSP/0145/AAL |
| 0086/007466 | 0 + 1 + 2 + 3 | LSP/0123/AAL |
| 0086/007467 | 0 + 4 + 5 + 6 | LSP/0456/AAL |
| 0086/007468 | 0 + 1 + 2 + 3 + 4 | LSP/01234/AAL |
| 0086/007469 | 0 + 1 + 4 + 5 + 6 | LSP/01456/AAL |
| 0086/007470 | 0 + 1 + 2 + 3 + 4 + 5 | LSP/012345/AAL |
| 0086/007471 | 0 + 1 + 2 + 4 + 5 + 6 | LSP/012456/AAL |
| 0086/007472 | 0 + 1 + 2 + 3 + 4 + 5 + 6 | LSP/0123456/AAL |
| 0086/007473 | 0 + 1 + 2 + 4 + 5 | LSP/01245/AAL |

Banner

| Catalogue No. | Position | Part No. |
|----------------------|------------------------------|-----------------|
| 0086/007456 | Banner, 2 state 300mA, | LSB/300P/AAL |
| 0086/007457 | Banner, 2 state 500mA, | LSB/500P/AAL |
| 0086/007458 | Banner, 3 state Green 300mA, | LSB/GRN/AAL |

Theatre

| Catalogue No. | Position | Part No. |
|----------------------|--|-----------------|
| 0086/007456 | Standard Alphanumeric Route Indicator (Indications to be specified by the Customer) | LST/-----/AAL |

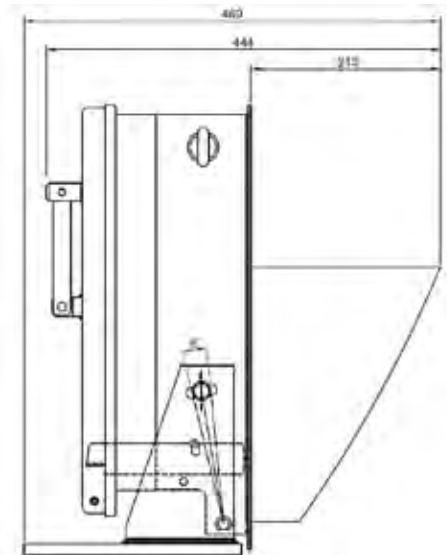
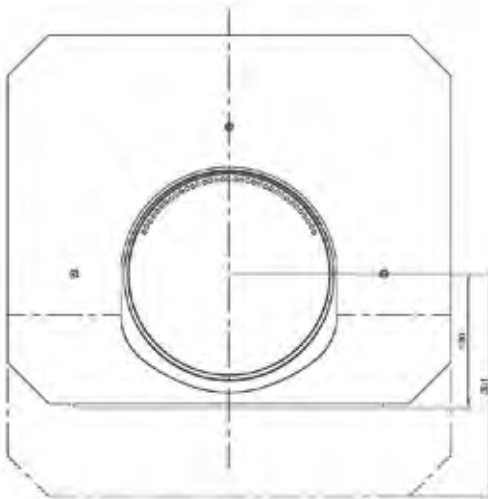
CLS LITE Signals

3 Aspect Mainline Signal, Short Housing

| Catalogue No. | Description | Part No. |
|---------------|---|---------------|
| 0086/008728 | Lightweight 3-Aspect, Short, Long Range Narrow Beam Colour Light Signal head, Red Yellow Green, MIL 5015, T00036, 110Vac/120Vdc, Current proved, Upper quadrant | CLLH/SRYG/AAE |
| 0086/008729 | Lightweight 3-Aspect, Short, Long Range Narrow Beam Colour Light Signal head, Red Yellow Green, MIL 5015, T00036, 110Vac/120Vdc, Double cut volt free contact proved, Upper quadrant | CLLH/SRYG/ACE |
| 0086/008730 | Lightweight 3-Aspect, Short, Long Range Narrow Beam Colour Light Signal head, Red Yellow Green, MIL 5015, T00036, 110Vac/120Vdc, Current proved, Bottom quadrant | CLLF/SRYG/AAG |
| 0086/008731 | Lightweight 3-Aspect, Short, Long Range Narrow Beam Colour Light Signal head, Red Yellow Green, MIL 5015, T00036, 110Vac/120Vdc, Double cut volt free contact proved, Bottom quadrant | CLLF/SRYG/ACG |
| 0086/008706 | Lightweight 3-Aspect, Medium Range Wide Beam Colour Light Signal head, Red Yellow Green, MIL 5015, T00036, 110Vac/120Vdc, Current proved, upper quadrant | CLWH/SRYG/AAE |
| 0086/008707 | Lightweight 3-Aspect, Short, Medium Range Wide Beam Colour Light Signal head, Red Yellow Green, MIL 5015, T00036, 110Vac/120Vdc, Double cut volt free contact proved, Upper quadrant | CLWH/SRYG/ACE |
| 0086/008708 | Lightweight 3-Aspect, Medium Range Wide Beam Colour Light Signal head, Red Yellow Green, MIL 5015, T00036, 110Vac/120Vdc, Current proved, bottom quadrant | CLWF/SRYG/AAG |
| 0086/008709 | Lightweight 3-Aspect, Short, Medium Range Wide Beam Colour Light Signal head, Red Yellow Green, MIL 5015, T00036, 110Vac/120Vdc, Double cut volt free contact proved, Bottom CLWF/SRYG/ACG quadrant | CLWF/SRYG/ACG |

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| | | |
|-------------|---|---------------|
| 0086/008716 | Lightweight 3-Aspect, Medium Range Narrow Beam Colour Light Signal head, Red Yellow Green, MIL 5015, T00036, 110Vac/120Vdc, Current proved, upper quadrant | CLNH/SRYG/AAE |
| 0087/008717 | Lightweight 3-Aspect, Short, Medium Range Narrow Beam Colour Light Signal head, Red Yellow Green, MIL 5015, T00036, 110Vac/120Vdc, Double cut volt free contact proved, Upper quadrant | CLNH/SRYG/ACE |
| 0086/008718 | Lightweight 3-Aspect, Medium Range Narrow Beam Colour Light Signal head, Red Yellow Green, MIL 5015, T00036, 110Vac/120Vdc, Current proved, bottom quadrant | CLNF/SRYG/AAG |
| 0086/008719 | Lightweight 3-Aspect, Short, Medium Range Narrow Beam Colour Light Signal head, Red Yellow Green, MIL 5015, T00036, 110Vac/120Vdc, Double cut volt free contact proved, Bottom quadrant | CLNF/SRYG/ACG |

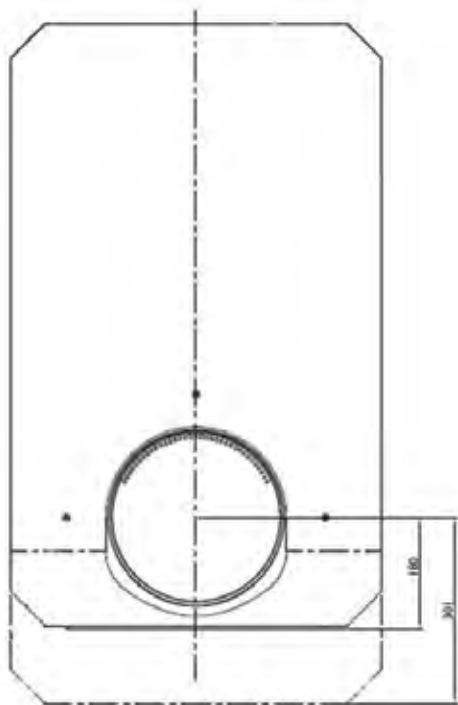


Signal Head Footprint Dimensions are shown on Page 68

3 Aspect Mainline Signal, Tall Housing

| Catalogue No. | Description | Part No. |
|---------------|---|---------------|
| 0086/008726 | Lightweight 3-Aspect, Long Range Narrow Beam Colour Light Signal head, Red Yellow Green, MIL 5015, T00036, 110Vac/120Vdc, Current proved, upper quadrant (Tall Housing) | CLLH/3RYG/AAE |
| 0086/008727 | Lightweight 3-Aspect, Medium Range Narrow Beam Colour Light Signal head, Red Yellow Green Yellow, MIL 5015, T00036, 110Vac/120Vdc, Double cut volt free contact proved, upper quadrant (Tall Housing) | CLLH/3RYG/ACE |
| 0086/008704 | Lightweight 3-Aspect, Medium Range Wide Beam Colour Light Signal head, Red Yellow Green, MIL 5015, T00036, 110Vac/120Vdc, Current proved, upper quadrant (Tall Housing) | CLWH/3RYG/AAE |
| 0086/008705 | Lightweight 3-Aspect, Tall, Medium Range Wide Beam Colour Light Signal head, Red Yellow Green, MIL 5015, T00036, 110Vac/120Vdc, Double cut volt free contact proved, Upper quadrant | CLWH/3RYG/ACE |
| 0086/008714 | Lightweight 3-Aspect, Medium Range Narrow Beam Colour Light Signal head, Red Yellow Green, MIL 5015, T00036, 110Vac/120Vdc, Current proved, upper quadrant (Tall Housing) | CLNH/3RYG/AAE |
| 0086/008715 | Lightweight 3-Aspect, Tall, Medium Range Narrow Beam Colour Light Signal head, Red Yellow Green, MIL 5015, T00036, 110Vac/120Vdc, Double cut volt free contact proved, Upper quadrant | CLNH/3RYG/ACE |

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Signal Head Footprint Dimensions are shown on Page 68

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CLS LITE Visors and Backboards

| Catalogue No. | Description | Part No. |
|---------------|--|-----------|
| 0086/009499 | Extended Visor (CLS LITE) | B20.19374 |
| 0086/009501 | Standard Visor (CLS LITE) | B20.20234 |
| 0086/007488 | Extended iLS CLS Visor 600mm Long | B20.19436 |
| 0086/007489 | CLS LITE Extended Visor (550mm), 135 Deg LH Obstruction (for 3 aspect CLS LITE signals) | B20.19412 |
| 0086/007490 | CLS LITE 4 Aspect Extended Visor (550mm), 135 Deg LH Obstruction kit, (comprising of 2 off visors 0086/007489 and new backboard C60.59128) | D84.03686 |
| 0086/009502 | CLS LITE 4 Aspect Backboard | B20.20238 |
| 0086/009503 | CLS LITE Tall 3 Aspect Backboard | B20.19363 |
| 0086/009504 | CLS LITE Short 3 Aspect Backboard | B20.20232 |
| 0086/009505 | CLS LITE 4 Aspect Tunnel Backboard | B20.19368 |
| 0086/009506 | CLS LITE 3 Aspect Tunnel Backboard | B20.19373 |
| 0086/009507 | CLS LITE Backboard Extension | B20.20233 |

CLS LITE Cable Management

| Catalogue No. | Description | Part No. |
|---------------|--|-----------|
| 0086/009508 | Cable Coupler Support Bracket Angle | B20.19370 |
| 0086/009509 | Cable Coupler Support Bracket (Heeatsink Mounted) | B20.19369 |
| 0086/009510 | Cable Coupler Support Bracket (No Heatsink) | B20.19371 |
| 0086/009511 | MIL 5015 Receptacle Protective Cap Size 20 | B14.13184 |
| 0086/009512 | B14.13194 MIL 5015 Receptable Protective Cap Size 32 | B14.13194 |

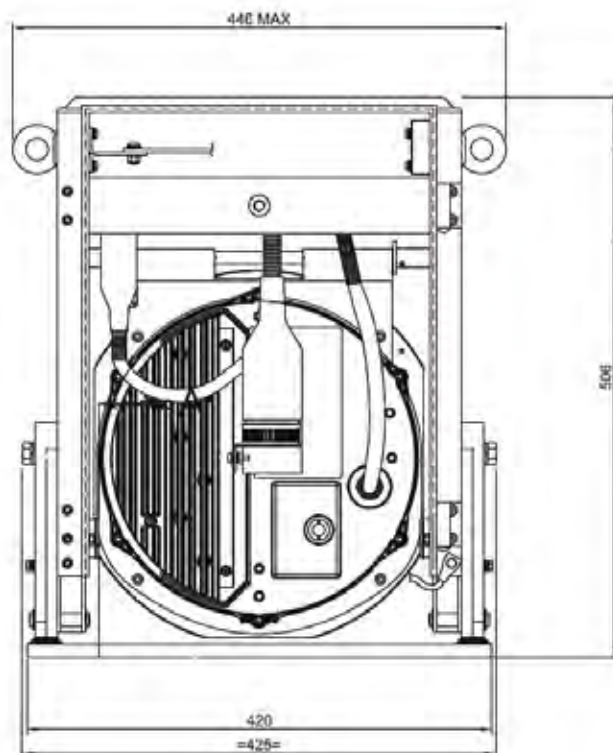
CLS LITE Signal Sighting

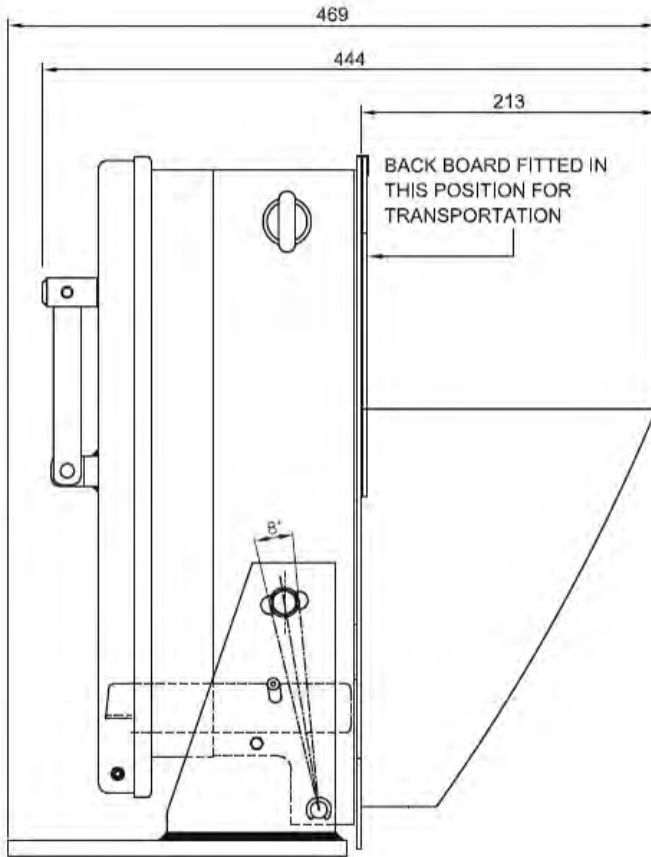
| Catalogue No. | Description | Part No. |
|---------------|--|-----------|
| 0086/009513 | Sighting Scope Mounting Block | B20.19361 |
| 0086/008542 | Sighting Scope Assembly (including case) | D04.03082 |

3 Aspect Tunnel Signal

| Catalogue No. | Description | Part No. |
|---------------|---|---------------|
| 0086/008732 | Lightweight 3-Aspect, Short, Long Range Narrow Beam Colour Light Tunnel Signal head, Red Yellow Green Yellow, MIL 5015, T00036, 110Vac/120Vdc, Current proved, Bottom quadrant | CLLT/SRYG/AAG |
| 0086/008733 | Lightweight 3-Aspect, Short, Long Range Narrow Beam Colour Light Tunnel Signal head, Red Yellow Green Yellow, MIL 5015, T00036, 110Vac/120Vdc, Double cut volt free contact proved, Bottom quadrant | CLLT/SRYG/ACG |

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Signal Head Footprint Dimensions are shown on Page 68

4 Aspect Mainline Signal

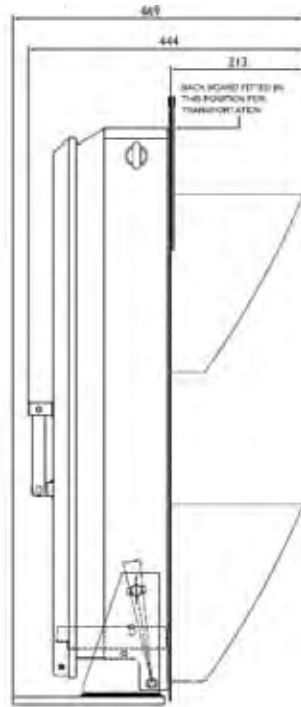
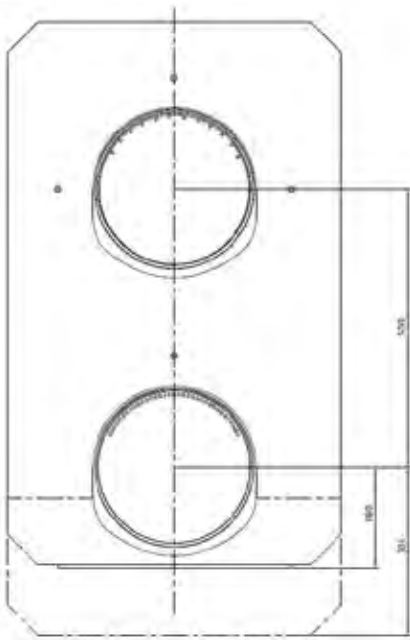
| Catalogue No. | Description | Part No. |
|---------------|---|---------------|
| 0086/008720 | Lightweight 4-Aspect, Long Range Narrow Beam Colour Light Signal head, Red Yellow Green Yellow, MIL 5015, T00036, 110Vac/120Vdc, Current proved, Upper quadrant | CLLH/RYGY/AAE |
| 0086/008721 | Lightweight 4-Aspect, Long Range Narrow Beam Colour Light Signal head, Red Yellow Green Yellow, MIL 5015, T00036, 110Vac/120Vdc, Double cut volt free contact proved, Upper quadrant | CLLH/RYGY/ACE |
| 0086/008722 | Lightweight 4-Aspect, Long Range Narrow Beam Colour Light Signal head, Red Yellow Green Yellow, MIL 5015, T00036, 110Vac/120Vdc, Current proved, Bottom quadrant | CLLF/RYGY/AAG |
| 0086/008724 | Lightweight 4-Aspect, Long Range Narrow Beam Colour Light Signal head, Red Yellow Green Yellow, MIL 5015, T00036, 110Vac/120Vdc, Double cut volt free contact proved, Bottom quadrant | CLLF/RYGY/ACG |
| 0086/008700 | Lightweight 4-Aspect, Medium Range Wide Beam Colour Light Signal head, Red Yellow Green Yellow, MIL 5015, T00036, 110Vac/120Vdc, Current proved, Upper quadrant | CLWH/RYGY/AAE |
| 0086/008701 | Lightweight 4-Aspect, Medium Range Wide Beam Colour Light Signal head, Red Yellow Green Yellow, MIL 5015, T00036, 110Vac/120Vdc, Double cut volt free contact proved, Upper quadrant | CLWH/RYGY/ACE |
| 0086/008702 | Lightweight 4-Aspect, Medium Range Wide Beam Colour LightSignal head, Red Yellow Green Yellow, MIL 5015, T00036, 110Vac/120Vdc, Current proved, Bottom quadrant | CLWF/RYGY/AAG |
| 0086/008703 | Lightweight 4-Aspect, Medium Range Wide Beam Colour Light Signal head, Red Yellow Green Yellow, MIL 5015, T00036, 110Vac/120Vdc, Double cut volt free contact proved, Bottom quadrant | CLWF/RYGY/ACG |
| 0086/008710 | Lightweight 4-Aspect, Medium Range Narrow Beam Colour Light Signal head, Red Yellow Green Yellow, MIL 5015, T00036, 110Vac/120Vdc, Current proved, Upper quadrant | CLNH/RYGY/AAE |

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| | | |
|-------------|--|-------------------|
| 0086/008711 | Lightweight 4-Aspect, Medium Range Narrow Beam Colour Light Signal head, Red Yellow Green Yellow, MIL 5015, T00036, 110Vac/120Vdc, Double cut volt free contact proved, Upper quadrant | CLNH/RYGY/ ACE |
| 0086/008712 | Lightweight 4-Aspect, Medium Range Narrow Beam Colour Light Signal head, Red Yellow Green Yellow, MIL 5015, T00036, 110Vac/120Vdc, Current proved, Bottom quadrant | CLNF/RYGY/ AAG |

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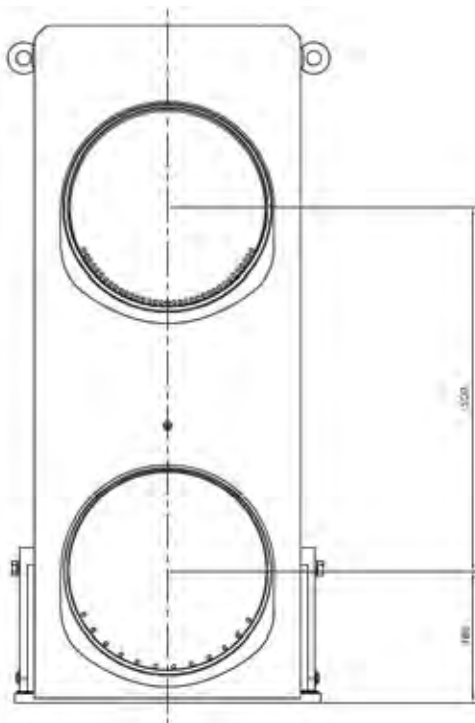


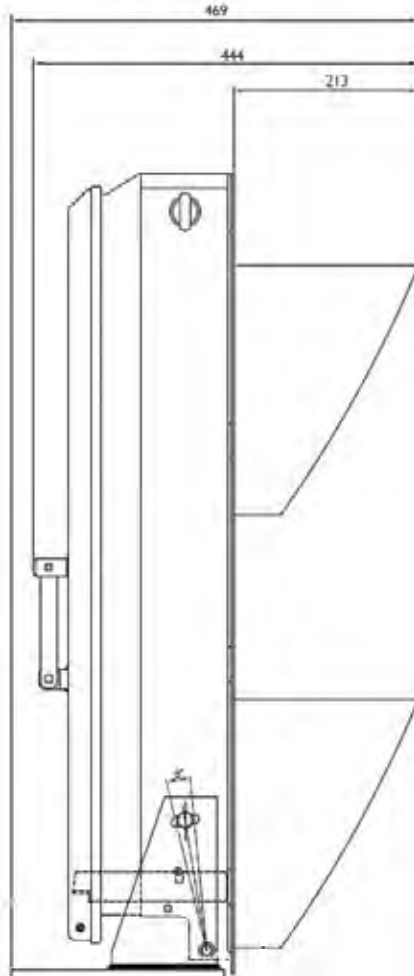
Signal Head Footprint Dimensions are shown on Page 68

4 Aspect Tunnel Signal

| Catalogue No. | Description | Part No. |
|---------------|--|---------------|
| 0086/008723 | Lightweight 4-Aspect, Long Range Narrow Beam Colour Light Tunnel Signal head, Red Yellow Green Yellow, MIL 5015, T00036, 110Vac/120Vdc, Current proved, Bottom quadrant | CLLT/RYGY/AAG |
| 0086/008725 | Lightweight 4-Aspect, Long Range Narrow Beam Colour Light Tunnel Signal head, Red Yellow Green Yellow, MIL 5015, T00036, 110Vac/120Vdc, Double cut volt free contact proved, Bottom quadrant | CLLT/RYGY/ACG |

Not suitable for use with Assisted Lift Trunnion





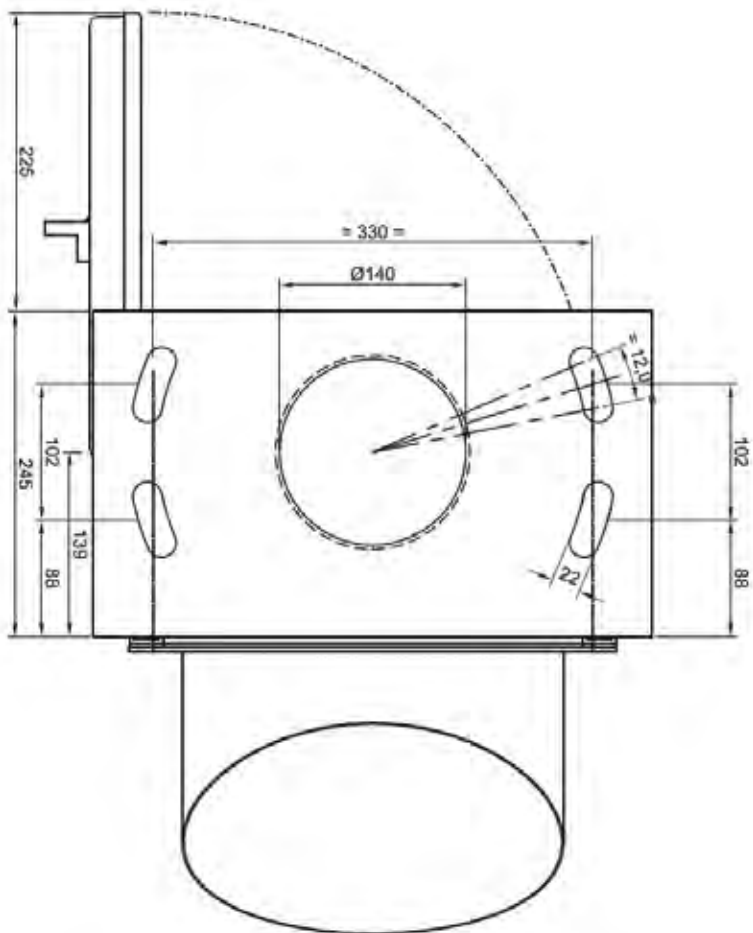
Signal Head Footprint Dimensions are shown on Page 68

CLS LITE Base

The lightweight base is an integral part of the CLS LITE signal housing.

The mechanical interface shown above/below is standard across the CLS LITE range and complies with the requirements of NR/SP/SIG 10062.

Footprint of the base



CLS LITE Spare Modules

| Catalogue No. | Description | Part No. |
|---|---|-----------------|
| CLS LITE Colour Light Signal Modules, Current Proved to T00036 | | |
| 0086/008503 | CLS LITE Module, Colour Light Signal, 3 Aspect, Long Range Narrow Beam, Elevated, 110V, MIL 5015, T00036, Current Proved, Short Tail Cable | LC/CMLRYG-E/AAS |
| 0086/008504 | CLS LITE Module, Colour Light Signal, 3 Aspect, Long Range Narrow Beam, Ground, 110V, MIL 5015, T00036, Current Proved, Short Tail Cable | LC/CMLRYG-G/AAS |
| 0086/009370 | CLS LITE Module, Colour Light Signal, 3 Aspect, Medium Range Narrow Beam, Elevated, 110V, MIL 5015, T00036, Current Proved, Short Tail Cable | LC/CMNRYG-E/AAS |
| 0086/009371 | CLS LITE Module, Colour Light Signal, 3 Aspect, Medium Range Narrow Beam, Ground, 110V, MIL 5015, T00036, Current Proved, Short Tail Cable | LC/CMNRYG-G/AAS |
| 0086/009478 | CLS LITE Module, Colour Light Signal, 3 Aspect, Medium Range Wide Beam, Elevated, 110V, MIL 5015, T00036, Current Proved, Short Tail Cable | LC/CMMRYG-E/AAS |
| 0086/009479 | CLS LITE Module, Colour Light Signal, 3 Aspect, Medium Range Wide Beam, Elevated, 110V, MIL 5015, T00036, Current Proved, Short Tail Cable | LC/CMMRYG-G/AAS |
| CLS LITE Colour Light Signal Modules, SSL Modular Scheme Terminations with Single Volt-free Contact | | |
| 0086/008509 | CLS LITE Module, Colour Light Signal, 3 Aspect, Long Range Narrow Beam, Elevated, 110V, MIL 5015, SSL Modular, Volt Free single cut, Short Tail Cable | LC/CMLRYG-E/CDS |
| 0086/008510 | CLS LITE Module, Colour Light Signal, 3 Aspect, Long Range Narrow Beam, Ground, 110V, MIL 5015, SSL Modular, Volt Free single cut, Short Tail Cable | LC/CMLRYG-G/CDS |
| CLS LITE Colour Light Signal Modules, Double Volt-free Contact Proving, Terminations to T00036 | | |
| 0086/008513 | CLS LITE Module, Colour Light Signal, 3 Aspect, Long Range Narrow Beam, Elevated, 110V, MIL 5015, T00036, Volt Free Double cut, Short Tail Cable | LC/CMLRYG-E/ACS |
| 0086/008514 | CLS LITE Module, Colour Light Signal, 3 Aspect, Long Range Narrow Beam, Ground, 110V, MIL 5015, T00036, Volt Free Double cut, Short Tail Cable | LC/CMLRYG-G/ACS |
| 0086/009374 | CLS LITE Module, Colour Light Signal, 3 Aspect, Medium Range Narrow Beam, Elevated, 110V, MIL 5015, T00036, Volt Free Double cut, Short Tail Cable | LC/CMNRYG-E/ACS |

| Catalogue No. | Description | Part No. |
|--|---|-----------------|
| 0086/009375 | CLS LITE Module, Colour Light Signal, 3 Aspect, Medium Range Narrow Beam, Ground, 110V, MIL 5015, T00036, Volt Free Double cut, Short Tail Cable | LC/CMNRYG-G/ACS |
| 0086/009482 | CLS LITE Module, Colour Light Signal, 3 Aspect, Medium Range Wide Beam, Elevated, 110V, MIL 5015, T00036, Volt Free Double cut, Short Tail Cable | LC/CMMRYG-E/ACS |
| 0086/009483 | CLS LITE Module, Colour Light Signal, 3 Aspect, Medium Range Wide Beam, Ground, 110V, MIL 5015, T00036, Volt Free Double cut, Short Tail Cable | LC/CMMRYG-G/ACS |
| Upper Yellow modules (4th Aspect) for Current Proved Modules to T00036 | | |
| 0086/008642 | CLS LITE Module, Colour Light Signal, 4th Aspect, Long Range Narrow Beam, Elevated, 110V, MIL 5015, T00036, Current Proved | LC/CML4Y--E/AA- |
| 0086/008643 | CLS LITE Module, Colour Light Signal, 4th Aspect, Long Range Narrow Beam, Ground, 110V, MIL 5015, T00036, Current Proved | LC/CML4Y--G/AA- |
| 0086/009376 | CLS LITE Module, Colour Light Signal, 4th Aspect, Medium Range Narrow Beam, Elevated, 110V, MIL 5015, T00036, Current Proved. | LC/CMN4Y--E/AA- |
| 0086/009377 | CLS LITE Module, Colour Light Signal, 4th Aspect, Medium Range Narrow Beam, Ground, 110V, MIL 5015, T00036, Current Proved. | LC/CMN4Y--G/AA- |
| 0086/009484 | CLS LITE Module, Colour Light Signal, 4th Aspect, Medium Range Wide Beam, Elevated, 110V, MIL 5015, T00036, Current Proved. | LC/CMM4Y--E/AA- |
| 0086/009485 | CLS LITE Module, Colour Light Signal, 4th Aspect, Medium Range Wide Beam, Ground, 110V, MIL 5015, T00036, Current Proved. | LC/CMM4Y--G/AA- |
| Upper Yellow modules (4th Aspect) for Volt-free contact proved modules | | |
| 0086/008644 | CLS LITE Module, Colour Light Signal, 4th Aspect, Long Range Narrow Beam, Elevated, 110V, MIL 5015, T00036, No Proving (For use in conjunction with the volt-free contact proved CLS LITE Module) | LC/CML4Y--E/AE- |

| Catalogue No. | Description | Part No. |
|---------------|--|----------------|
| 0086/008645 | CLS LITE Module, Colour Light Signal, 4th Aspect, Long Range Narrow Beam, Ground, 110V, MIL 5015, T00036, No Proving (For use in conjunction with the volt-free contact proved CLS LITE Module) | LC/CML4Y-G/AE- |
| 0086/009378 | CLS LITE Module, Colour Light Signal, 4th Aspect, Medium Range Narrow Beam, Elevated, 110V, MIL 5015, T00036, No Proving (For use in conjunction with the volt-free contact proved CLS LITE Module). | LC/CMN4Y--E/AE |
| 0086/009379 | CLS LITE Module, Colour Light Signal, 4th Aspect, Medium Range Narrow Beam, Ground, 110V, MIL 5015, T00036, No Proving (For use in conjunction with the volt-free contact proved CLS LITE Module). | LC/CMN4Y--G/AE |
| 0086/009486 | CLS LITE Module, Colour Light Signal, 4th Aspect, Medium Range Wide Beam, Elevated, 110V, MIL 5015, T00036, No Proving (For use in conjunction with the volt-freecontact proved CLS LITE Module). | LC/CMM4Y--E/AE |
| 0086/009487 | CLS LITE Module, Colour Light Signal, 4th Aspect, Medium Range Wide Beam, Ground, 110V, MIL 5015, T00036, No Proving (For use in conjunction with the volt-free contact proved CLS LITE Module). | LC/CMM4Y--G/AE |

CLS LITE Housing

| Catalogue No. | Description | Part No. |
|---------------|--|-----------|
| 0086/009392 | Dorman CLS LITE One Aperture Housing for 3 Aspect Tunnel Colour Light Signal (Short) | D04.03508 |
| 0086/009393 | Dorman CLS LITE One Aperture Housing for 3 Aspect Colour Light Signal (Short) | D04.03499 |
| 0086/009394 | Dorman CLS LITE One Aperture Housing for 3 Aspect Colour Light Signal (Tall) | D04.03501 |
| 0086/009395 | Dorman CLS LITE Two Aperture Housing for 4 Aspect Colour Light Signal | D04.03500 |
| 0086/009396 | Dorman CLS LITE Two Aperture Housing for 4 Aspect Tunnel Colour Light Signal | D04.03504 |

Out of Use Masks

| Catalogue No. | Description | Part No. |
|---------------|----------------------------|-----------|
| | 3 Aspect, Short Housing | B22.21085 |
| | 3 Aspect, Tall Housing | B22.21083 |
| | 4 Aspect, Standard Housing | B22.21082 |

Cable Management

| Catalogue No. | Description | Part No. |
|---------------|--|-----------|
| 0086/009498 | Cable Clamp | D04.03505 |
| 0086/009508 | Cable Coupler Support Bracket Angle | B20.19370 |
| 0086/009509 | Cable Coupler Support Bracker (Heatsink Mounted) | B20.19369 |
| 0086/009510 | Cable Coupler Support Bracker (No Heatsink) | B20.19371 |
| 0086/009511 | Protective Cap, Shell Sixe 20 | B14.13184 |
| 0086/009512 | Protective Cap, Shell Sixe 32 | B14.13194 |
| 0086/009396 | 4 Aspect, Tunnel Head | D04.03504 |

Backboards and Visors

| Catalogue No. | Description | Part No. |
|---------------|--|-----------|
| 0086/009499 | Extended Visor | B20.19374 |
| 0086/009501 | Standard Visor | B20.20234 |
| 0086/009502 | 4 Aspect Backboard | B20.20238 |
| 0086/009503 | 3 Aspect, Tall Backboard | B20.19363 |
| 0086/009504 | 3 Aspect, Short Backboard | B20.20232 |
| 0086/009505 | 4 Aspect. Tunnel Head Backboard | B20.19368 |
| 0086/009506 | 3 Aspect, Short, Tunnel Head Backboard | B20.19373 |
| 0086/009507 | Lower Backboard Extension | B20.20233 |
| 0086/009002 | 40mm Offset Mounting Plate | D86.85056 |
| 0086/009001 | 40mm Offset Mounting Plate (for 'A' Frame) | D86.85057 |

Notes..

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Members of:



Railway Industry Association



Unipart Dorman and the International Market

Unipart Dorman has always been proud to be an innovative company, not simply resting on its past successes.

We have already built a market leading range of products for the UK market and have developed overseas projects for customers, creating bespoke signalling to fit their needs.

We attend a number of major rail exhibitions in both the UK and overseas markets. Visit our website for the latest details of our upcoming events.

Considerable interest is regularly shown in our signalling solutions by overseas customers and a number of these leads have resulted in major orders being achieved for non-uk markets.

Our products are now used globally:

- Australia
- Canada
- Germany
- Portugal
- Republic of Ireland
- Spain
- USA
- Angola

Classic Signalling Range

In addition to our range of Lightweight Signals, Unipart Dorman offer a full range of rail products including Classic LED Signals, Route Indicators and Level Crossing equipment.

Details of our full selection of classic signalling products can be found at www.unipartdorman.co.uk/rail.html

You can also download a copy of the handbook on our website at http://www.unipartdorman.co.uk/assets/led_signalling_handbook.pdf

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Issue 3: May 2017

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