

LED Signalling Handbook

Delivering Railway Safety

UNIPART
 **DORMAN**

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The Next Generation of Railway Signal

Close collaboration with Network Rail on the next generation of LED railway signal, has resulted in the introduction of the fully approved Unipart Dorman Integrated Lightweight Signal (iLS). Capitalising on the skill and expertise gathered over more than ten years designing and manufacturing LED railway signals, Unipart Dorman's design team benefit from the latest inhouse rapid prototyping and product test equipment to give the customer what they want to agreed timescales. iLS will revolutionise signal design, especially in new projects and is already delivering many hundreds of thousand pounds in cost savings, greatly increased track worker safety and network efficiencies which will benefit operators and passengers. This new approach to railway signalling allows Unipart Dorman to maintain its position as the UK market leader in the field of LED signals, which is based on providing the best products to match customer need.

Please Note:

The Unipart Rail catalogue numbers used in this handbook closely follow the Network Rail PADS numbering system. In most instances the catalogue number has been generated by adding a leading zero to the PADS number.

For example: PADS number 086/12345 becomes 0086/012345.

Visit the Unipart Dorman website to download all GA Drawings and product approval certificates.

www.unipartdorman.co.uk



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 and worked hard to provide products which meet their needs at the right time and the right price. This philosophy is still the prime driving force behind our success; and from the initial customer approach to approval and delivery, Unipart Dorman uses its skills and expertise to ensure that only the very best product is delivered.

To ensure that we deliver, the company has invested heavily in the 5500m³ facility in Southport which houses state of the art environmental test chamber, fully calibrated light output testing laboratories and a rapid prototyping facility - all of which enable the Design Team to reduce development time and quickly fine tune pre-production samples in collaboration with the customer. This is especially useful on ground breaking products where customers often ask for additional functionality to be included as the product develops.

The dedicated Unipart Dorman Application Development Team is the initial point of contact for customers and they initiate every new project with a comprehensive customer needs mapping consultation, where all elements are analysed using safety and cost performance criteria. The project is then formally handed over to the Design Team who will produce virtual 3D models for the customer to approve and then deliver working prototypes which allow the functionality of the design to be assessed. The customer can make any changes needed even at this late stage thanks to the in-house rapid prototyping and testing capabilities.

Once the product is approved, Unipart Dorman manufacturing excellence allied with the Unipart Way tools and techniques for continuous improvement and lean processes, mean large volumes of product can be quickly delivered to the customer at the most effective cost.

Unipart Dorman - working tirelessly to ensure that we remain the supplier of choice in the UK and Global railway marketplace.

UNIPART
DORMAN

Integrated Lightweight Signal (iLS) Approval Certificate Number PA05/04240

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.

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.

- Designed to be compliant with Network Rail Line Specification NR/SP/SIG/10062
- Unique optical arrangement that reduces the possibility of signal phantoms
- Increased infrastructure reliability which promotes staff safety by reduced exposure to railway hazards
- LED light sources give a long and predictable service life of 10 years
- Reduced maintenance costs due to self cleaning properties of the design
- Nominal supply voltage of 110Vac
- Low wattage (5W nominal) version with single and double volt free proving contacts
- MIL 5015 Plug coupler connections to infrastructure compliant with Network Rail Standard T00036
- Current proved version for backwards compatibility with SSI & RRI installations
- Overall size of signal is reduced allowing installation into restricted areas without need for costly or complicated support structures
- LED modules are sealed to IP65
- Designs available for equipment enclosure & trunion mounting options on a standard Network Rail foundation footprint to BRS-SC 45

Signal Forms Available:

- 3 & 4 Aspect CLS
- Position Light Junction Indicator
- Position Light Signal
- Miniature Route Indicator
- Available with Medium Range capability & Standard Route Indicator



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

Compliances

Railway Group Standards GK/RT0045
Approval Certificate Number PA05/04240

Key Specifications

Ambient Operating Temperature Range -25°C to +40°C
Nominal Operating Voltage 110Vac
Operating Voltage Range 88Vac to 121Vac

iLS Colour Light Signal

Compliant with Network Rail NR/SP/SIG/10062

Proving Options

Current proved
Low Wattage Single Voltage Free Contacts
Low Wattage Double Voltage Free Contacts

Current Proved

Nominal Operating Current (ac) 300mA @ 110Vac

Low Wattage (5W nominal) with voltage free contacts

Nominal Operating Current 45mA @ 110Vac

Light Parameters

Performance Categories - 1 and 4

Light Output Colour

Red, Yellow & Green GKRT0045

All aspects are capable of being flashed under control of the interlocking

Position Light Junction Indicator

Proving Options

Current Proved

Nominal Operating Current 1100mA @ 110Vac

Low Wattage with voltage free contacts

Nominal Operating Current 150mA @ 110Vac

Light Parameters

Performance Category - 1

Light Output Colour

Lunar White GKRT0045

Position Light Signal

Compliant with Network Rail NR/SP/SIG/10110

Proving Options

Current Proved

Nominal Operating Current 300mA @ 110Vac

Low Wattage with voltage free contacts

Nominal Operating Current 45mA @ 110Vac

Light Parameters

Performance Category - 3

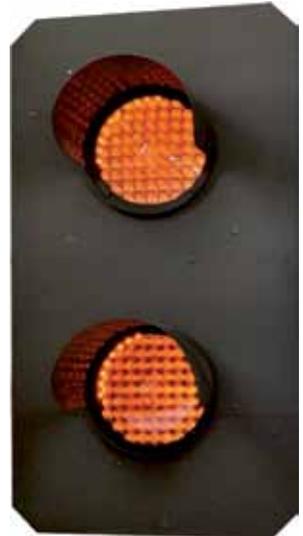
Light Output Colour

Lunar White GKRT0045

LED Multi-Aspect Colour Light Signal (Long & Medium Range Colour Light Signal)

- The Unipart Dorman Signal is a searchlight configuration which increases safety and makes sighting easier
- Compliant with Network Rail Line Specification NR/SP/SIG/10062 Issue 1: August 1999
- Unique optical arrangement that reduces the possibility of a signal phantom
- Hinged module to enable easy cleaning and maintenance from a place of safety
- Increased infrastructure reliability and staff safety
- LED light sources give a long and predictable service life
- Reduced maintenance costs
- Constant light output throughout the life of the signal
- Compatible with existing SSI and RRI installations
- Nominal supply voltage of 110Vac / 120Vdc
- Unaffected by variations in supply voltage
- Overall size of signal is reduced allowing installation into restricted areas
- Any aspect configuration can be achieved from the range of modules
- LED modules are sealed to IP65
- Filament lamp and filament changeover relay failure eliminated
- Four aspect Unipart Dorman Colour Light Signals do not require taller A frames to be specified, to cater for the unusual mounting arrangements, a full range of joggled backboards and offset mounting plates can be specified and supplied with the complete signal, ex works

Where the signal being replaced by the Unipart Dorman Colour Light Signal has flashing aspects, please refer to the latest edition of Network Rail Technical Instruction TI 100 which gives guidance on modifying the circuit to ensure the flashing aspect is correctly presented.



**Light Measuring Tool
for LED Colour Light
Signal Module
Cat No 0086/009923**

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

Compliances

Railway Group Standards
Network Rail

GK/RT0045, GE/RT8037
NR/SP/SIG/10062

Approval Certificate Numbers

Long Range Colour Light Signal Module
Medium Range Colour Light Signal Module
Housing

PA05/01515
PA05/02706
PA05/01873

Key Specifications

Operating Temperature Range
Nominal Operating Voltage
Operating ac Voltage Range
Nominal Operating Current (ac)
Operating dc Voltage Range

-25°C to +40°C
110Vac / 120Vdc
Max 121Vac Min 88Vac
300mA @ 110Vac
Max 145 Vdc Min 88Vdc

Current Proving

Relay Based Interlocking
Solid State Interlocking (SSI)

BR941A
Return Current Path 1 or 4

Performance Categories (NR/SP/SIG/10062)

Long Range Category 1	±3°	800m
Medium Range Category 4	±10°	400m
Medium Range Category 2	±12.5°	250m

Constant light output and colour throughout life, voltage ranges and temperature ranges

Light Output Colour

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

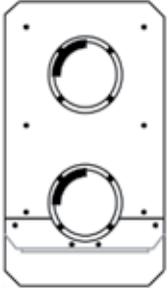
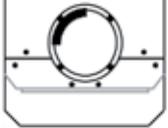
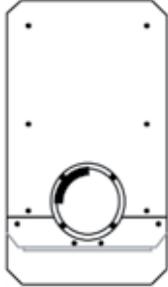
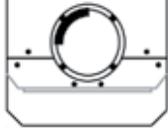
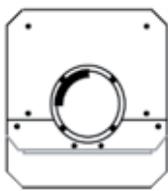
Sealing of LED Modules

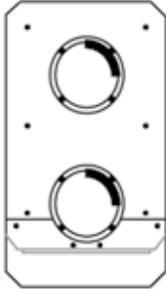
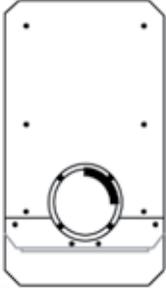
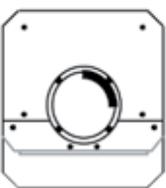
IP65

Weight

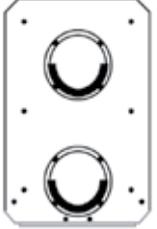
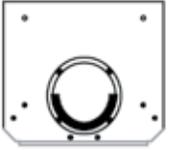
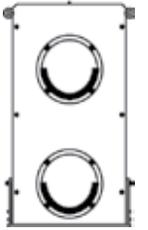
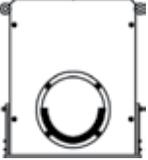
4 Aspect Signal (signal with 2 modules)	43kg
3 Aspect Tall Signal (signal with 1 module)	33kg
3 Aspect Short Signal (signal with 1 module)	26kg

LED Multi-Aspect Colour Light Signal (Long Range Colour Light Signal)

Catalogue No	Unipart Dorman Part No	Description	Pictorial Representation
0086/009158	CLSH/RYG/1P/LU	LED Long Range Colour Light Signal Head 4 aspect Red Yellow Green Yellow 110Vac / 120Vdc Lamp proved Left upper quadrant	
0086/109158	CLSE/RYG/1P/LU	Above signal fitted with 550mm long visor	
0086/009152	CLSH/3RYG/1P/LU	LED Long Range Colour Light Signal Head 3 aspect - Tall Housing Red Yellow Green 110Vac / 120Vdc Lamp proved Left upper quadrant	
0086/109152	CLSE/3RYG/1P/LU	Above signal fitted with 550mm long visor	
0086/009155	CLSH/SRYG/1P/LU	LED Long Range Colour Light Signal Head 3 aspect - Short Housing Red Yellow Green 110Vac / 120Vdc Lamp proved Left upper quadrant	
0086/109155	CLSE/SRYG/1P/LU	Above signal fitted with 550mm long visor	

Catalogue No	Unipart Dorman Part No	Description	Pictorial Representation
0086/009159	CLSH/RYG/1P/RU	LED Long Range Colour Light Signal Head 4 aspect Red Yellow Green Yellow 110Vac / 120Vdc Lamp proved Right upper quadrant	
0086/109159	CLSE/RYG/1P/RU	Above signal fitted with 550mm long visor	
0086/009153	CLSH/3RYG/1P/RU	LED Long Range Colour Light Signal Head 3 aspect - Tall Housing Red Yellow Green 110Vac / 120Vdc Lamp proved Right upper quadrant	
0086/109153	CLSE/3RYG/1P/RU	Above signal fitted with 550mm long visor	
0086/009156	CLSH/SRYG/1P/RU	LED Long Range Colour Light Signal Head 3 aspect - Short Housing Red Yellow Green 110Vac / 120Vdc Lamp proved Right upper quadrant	
0086/109156	CLSE/SRYG/1P/RU	Above signal fitted with 550mm long visor	

LED Multi-Aspect Colour Light Signal (Long range colour light signal)

Catalogue No	Unipart Dorman Part No	Description	Pictorial Representation
0086/009160	CLGH/RYG/1P/BH	LED Long Range Ground Mounting Colour Light Signal Head 4 aspect Red Yellow Green Yellow 110Vac / 120Vdc Lamp proved Bottom half quadrant	
0086/009154	CLGH/3RYG/1P/BH	LED Long Range Ground Mounting Colour Light Signal Head 3 aspect - Short Housing Red Yellow Green 110Vac / 120Vdc Lamp Proved Bottom half quadrant	
0086/009167	CLTH/RYG/1P/BH	LED Long Range Colour Light Tunnel Signal Head 4 aspect Red Yellow Green Yellow 110Vac / 120Vdc Lamp proved Bottom half quadrant	
0086/009165	CLTH/3RYG/1P/BH	LED Long Range Colour Light Tunnel Signal Head 3 aspect - Short Housing Red Yellow Green 110Vac / 120Vdc Lamp proved Bottom half quadrant	

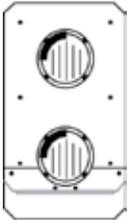
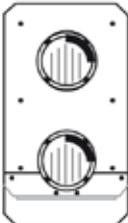
Out of Use Masks for Colour Light Signals, Black with White Cross

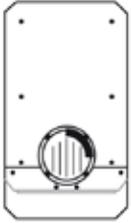
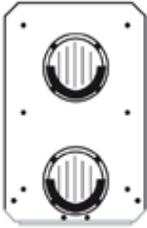
Catalogue No	Description
0086/009103	Out of Use bag for short housing signals with 300mm visors
0086/009104	Out of Use bag for short housing signals with 550mm visors
0086/009105	Out of Use bag for tall housing signals with 300mm visors
0086/009106	Out of Use bag for tall housing signals with 550mm visors
0086/009016	Lens blanking plate

Where an out of use mask is fitted to a signal which may be powered, a Lens blanking plate must be fitted in each aperture to prevent any chance of light leakage.



LED Multi-Aspect Colour Light Signal (Medium Range Colour Light Signal)

Catalogue No	Unipart Dorman Part No	Description	Pictorial Representation
0086/009040	CLMH/RYG/1P/LU	LED Medium Range Colour Light Signal Head 4 aspect Red Yellow Green Yellow 110Vac / 120Vdc Lamp proved Left upper quadrant	
0086/109040	CLME/RYG/1P/LU	Above signal fitted with 550mm long visor	
0086/009041	CLMH/3RYG/1P/LU	LED Medium Range Colour Light Signal Head 3 aspect - Tall Housing Red Yellow Green 110Vac / 120Vdc Lamp proved Left upper quadrant	
0086/109041	CLME/3RYG/1P/LU	Above signal fitted with 550mm long visor	
0086/009042	CLMH/SRYG/1P/LU	LED Medium Range Colour Light Signal Head 3 aspect - Short Housing Red Yellow Green 110Vac / 120Vdc, Lamp proved Left upper quadrant	
0086/109042	CLME/SRYG/1P/LU	Above signal fitted with 550mm long visor	
0086/009043	CLMH/RYG/1P/RU	LED Medium Range Colour Light Signal Head 4 aspect Red Yellow Green Yellow 110Vac / 120Vdc Lamp proved Right upper quadrant	
0086/109043	CLME/RYG/1P/RU	Above signal fitted with 550mm long visor	

Catalogue No	Unipart Dorman Part No	Description	Pictorial Representation
0086/009044	CLMH/3RYG/IP/RU	LED Medium Range Colour Light Signal Head 3 aspect - Tall Housing Red Yellow Green 110Vac / 120Vdc Lamp proved Right upper quadrant	
0086/109044	CLME/3RYG/IP/RU	Above signal fitted with 550mm long visor	
0086/009045	CLMH/SRYG/IP/RU	LED Medium Range Colour Light Signal Head 3 aspect - Short Housing Red Yellow Green 110Vac / 120Vdc, Lamp proved Right upper quadrant	
0086/109045	CLME/SRYG/IP/RU	Above signal fitted with 550mm long visor	
0086/009046	CLMH/3RYG/IP/BH	LED Medium Range Ground Mounting Colour Light Signal Head 3 aspect - Short Housing Red Yellow Green 110Vac / 120Vdc Lamp proved Bottom half quadrant	
0086/009047	CLMH/RYG/YP/IP/BH	LED Medium Range Ground Mounting Colour Light Signal Head 4 aspect Red Yellow Green Yellow 110Vac / 120Vdc Lamp proved Bottom half quadrant	

LED Long & Medium Range Colour Light Signal Module Variations

	Catalogue No	Unipart Dorman Part No	Description
LONG RANGE	0086/009200	CLSM/3RYG/IP/LU	LED Long Range Colour Light Signal Module, 3 Aspect, Red Yellow Green, 110Vac/ 120Vdc, Lamp proved, Left upper quadrant
	0086/009201	CLSM/4RYG/IP/LU	LED Long Range Colour Light Signal Module, 4 Aspect, Red Yellow Green, 110Vac/ 120Vdc, Lamp proved, Left upper quadrant
	0086/009202	CLSM/4Y--/IP/LU	LED Long Range Colour Light Signal Module, 4 Aspect, Yellow, 110Vac / 120Vdc, Lamp proved, Left upper quadrant
	0086/009203	CLSM/3RYG/IP/RU	LED Long Range Colour Light Signal Module, 3 Aspect, Red Yellow Green, 110Vac/ 120Vdc, Lamp proved, Right upper quadrant
	0086/009204	CLSM/4RYG/IP/RU	LED Long Range Colour Light Signal Module, 4 Aspect, Red Yellow Green, 110Vac/ 120Vdc, Lamp proved, Right upper quadrant
	0086/009205	CLSM/4Y--/IP/RU	LED Long Range Colour Light Signal Module, 4 Aspect, Yellow, 110Vac / 120Vdc, Lamp proved, Right upper quadrant
	0086/009206	CLTM/3RYG/IP/BH	LED Long Range Colour Light Ground / Tunnel Signal Module, 3 Aspect, Red, Yellow, Green, 110Vac / 120Vdc Lamp Proved, Bottom half quadrant
	0086/009207	CLTM/4RYG/IP/BH	LED Long Range Colour Light Ground / Tunnel Signal Module, 4 Aspect, Red, Yellow, Green, 110Vac / 120Vdc, Lamp Proved, Bottom half quadrant
	0086/009208	CLTM/4Y--/IP/BH	LED Long Range Colour Light Ground / Tunnel Signal Module, 4 Aspect, Yellow, 110Vac / 120Vdc, Lamp Proved Bottom half quadrant

Catalogue No	Unipart Dorman Part No	Description	MEDIUM RANGE
0086/009170	CLMM/3RYG/IP/LU	LED Medium Range Colour Light Signal Module, 3 Aspect, Red Yellow Green, 110Vac / 120Vdc, Lamp proved, Left upper quadrant	
0086/009171	CLMM/4RYG/IP/LU	LED Medium Range Colour Light Signal Module, 4 Aspect, Red Yellow Green, 110Vac / 120Vdc, Lamp proved, Left upper quadrant	
0086/009172	CLMM/4Y--/IP/LU	LED Medium Range Colour Light Signal Module, 4 Aspect, Yellow, 110Vac / 120Vdc, Lamp proved, Left upper quadrant	
0086/009173	CLMM/3RYG/IP/RU	LED Medium Range Colour Light Signal Module, 3 Aspect, Red Yellow Green, 110Vac / 120Vdc, Lamp proved, Right upper quadrant	
0086/009174	CLMM/4RYG/IP/RU	LED Medium Range Colour Light Signal Module, 4 Aspect, Red Yellow Green, 110Vac / 120Vdc, Lamp proved, Right upper quadrant	
0086/009175	CLMM/4Y--/IP/RU	LED Medium Range Colour Light Signal Module, 4 Aspect, Yellow, 110Vac / 120Vdc, Lamp proved, Right upper quadrant	
0086/009176	CLMM/4RYG/IP/BH	LED Medium Range Colour Light Ground / Tunnel Signal Module, 4 Aspect, Red Yellow Green, 110Vac / 120Vdc, Lamp Proved, Bottom half quadrant	
0086/009177	CLMM/4Y--/IP/BH	LED Medium Range Colour Light Ground / Tunnel Signal Module, 4 Aspect, Yellow, 110Vac / 120Vdc, Lamp Proved, Bottom half quadrant	
0086/009178	CLMM/3RYG/IP/BH	LED Medium Range Colour Light Ground / Tunnel Signal Module, 3 Aspect, Red Yellow Green, 110Vac / 120Vdc, Lamp Proved, Bottom half quadrant	

LED Long & Medium Range Colour Light Signal Spare Parts

	Catalogue No	Unipart Dorman Part No	Description
HOUSINGS	0086/009220	D86.85004	Four Aspect Colour Light Signal Two Aperture Housing Assembly
	0086/009221	D86.85003	Three Aspect Colour Light Signal One Aperture Housing Assembly
	0086/009222	D86.85010	Three Aspect Short Colour Light Signal One Aperture Housing Assembly
	0086/009223	D86.85018	Four Aspect Colour Tunnel Signal Two Aperture Housing Assembly
VISORS & BACKBOARDS	0086/009008	B86.85019	75mm Long Colour Light Signal Visor
	0086/009009	B20.19104	300mm Long Colour Light Signal Visor
	0086/009010	B86.85014	550mm Long Colour Light Signal Visor
	0086/009011	B86.85024	550mm Long $\frac{3}{4}$ Round Colour Light Signal Visor
	0086/009012	B20.14108	4 Aspect Backboard – Tall Housing
	0086/009013	B86.85007	3 Aspect Backboard – Tall Housing
	0086/009014	B20.19156	Short 3 Aspect Backboard – Short Housing
	0086/009015	B20.19123	Backboard Extension
LENSES	0086/009016	B86.85023	Lens Blanking Plate for out of use signals
	0086/009017	D86.85052	Colour Light Signal Outer Lens Replacement Kit

Catalogue No	Unipart Dorman Part No	Description	
0086/009922	LMT 01	Position Light Signal and Junction Route Indicator Light Measuring Tool	LMT'S
-	LMT 01 RECAL	Position Light Signal and Junction Route Indicator Light Measuring Tool Recalibration	
0086/009923	LMT 02	Colour Light Signal Light Measuring Tool	
-	LMT 02 RECAL	Colour Light Signal Measuring Tool Recalibration	
-	D864ASPCONV.MED	4 Aspect Colour Light Signal Conversion from Long Range to Medium Range	SIGNAL CONVERSIONS
-	D863ASPCONV.MED	3 Aspect Colour Light Signal Conversion from Long Range to Medium Range	
-	D864ASPCONV.LNG	4 Aspect Colour Light Signal Conversion from Medium Range to Long Range	
-	D863ASPCONV.LNG	3 Aspect Colour Light Signal Conversion from Medium Range to Long Range	
0086/009001	D86.85087	CLS 40mm Offset Mounting Plate Assembly for "A" Frame	OFFSET MOUNTING PLATES ETC
0086/009002	D86.85056	CLS 40mm Offset Mounting Plate Assembly	
0086/009003	B20.19183	CLS Lower Backboard Extension, 25mm Joggle	
0086/009004	D86.85057	CLS Full Upper Backboard Extension, 25mm Joggle	
0086/009005	D86.85058	CLS Upper Backboard Extension, 25mm Joggle for use with POS 3 JRI	
0086/009006	D86.85059	CLS Upper Backboard Extension, 25mm Joggle or use with POS 6 JRI	
0086/009007	D86.85060	CLS Upper Backboard Extension, 25mm Joggle for use with POS 3 & 6 JRI	

LED Miniature Tunnel Signal

- LED technology
- Readability up to category 2
- 2,3 & 4 aspect configurations available
- Able to be installed in restricted locations and roof mounted
- Available with Proceed on Sight Authority (PoSA) signal incorporated



Catalogue No	Unipart Dorman Part No	Description
0086/009161	MLTSH/2RY-/IP/G	Miniature Tunnel Signal, 2 aspect, Red Yellow, 110V Lamp proved, Ground / Wall mounting
0086/009162	MLTSH/2GY-/IP/G	Miniature Tunnel Signal, 2 aspect, Green Yellow, 110V Lamp proved, Ground / Wall mounting
0086/009163	MLTSH/3RYG/IP/G	Miniature Tunnel Signal, 3 aspect, Red Yellow Green, 110V Lamp proved, Ground / Wall mounting
0086/009164	MLTSH/RYGYP/IP/G	Miniature Tunnel Signal, 4 aspect, Red Yellow Green Yellow, 110V Lamp proved, Ground / Wall mounting
0086/009168	B20.19193	Aperture blank plate
0086/009240	MTM2/RYP/IP/G	LED Miniature Tunnel Module, Red Yellow, for use with signals 0086/009161 and 0086/009164
0086/009241	MTM2/G-/IP/G	LED Miniature Tunnel Module, Green, for use with signal 086/009163
0086/009242	MTM2/GYP/IP/G	LED Miniature Tunnel Module, Green Yellow, for use with signals 0086/009162 and 0086/009164
0086/077146	MLTSH/2RY-/IP/R	LED 2-Aspect, Miniature Tunnel Signal Head, Red Yellow, 110Vac/120Vdc, Proved, Roof Mounted
0086/077147	MLTSH/2GY-/IP/R	LED 2-Aspect Miniature Tunnel Signal Head, Green Yellow, 110Vac/120Vdc, Proved, Roof Mounted
0086/0007148	MLTSH/3RYG/IP/R	LED 3-Aspect Miniature Tunnel Signal Head, Red Yellow Green, 110Vac/120Vdc, Proved, Roof Mounted
Contact Unipart Dormn	MLTSH/RYGYP/IP/R	LED 4-Aspect Miniature Tunnel Signal Head, Red Yellow Green Yellow, 110Vac/120Vdc, Proved, Roof Mounted

Performance characteristics compliant with: UK Network Rail specifications & Railway Group Standards

Approval Certificate Numbers

Miniature Tunnel Signal
PoSA

PA05/02316
PA05/04356

Key Specifications

Operating Temperature Range
Nominal Operating Voltage
Operating Voltage Range
Nominal Operating Current

- 6°C to + 23°C
110 Vac
Max 121Vac Min 88Vac
300mA @ 110Vac

Current Proving

Relay Based Interlocking
Solid State Interlocking (SSI)
Sealing of LED Modules
Sealing of Housing
Weight - Miniature Tunnel Signal
Weight - PoSA

BR941A
Return Current Path 1 or 4
IP65
IP54
12kg
14kg



LED Miniature Tunnel Signal with PoSA Aspect

Catalogue No	Unipart Dorman Part No	Description
0086/077145	MLP/RYGYYWW/IP/R	LED 4-Aspect Miniature Tunnel Signal PoSA, Red Yellow Green Yellow White White, 110Vac/120Vdc, Proved, Roof Mounted
0086/077151	MLP/RYGYYWW/IP/G	LED 4-Aspect Miniature Tunnel Signal PoSA, Red Yellow Green Yellow White White, 110Vac/120Vdc, Proved, Ground Mounted
-	D864ASPOSACONV	4 Aspect PoSA Signal Conversion to Ceiling Mounted unit
-	D863ASPOSACONV	3 Aspect PoSA Signal Conversion to Ceiling Mounted unit

LED Banner Repeating Signal

- Fitting a Unipart Dorman Banner Repeater Signal does not require any additional bespoke mounting brackets, tail cables or disconnection boxes - saving design, procurement & labour costs
- Directly interchangeable with fibre optic units
- LED Technology gives a long and predictable service life
- Uses the same housing as the Theatre Indicator
- Hinged module to enable easy cleaning & maintenance from a place of safety
- 120Vdc version available



Catalogue No	Unipart Dorman Part No	Description
0086/001320	T/BANNER500P/IS	LED Banner Repeater 500mA nominal
0086/001346	T/BANNER300P/IS	LED Banner Repeater 300mA nominal
0086/001339	T/BANNERGRN-/IS	LED 3 State Green Banner Repeater signal 300mA nominal
0050/000729	-	Out of use mask

Performance characteristics compliant with: UK Network Rail specifications & Railway Group Standards

Compliances

Railway Group Standards
Network Rail

GK/RT0045
BR 1651 Part 3

Approval Certificate Numbers

PA05/02592 - 2 state
PA05/03054 - 3 state

Key Specifications

Operating Temperature Range -25°C to +40°C
Nominal Operating Voltage (AC) 110Vac
AC Operating Voltage Range Max 121 Vac Min 88Vac
DC Operating Voltage Range 88-145Vdc
Nominal Operating Current with proving
0086/001339 300mA at 110Vac
0086/001346 300mA at 110Vac
0086/001320 500mA at 110Vac

Sealing of LED Modules

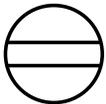
IP65

Terminals 1&2
Terminals 3&4
Terminals 5&6

On (White)
Off (White)
Off (Green)

Weight (maximum)

Inner & Outer signal combined 35kg
Inner enclosure only 29.5kg



ON (White) Be prepared to find the related Colour Light Signal at **STOP**



OFF (White) Related Colour Light Signal is exhibiting a **PROCEED** aspect



OFF (Green) Related Colour Light Signal is exhibiting a **GREEN** aspect

LED Universal Semaphore Lamp

Approval Certificate Number PA05/03335

- Simple to install
- Low and High Intensity versions available
- Can be fitted to most semaphore signals
- Volt free contact provided - high intensity version can be current proved
- Backlight incorporated for visual lamp proving
- Operating Voltage Range

Low Intensity Lamp (6Vdc)

Operating Voltage Range 4-18Vdc
 Nominal Operating Current 35mA
 Weight 2kg (max)

High Intensity Lamp (12Vdc)

Operating Voltage Range 10-14Vdc
 Nominal operating Current 350mA
 Weight 2kg (max)

- Proving contact 30Vdc at 100mA maximum
- Eradicates the handling of hazardous substances
- Battery box available
- Supplied with tall and short bases to enable fitting to most semaphore signal applications
- Red lens filter kit available which allows the Universal Semaphore Lamp to display a red light when used as Buffer Stop Lights and Swing Bridge Lights (Not to be used as navigation lights)



Unipart Dorman Part No	Description	Catalogue No
USL2/WW/P/E-/LE	Universal Semaphore Lamp (Elevated) with external supply (Low Intensity)	0086/009195
USL2/WW/P/E-/HE	Universal Semaphore Lamp (Elevated) with external supply (High Intensity)	0086/009196
USL2/WW/P/B-/LG	Universal Semaphore Lamp (Ground Mounted) with internal batteries (Low Intensity)	0086/009197
USL2/WW/P/E-/LG	Universal Semaphore Lamp (Ground Mounted) with external supply (Low Intensity)	0086/009198
D79.78027	Universal Semaphore Lamp - Red Filter Fitting Kit	0086/009199

LED Semaphore Lamp and Bracket (Internal Module Assemblies)

Approval Certificate Number PA05/02786

- LED Technology
- Bespoke to customer specification
- Fits existing paraffin lamp housings (Great Western and Adlake)
- Lamp Proving Capability
- Operating Voltage Range
4 - 18Vdc
Nominal Current 35mA
- Proving contact 30Vdc at 100mA Maximum
- Backlight incorporated
- Battery box available



0086/009863



0086/009861



0020/044900



0020/045500

Adlake
55/13 Square case
Semaphore
Lamp & Bracket

Great Western
8 inch round case
Semaphore
Lamp & Bracket

Unipart Dorman Part No	Description	Catalogue No
SSM/WW/P/I	LED Semaphore Lamp assembly (excl mounting plate)	0086/009194
LED Semaphore Lamp assembly complete with mounting plates to suit:-		
SSM/WW/P/I/GW	Pre-1982 WR/GWR 8" round case	0086/009860
SSM/WW/P/I/SA	Post-1982 WR 8" round case with Adlake lens	0086/009861
SSM/WW/P/I/AD	'Adlake' 55/13 square case	0086/009863

LED Semaphore Signal Battery Box

Approval Certificate Number PA05/03100

- Simple to install
- Designed to be accessible from ground level which reduces “working at height” risks
- Constructed from an aluminium casting for resistance to vandalism
- Contributes to a cleaner environment by reducing the carbon emissions caused by paraffin lamps
- Can be fitted to any signal post
- Capable of mounting on a bulkhead/wall
- 2BA terminal block and slip link termination
- Capacity inside each box to house sufficient batteries for 2 semaphore signals
- 3 month battery change interval
- Access via a padlocked door
- Easily maintained by a single person
- Eradicates the handling and storage of hazardous substances

Used in conjunction with Unipart Dorman Air Alkaline DAAB50 Batteries

Catalogue No	Unipart Dorman Part No	Description
0086/009190	SSM/WW/BB	Battery Box
0054/128366	BI3.12170	DAAB 50 Battery - Pack of 12



LED Semaphore Lamp Spectacle Filters

Only to be used in conjunction with LED or Filament Light Sources

Approval Certificate Number PA05/03168

Listed below are the most common filter size and shape combinations. If you require a different filter to the ones shown please contact Unipart Dorman to use the 'User Specified Dimension' filter service.

Catalogue No	Unipart Dorman Part No	Colour	Size (mm) Thickness = 3mm	Circle/ Oval	BR drawing No	Description
0086/009026	B79.78017	Red	229 x Ø171	Oval	BRS-SM 28/1	Polycarbonate Spectacle for U.Q. Signal. Main
0086/009027	B79.78018	Yellow	229 x Ø171	Oval	BRS-SM 28/2	Polycarbonate Spectacle for U.Q. Signal. Main
0086/009028	B79.78019	Green	Ø222	Circle	BRS-SM 28/3	Polycarbonate Spectacle for U.Q. Signal. Main (Also fits L.Q. BR-WR GW170 pattern)
0086/009029	B79.78020	Red	205 x Ø124	Oval	BRS-SM 28/4	Polycarbonate Spectacle for U.Q. Signal (Miniature)
0086/009030	B79.78021	Yellow	205 x Ø124	Oval	BRS-SM 28/5	Polycarbonate Spectacle for U.Q. Signal (Miniature)
0086/009031	B79.78022	Green	Ø162	Circle	BRS-SM 28/6	Polycarbonate Spectacle for U.Q. Signal (Miniature)
0086/009032	B79.78025	Red	Ø174.62	Circle	BR-WR GWR170	Polycarbonate Spectacle (Ø6 1/16")
0086/009033	B79.78029	Yellow	Ø175	Circle	BR-WR GWR170	Polycarbonate Spectacle (Ø6 1/16")
0086/009034	B79.78027	Red	Ø55.6	Circle	-	Polycarbonate Spectacle (Ø2 1/16")
0086/009035	B79.78026	Yellow	Ø63.5	Circle	-	Polycarbonate Spectacle (Ø2 1/2")
0086/009036	B79.78024	Red	Ø63.5	Circle	-	Polycarbonate Spectacle (Ø2 1/2")
0086/009037	B79.78031	Red	-	-	-	Polycarbonate Spectacle (User specified dimensions).
0086/009038	B79.78032	Yellow	-	-	-	Polycarbonate Spectacle (User specified dimensions).
0086/009039	B79.78033	Green	-	-	-	Polycarbonate Spectacle (User specified dimensions).

LED Position Light Signal (Including Subsidiary and Limit of Shunt Signal)

Fully approved LED position light signals, subsidiary signals and limit of shunt signals

- Directly interchangeable with all existing filament lamp models
- No design changes at site required
- Reduces risk of wrong side failures
- LED life in excess of 10 years
- Universal application for both lamp proved or non-lamp proved sites
- Ground mounted or elevated versions available
- Innovative lens cleaning facility



The range of LED position light signals introduces the latest technology into standard signalling equipment, reducing maintenance costs and increasing reliability.



Light Measuring
Tool for Position
Light Signal
Cat No 0086/009922

All models incorporate lamp proving and are suitable for sites with or without lamp proving

	Limit of Shunt Signal	Subsidiary Signal	Position Light Signal	Position Light Signal
	R/R	W/W	R/W R/W	Y/W Y/W
Elevated	0086/001311 GPL2/RORO/I/P/O	0086/001309 GPL2/WOOW/I/P/O	0086/001307 GPL2/RWRW/I/P/O	0086/001313 GPL2/YWYW/I/P/O
Ground	0086/001310 GPL2/RORO/I/P/G	0086/001308 GPL2/WOOW/I/P/G	0086/001306 GPL2/RWRW/I/P/G	0086/001312 GPL2/YWYW/I/P/G

Key:

W = White; R = Red; R/W = Red or White; Y/W = Yellow or White

Performance characteristics compliant with: UK Network Rail specifications & Railway Group Standards

Compliances

Railway Group Standards
Network Rail

GK/RT0045, GK/RT0037
NR/SP/SIG/10110

Approval Certificate Numbers

Position Light Signal Module
Housing

PA05/592, PA05/1133
PA05/1038

Key Specifications

Operating Temperature Range
Nominal Operating Voltage
Operating ac Voltage Range
Nominal Operating Current (ac)
Operating dc Voltage Range

-25°C to +40°C
110Vac / 120Vdc
Max 121Vac Min 88Vac
300m A @ 110V ac per light source
Max 145 vdc Min 88Vdc

Current Proving

Relay Based Interlocking
Solid State Interlocking (SSI)

BR941A
Return Current Path 1 or 4

Light Output Intensity (all colours)

)
On axis light outputs

±45° (NR/SP/SIG/10110)

Red	17.7 cd min	44.2 cd max
Yellow	21.7 cd min	54.2 cd max
Lunar White	26.8 cd min	67.0 cd max

Constant light output throughout voltage range and signal life

Light Output Colour

Red
Yellow
Lunar White

BS1376 Class C (Restricted)
BS1376 Class B
BS1376 Class C (Restricted)

Aspect Configurations

Ground mounted
Elevated mounted

Below driver's eye level 2.75m above rail
At or above the drivers eye level 2.75m above rail

All units fitted with visor
Max number of aspects per aperture
Flashing Aspects

250mm long
2
All aspects are capable of being flashed under control of the interlocking

Sealing of LED Modules

IP65

Weight

20kg

Performance Category (GK/RT0045)

3 (Readable up to 100m)

LED Signal Lamp Module

Used as a basis on a wide variety of signals and other projects

- Available in Red, White, Yellow, Blue and Green single aspect modules
- Also available as 2 aspect modules in Red / White, Yellow / White, Red / Yellow, Green / Yellow and Red / Green
- Elevated version used at greater than 2.75m above the rail height and Ground version used below 2.75m
- Current based Lamp Proving capability where required
- 110 Vac, 120Vdc and 24Vdc versions available
- Operating temperature range of -25°C to +40°C
- Sealed to IP65 standard
- Simple fixing using three M6 Bolts

Please contact Unipart Dorman with your requirements



LED Departure Direction Points Indicator

Approval Certificate Number	PA05/04180
Catalogue No	0086/021018
Unipart Dorman Part No	DDPH1/RB/2/N/G (Ground)

The Unipart Dorman LED Departure Direction Points Indicator utilises proven technology already used in the LED Drivers Crossing Indicator, and uses red and blue aspects to indicate to a driver the position Points are set at before leaving a station.

- Supplied complete with backboard
- Nominal Voltage 24 Volts DC
- Nominal operating voltage range 18 – 31.2 Volts DC
- Operating current 0.15 amps
- Operating temperature range -25 to +40° Celsius
- Ingress Protection rating IP54
- Complies with GK/RT/0045
- Comes complete with 320mm visors
- Extended Visor and Anti Vandal Guard options are available - please contact Unipart Dorman for details



LED Points Indicator

Approval Certificate Number
Catalogue No
Unipart Dorman Part No

PA05/02971
0086/017721
DPIHI/R/Y/2/N/O (Elevated)

The Unipart Dorman LED Points Indicator uses red and yellow aspects to indicate to a driver the position Points are set to at a junction.

- Supplied complete with backboard assembly bearing the legend 'Points Indicator'
- Nominal Voltage 24 Volts DC
- Nominal operating voltage range 18 – 31.2 Volts DC
- Operating current 0.15 amps
- Operating temperature range -25 to +40° Celsius
- Ingress protection rating IP54
- Complies with GK/RT/0045
- Comes complete with 320mm visors
- Extended Visor and Anti Vandal Guard options are available - please contact Unipart Dorman for details



LED Position Light Junction Indicator (Junction Route Indicator)

Network Rail Product Acceptance No PA05/01411 (module)

Network Rail Product Acceptance No PA05/01755 (housing)

- HMRI Certificate of Approval PRI28732
- Housing compliant with BRS-SE 152
- Fully interchangeable with existing filament indicators
- Compatible with existing SSI and RRI installations
- Increased infrastructure reliability and staff safety
- Reduced maintenance costs
- LED light sources give a long and predictable service life
- Constant light output throughout the life of the indicator
- Hinged assembly to enable easy cleaning and maintenance from a place of safety
- Unique optical arrangement to reduce the possibility of a signal phantom
- Nominal supply voltage of 110V ac
- Not affected by variations in supply voltage
- LED aspects are sealed modules to IP65



Light Measuring
Tool for Position
Light Junction
Indicator
Cat No 0086/009922

LED Version Cat No	Position
0086/021001	1
0086/021002	1 + 2
0086/021003	4
0086/021004	4 + 5
0086/021005	1 + 4
0086/021006	1 + 2 + 4
0086/021007	1 + 4 + 5
0086/021008	1 + 2 + 3
0086/021009	4 + 5 + 6
0086/021010	1 + 2 + 3 + 4
0086/021011	1 + 4 + 5 + 6
0086/021012	1 + 2 + 3 + 4 + 5
0086/021013	1 + 2 + 4 + 5 + 6
0086/021014	1 + 2 + 3 + 4 + 5 + 6
0086/021015	1 + 2 + 4 + 5
0086/020955	Replacement Module (JIM2/WW/1/P/O)

Performance characteristics compliant with: UK Network Rail specifications & Railway Group Standards

Compliances

Railway Group Standards GK/RT0045, GK/RT0037
Network Rail BRS-SE 152, BRS-SE 156/I

Approval Certificate Number

Junction Indicator Module PA05/01411
Housing PA05/01755

Key Specifications

Operating Temperature Range -25°C to +40°C
Nominal Operating Voltage 110V ac
Operating Voltage Range Max 121Vac Min 88Vac
Nominal Operating Current (per module) 250mA @ 110Vac
Nominal Operating Current of 5 Modules 1.250A @ 110Vac

Current Proving

Relay Based Interlocking BR942
Solid State Interlocking (SSI) Return Current Path 3

Constant light output throughout voltage ranges and life of indicator

Light Output Colour

Lunar White BS1376 Class C (Restricted)

Aspect Configurations

Any combination between positions 1 and 6

Sealing of LED Modules

IP65

Sealing of Housing

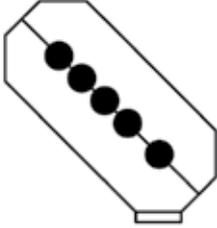
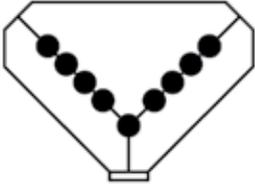
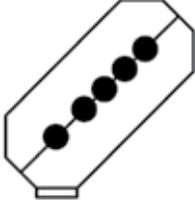
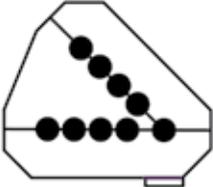
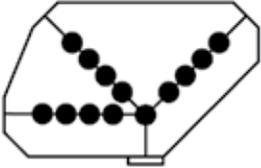
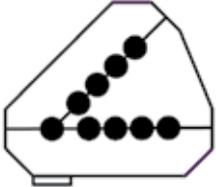
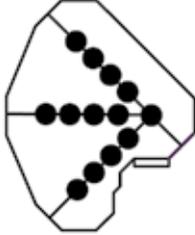
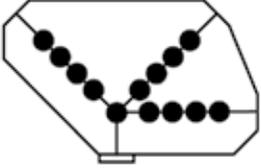
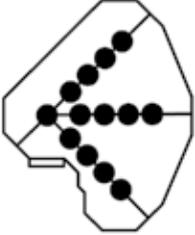
IP54

Weight

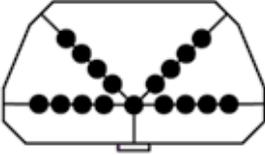
1 Arm Junction Indicator 43kg
2 Arm Junction Indicator 67kg
3 Arm Junction Indicator 91kg
4 Arm Junction Indicator 110kg
5 Arm Junction Indicator 135kg
6 Arm Junction Indicator 165kg

LED Position Light Junction Indicator (Junction Route Indicator)

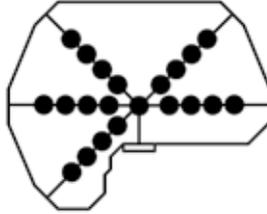
Pictorial representation viewing indicators from the drivers perspective

<p>0086/021001 Position 1 PLJIS/1-----/PO</p> 	<p>0086/021005 Position 1+4 PLJIS/1--4--/PO</p> 	<p>0086/021003 Position 4 PLJIS/---4--/PO</p> 
<p>0086/021002 Position 1+2 PLJIS/12----/PO</p> 	<p>0086/021006 Position 1+2+4 PLJIS/12-4--/PO</p> 	<p>0086/021004 Position 4+5 PLJIS/---45-/PO</p> 
<p>0086/021008 Position 1+2+3 PLJIS/123---/PO</p> 	<p>0086/021007 Position 1+4+5 PLJIS/1--45-/PO</p> 	<p>0086/021009 Position 4+5+6 PLJIS/---456/PO</p> 

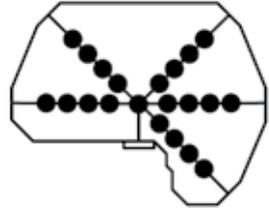
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Position 1+2+4+5
PLJIS/12-45-/PO



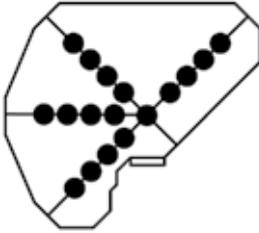
0086/021012
Position 1+2+3+4+5
PLJIS/12345-/PO



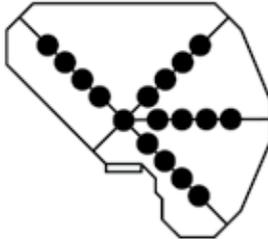
0086/021013
Position 1+2+4+5+6
PLJIS/12-456/PO



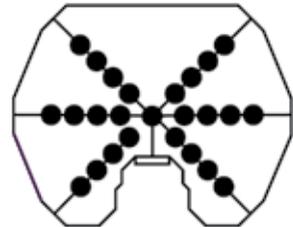
0086/021010
Position 1+2+3+4
PLJIS/1234--/PO



0086/021011
Position 1+4+5+6
PLJIS/1--456/PO



0086/021014
Position 1+2+3+4+5+6
PLJIS/123456/PO



LED Preliminary Route Indicator, (PRI)

- LED Technology gives a long and predictable service life
- All indications are lamp proved
- Compatible with SSI & RRI
- Hinged assembly to enable easy cleaning & maintenance from a place of safety
- Reduced maintenance costs
- 120Vdc version available



Catalogue No	Unipart Dorman Part No.	Position
0086/021026	P/01-----/IS	0 + 1
0086/021027	P/012----/IS	0 + 1 + 2
0086/021028	P/0---4--/IS	0 + 4
0086/021029	P/0---45-/IS	0 + 4 + 5
0086/021030	P/01--4--/IS	0 + 1 + 4
0086/021031	P/012-4--/IS	0 + 1 + 2 + 4
0086/021032	P/01--45-/IS	0 + 1 + 4 + 5
0086/021033	P/0123---/IS	0 + 1 + 2 + 3
0086/021034	P/0---456/IS	0 + 4 + 5 + 6
0086/021035	P/01234--/IS	0 + 1 + 2 + 3 + 4
0086/021036	P/01--456/IS	0 + 1 + 4 + 5 + 6
0086/021037	P/012345-/IS	0 + 1 + 2 + 3 + 4 + 5
0086/021038	P/012-456/IS	0 + 1 + 2 + 4 + 5 + 6
0086/021039	P/0123456/IS	0 + 1 + 2 + 3 + 4 + 5 + 6
0086/021044	P/012-45-/IS	0 + 1 + 2 + 4 + 5
0050/000729	-	Out of use mask

Performance characteristics compliant with: UK Network Rail specifications & Railway Group Standards

Compliances

Railway Group Standards	GK/RT0045
Network Rail	BR 1651 PtI

Approval Certificate Number

LED PRI	PA05/03338
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Key Specifications

Operating Temperature Range	-25°C to +40°C
Nominal Operating Voltage (AC)	110Vac
AC Operating Voltage Range	Max 121Vac Min 88Vac
DC Operating Voltage Range	88-145Vdc
Nominal Operating Current with lamp proving	300mA @ 110Vac

Sealing of LED Modules

IP65

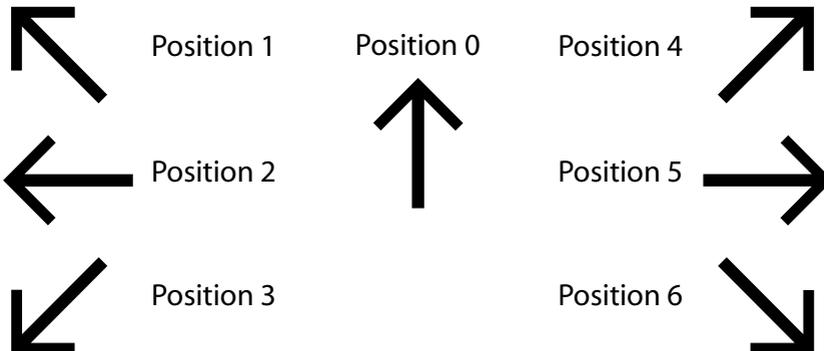
Inner & outer signal combined

35kg

Inner enclosure only

29.5kg

Indicator Positions



LED Standard Alphanumeric Route Indicator (Theatre)

- LED technology gives a long and predictable service life
- LED alpha numeric route indicator
- Made to specific customer requirements
- All indications are lamp proved
- Readability to Category 2 (250m)
- Hinged assembly to enable easy cleaning & maintenance from a place of safety
- 120Vdc version available



Catalogue No	Unipart Dorman Part No.	Description
0086/021040	T/SPECIAL 1 IND/IS	Standard LED, Alphanumeric Route Indicator Special 1 Indication 110V (Theatre)
0086/021040	T/SPECIAL 2 IND/IS	Standard LED Alphanumeric Route Indicator Special 2 Indication 110V (Theatre)
0086/021040	T/SPECIAL 3 IND/IS	Standard LED Alphanumeric Route Indicator, Special 3 Indication 110V (Theatre)
0086/021040	T/SPECIAL 4 IND/IS	Standard LED Alphanumeric Route Indicator Special 4 Indication 110V (Theatre)
0086/021040	T/SPECIAL 5 IND/IS	Standard LED Alphanumeric Route Indicator Special 5 Indication 110V (Theatre)
0086/021040	T/SPECIAL 6 IND/IS	Standard LED Alphanumeric Route Indicator Special 6 Indication 110V (Theatre)
0050/000729	-	Out of use mask

Performance characteristics compliant with: UK Network Rail specifications & Railway Group Standards

Compliances

Railway Group Standards	GK/RT0045
Network Rail	BR 1651 PtI

Approval Certificate Number

Theatre Indicator	PA05/2433
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Key Specifications

Operating Temperature Range	-25°C to +40°C
Nominal Operating Voltage (AC)	110Vac
AC Operating Voltage Range	Max 121Vac Min 88Vac
DC Operating Voltage Range	88-145Vdc
Nominal Operating Current with lamp proving	300mA @ 110Vac

Sealing of LED Modules	IP65
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Inner & outer signal combined	35kg
Inner enclosure only	29.5kg

Max. no. of Indications per Indicator

Below are examples of the **maximums** for the bespoke Theatre indications

T/1:2:3:4:5:6/IS	}	6 single character indications
T/A:B:C:D:E:F/IS		
T/10:11:12---/IS	}	3 two characters indications if I is one of the characters
T/A1:B1:C1--/IS		

Advice on the complexity of the indications to be sought from Unipart Dorman prior to ordering

LED Miniature Alphanumeric Route Indicator (Stencil)

- LED technology gives a long and predictable service life
- LED alpha numeric route indicator
- Made to specific customer requirements
- Available in either single or double sided
- All indications are lamp proved
- Hinged assembly to enable easy cleaning & maintenance from a place of safety
- Readability to Category 5 (65m)
- Extended visor available



Catalogue No	Unipart Dorman Part No.	Description
0086/021020	Contact Unipart Dorman for details	LED Miniature Alphanumeric Route Indicator (Stencil), 110V, Single sided, (display to be specified by customer) with 1, 2, 3 or 4 Indications
0086/021022	S/RA - - - - - /IS	LED Miniature Alphanumeric Route Indicator (Stencil), 110V, Single sided "RA"
0086/021023	S/OFF - - - - - /IS	LED Miniature Alphanumeric Route Indicator (Stencil), 110V, Single sided "OFF"
0086/021024	S/CD - - - - - /IS	LED Miniature Alphanumeric Route Indicator (Stencil), 110V, Single Sided "CD"
0086/021025	S/CD:RA - - - - /IS	LED Miniature Alphanumeric Route Indicator (Stencil), 110V, Single sided "CD + RA"
0086/021021	Contact Unipart Dorman for details	LED Miniature Alphanumeric Route Indicator (Stencil), 110V, Double sided (display to be specified by customer) with 1, 2, 3 or 4 Indications
0050/000731	-	Out of use mask
0086/021019	D82.83927	Visor extension kit

Performance characteristics compliant with: UK Network Rail specifications & Railway Group Standards

Compliances

Railway Group Standards	GK/RT0045
Network Rail	BR 1651 Pt2

Approval Certificate Number

Stencil Indicator	PA05/01071
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Key Specifications

Operating Temperature Range	-25°C to +40°C
Nominal Operating Voltage	110Vac
Operating Voltage Range	Max 121Vac Min 88Vac
Nominal Operating Current with Lamp Proving	300mA @ 110Vac

Sealing of LED Modules	IP65
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Single Sided Indicator Weight	14kg
Double Sided Indicator Weight	27kg

Max. no. of Indications per Indicator

Below are examples of the **maximums** for the bespoke Stencil indications

S/1:2:3:4---/IS	4 single character indications
S/A:B:C:D---/IS	4 single character indications
S/DM:DR:UR--/IS	3 - two character indications
S/SG1:SG2---/IS	2 - three character indications

Below is an example of the **maximums** for the bespoke double sided stencil indications S/CD:RA - - - - /ID

Advice on the complexity of the indications to be sought from Dorman prior to ordering

LED Road Traffic Light Signals for Railway Level Crossings (Wig Wag)

Compliant with EN 12368:2000 as defined in TR 2206:Issue A:2001 specification for Road Traffic Signals

- Increased safety and reliability
- Greatly reduced maintenance costs
- LED light sources give a long and predictable service life
- Reduced vandal risk
- Unique optical arrangement reduces the possibility of a display phantom
- Nominal supply voltage of 24Vdc or 12Vdc
- Less affected by variations in supply voltage than quartz halogen lamps
- Can be bulkhead mounted
- Improved visor mounting arrangements
- Modules are sealed to IP55
- Replacement LED modules available
- Extended visor option available



0086/023394

Catalogue No	Description
0086/023394	24Vdc LED Wig-Wag backboard Assembly-(Complete Signal) Standard
0086/023449	24Vdc LED Wig-Wag Backboard Assembly-(Complete Signal) Narrow
Please contact Unipart Dorman	12Vdc LED Wig-Wag backboard Assembly-(Complete Signal) Standard
Please contact Unipart Dorman	12Vdc LED Wig-Wag Backboard Assembly-(Complete Signal) Narrow
0086/023395	Red Wig Wag Module (24Vdc)
0086/023396	Yellow Wig Wag Module (24Vdc)
Please contact Unipart Dorman	Extended Visor for Unipart Dorman Wig Wag
Please contact Unipart Dorman	Extended Visor for Non Unipart Dorman Wig Wag

Performance characteristics compliant with: UK Network Rail specifications & Railway Group Standards

Compliances

European Standards EN 12368:2006

Approval Certificate Numbers

Signal Heads PA05/02434
Lamp and Backboard Assembly PA05/02900

Key Specifications

Operating Temperature Range +60°C to -25°C
Nominal Operating Voltage 24Vdc
Operating Voltage Range Max 31.2Vdc Min 18.0Vdc
Nominal Operating Voltage 12Vdc
Operating Voltage Range 10-14Vdc
Nominal Operating Current 900mA @ 24Vdc per light source
Illuminated Area 205mm diameter

Current Proving

Relay Based Interlocking BR966 F10 pin code 062 (0086/023451)
Flashing Aspects

All aspects must be flashed under the control of an electronic flasher unit.
Flasher unit HRP78500 085/002475

Performance Level Class A 3/2
Luminous Intensity Distribution M

Light Output Colour

Red and Yellow 1931 CIE boundaries as defined in
EN 12368:2000

Maximum Phantom Signal Class 5
Environmental Class A
IP Rating IP55 Class IV
Impact Resistance IR3

Weight

Weight of Module 4.4kg
Weight of Built Up Signal 46.8kg

LED Miniature Stop Light (Red and Green Crossing Lights)

- LED technology
- Directly interchangeable with existing filament units
- No design changes at site required
- Fits directly onto existing post
- LED light source gives a long service life
- Improved visibility
- Increased safety and reliability
- Reduced maintenance costs
- Steel mesh anti-vandal guard available
- Not affected by variations in supply voltage
- Supply Voltage 110 Vac / 120 Vdc
- “Phone Crossing Operator” and “Proceed with Caution” versions available
- Dual language units available to customers specification
- For concrete base see 0004/012657
- For mounting post see 0086/024920



Catalogue No	Unipart Dorman Part No	Description
0086/009260	MSLH2/RG/I/P/G	Miniature Stop Light Head, 2 Aspect, Red, Green, 110Vac/120Vdc, Proved, Ground (Phone Crossing Operator) 107
0086/009263	MSHMW2/RG/I/P/G	Miniature Stop Light Head, 2 Aspect, Red, Green, 110Vac/120Vdc, Proved, Ground, Bi-lingual English/Welsh (Phone Crossing Operator) 107
0086/009261	MSLC2/RG/I/P/G	Miniature Stop Light Head, 2 Aspect, Red, Green, 110Vac/120Vdc, Proved, Ground (Proceed With Caution) 108
0086/009264	MSCMW2/RG/I/P/G	Miniature Stop Light Head, 2 Aspect, Red Green, 110Vac/120Vdc, Proved, Ground, Bi-lingual English/Welsh. (Proceed With Caution) 108
0088/026985	D81.80130	Mesh Anti Vandal Guard
0086/001294	SLM2/R-/I/P/G	LED Signal Lamp Module, Red, 110Vac/120Vdc, Proved, Ground, with Visor
0086/001299	SLM2/G-/I/P/G	LED Signal Lamp Module, Green, 110Vac/120Vdc, Proved, Ground, with Visor

Performance characteristics compliant with: UK Network Rail specifications & Railway Group StandardsApproval Certificate Number

Miniature Tunnel Signal

PA05/02619

Key Specifications

Operating Temperature Range

- 25°C to + 40°C

Nominal Operating Voltage

110 Vac / 120Vdc

Operating Voltage Range

Max 121Vac Min 88Vac

Max 145Vdc Min 88Vdc

Nominal Operating Current

300mA @ 110Vac

per light source

Current Proving

Relay Based Interlocking

BR941A

Mounting Arrangements

Mounting Post

60.3mm Dia

Post Drawing

BRS - SM 91

Sealing of LED Modules

IP65

Sealing of Housing

IP54

Weight

17kg

LED Drivers Crossing Indicator

- Increased safety and reliability
- Reduced maintenance costs
- Directly interchangeable with existing units
- Fits directly onto existing post
- LED light sources give a long service life
- Improved visibility, readable at 800m
- 24Vdc supply
- Red aspect incorporates its own flash controller
- White aspect to be flashed from external flash unit
- Steel mesh anti vandal guard available
- Extended visors available



Catalogue No	Unipart Dorman Part No	Description
0088/028781	DCIHI/RW/2/PN/O	LED Drivers Crossing Indicator & Bracket
0088/028782	D82.81646	Blanking plate for existing mount assembly
0088/026985	D81.80130	Steel mesh anti vandal guard
Please contact Unipart Dorman	-	Extended visor

Performance characteristics compliant with: UK Network Rail specifications & Railway Group Standards

Compliances

Railway Group Standards GK/RT0045

Approval Certificate Number

PA05/2620

Key Specifications

Operating Temperature Range -25°C to +40°C
 Nominal Operating Voltage 24Vdc
 Operating Voltage Range Max 31.2Vdc Min 18.0Vdc
 Nominal Operating Current Source Red 0.15A @ 24Vdc
 White 1.9A @ 24Vdc
 Average Current Red 40 mA
 50/50 duty cycle

Flashing Aspects

Red flash rate 120FPM
 White steady Can be flashed by external flash unit

Sealing of LED Modules

IP65

Sealing of Housing

IP54

Weight (maximum)

Drivers Crossing Indicator Assembly 17kg
 Interface Bracket only 10kg
 Total weight 27kg

LED Barrier Boom Light

Approval Certificate Number PA05/00273

- Virtually zero maintenance cost
- Quick and easy to fit in the time it takes to replace a filament lamp
- Vandal resistant body
- Polycarbonate lenses in vandal proof assembly
- Requires no additional hood or fittings
- Capable of withstanding the severest of shocks
- Fully compliant with line specification RT/E/S/10073
- Uses high brightness LEDs (Signal Red Class B illumination)
- MTBF of 29 years in normal use
- Sealed for life to IP54
- Available in 24Vdc or 12Vdc versions
- Maximum operating current 50mA



Catalogue No	Unipart Dorman Part No	Description
0086/028738	BBL2N/R	24Vdc LED Barrier Boom Light
0086/024174	BBL2N/R/2	12Vdc LED Barrier Boom Light

LED Level Crossing Supplementary Lights

'Standing Red Man' used at pedestrian gates

'Another Train Coming' used to warn people not to cross even though a train has passed

LED Floodlight used in rural areas to give train drivers confidence the crossing is not obstructed

- Based on proven LED Wig Wag Module Technology
- Designed to increase crossing safety
- Available in 12Vdc or 24Vdc format (except Floodlight - 24Vdc only)
- Units sealed to IP55
- Supplied with mounting hardware or can be Bulkhead Mounted
- Provision for Lamp Proving
- Easily retro-fitted to existing mountings



Key Specifications

Operating temperature range	-25°C - +60°C
Nominal operating voltage (24V)	24Vdc
Operating voltage range (24V)	18-31Vdc
Nominal operating current (24V)	900mA



Catalogue No	Unipart Dorman Part No	Description
0086/000037	LWWAT/R/2/50/01	24Vdc LED Another Train Coming Signal & Mounting Bracket
0086/024195	LWWSM/R/2/50/01	24Vdc LED Standing Red Man Signal & Mounting Bracket
Please contact Unipart Dorman		24Vdc LED Level Crossing Floodlight & Mounting Bracket

LED Handlamp

- Unipart Dorman LED Handlamps have a life 250% Energy saving over filament lamps giving a longer battery life of 20 hours (continuous use) Battery costs are reduced by over 60%
- Direct replacement for the existing NRS (formerly Bardic) handlamp
- Over 50% lighter than the existing NRS (formerly Bardic) handlamp
- Made from high impact resistant polycarbonate
- Fitted with a Battery OK indicator light - tells the user that there is at least 8 hours usage available before the lamp falls below the specified light output
- 3 & 4 aspect versions available



Performance characteristics compliant with: UK Network Rail specifications & Railway Group Standards

<u>Approval Certificate Number</u>	PA05/02888
<u>Aspect Colours</u>	
Four aspect lamp sequence of colours	Red, Yellow, Green, White
Three aspect lamp sequence of colours	Red, Green, Red, White
<u>Estimated Service Life</u>	
LED's have a life in excess of 10 years (continuous use)	
Battery life of 20 hours (continuous use)	
<u>Weight</u>	
LED Handlamp	375g
LED Handlamp battery	180g
Total weight of Handlamp & Battery	555g

Catalogue No	Unipart Dorman Part No	Description
0094/008052	RH2N/RGRW/P/OG	3 Aspect LED Handlamp
0094/008050	RH2N/RYGW/P/OG	4 Aspect LED Handlamp
0094/008051	B91.90018	Replacement Battery

LED Possession Limit Board

Approval Certificate Number PA05/308

- High intensity red flashing LEDs both sides
- Lightweight portable design with integral carry handles
- High intensity retro-reflective red stop sign on both sides recessed to protect the surface of the sign
- Integral rail mounting device made from impact resistant polycarbonate
- Low battery LED indicator
- Supplied with two 50Ahr Air Alkaline batteries
- Battery box secured with thief proof bolt
- Stainless steel battery connections
- Battery life approximately 2200 hours
- Quick and easy to install
- Full range of replacement parts available



Catalogue No	Unipart Dorman Part No	Description
0057/072990	PLB6N/RR/01/001	Limit Possession Board
0054/128366	B13.12170	Replacement Battery - 50 Ah Air Alkaline Battery 12 per box
-	C60.59013	Replacement Key

LED MKII Marker Board

Approval Certificate Number PA05/292

- For use in marking engineering worksite limits within T3 possessions
- Lightweight portable design with integral carrying handle
- High intensity flashing LEDs – yellow on one side, red on other side
- Integral rail mounting device made from high impact resistant polycarbonate
- LED low battery indicator
- Supplied with two 50Ahr Air Alkaline batteries
- Battery box secured with thief proof bolt
- Stainless steel battery connections
- Battery life approximately 1100 hours
- Quick and easy to install
- Full range of replacement parts available

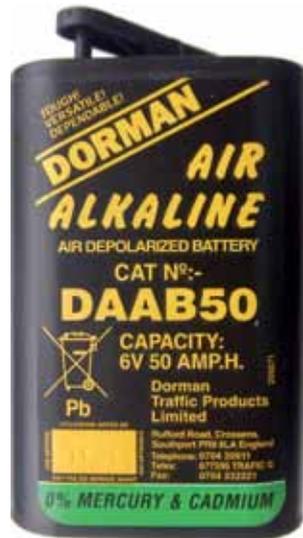


Catalogue No	Unipart Dorman Part No	Description
0020/039502	LMB6N/RA/03/001	LED MKII Marker Board
0054/128366	B13.12170	Replacement Battery - 50 Ah Air Alkaline Battery 12 per box
-	C60.59013	Replacement Key
-	LMB6N/AA/03/001	Export Version Only Yellow / Yellow

Air Alkaline Batteries

For use in Mk 3 Portable Tail Lamp, Possession Limit Board, Mk 2 Marker Board, Internally Powered Universal Semaphore Lamp and Semaphore Battery Box

- Works at temperatures as low as -20°C
- Does not contain any Mercury or Cadmium
- Greater life and reduced consumption means increased cost benefit
- DAAB50 Batteries last up to 8-10 times longer than zinc carbon batteries, meaning fewer battery changes are necessary, thereby reducing overall maintenance costs
- With fewer batteries used, disposal costs are considerably reduced



Catalogue No	Unipart Dorman Part No	Description
0054/128366	B13.12170	DAAB50 Battery (Supplied in packs of 12)

LED Fixed Marker Lamp

- Dramatically reduces train maintenance and running costs
- Unit can be quickly and easily fitted to existing lamp housing
- Increased safety and reliability
- Normally supplied with B22d bayonet connector fitted
Please contact Unipart Dorman for other connector options
- Designed to fit existing housing units
- Operating voltages available 110Vdc, 74Vdc and 24Vdc
- Increased visibility and safety is achieved by a unique optical system and use of LEDs
- Compliant with Railway Group Standard GM/RT2483 Issue 1



Performance characteristics compliant with: UK Network Rail specifications & Railway Group Standards

Description

Mounting options
Operating temperature

Details

Single, double & Triple units
-25°C to +55°C

Sealing when Fitted

Front of unit
Rear of unit
Body and lens material

IP 66
IP 44
High impact polycarbonate

Photometric Requirements

Type of light source
Colour of light output
Light output

LED
White
300 cd min on optical axis

Electrical

Nominal voltage
Nominal current
Nominal wattage

<u>110Vdc</u>	<u>74Vdc</u>	<u>24Vdc</u>
110V	74V	24V
25mA	25mA	125mA
2.75W	1.8W	3W

Unipart Dorman Part No	Description
LFM2N/W/01/A/00	LED Fixed Marker Lamp, 110V, to fit BMAC single light unit
LFM2N/W/01/B/02	LED Fixed Marker Lamp, 110V, to fit BMAC double light unit
LFM2N/W/01/A/04	LED Fixed Marker Lamp, 110V, to fit J Stone light unit
LFM2N/W/01/B/05	LED Fixed Marker Lamp, 110V, to fit class 4 tail light unit
LFM2N/W/01/B/06	LED Fixed Marker Lamp, 110V AMP Superseal connector, customer specified mounting ring
LFM2N/W/03/A/00	LED Fixed Marker Lamp, 74V, to fit BMAC single light unit
LFM2N/W/03/A/04	LED Fixed Marker Lamp, 74V, to fit J Stone light unit

LED Fixed Tail Lamp

- Dramatically reduces train maintenance and running costs
- Unit can be quickly and easily fitted to existing lamp housings
- Increased safety and reliability
- Normally supplied with B22d bayonet connector fitted
Please contact Unipart Dorman for other connector options
- Supply voltages available 110vdc, 74vdc and 24vdc
- Increased visibility and safety is achieved by a unique optical system and use of LEDs
- Compliant with Railway Group Standard GM/RT 2483:Issue 1



Performance characteristics compliant with: UK Network Rail specifications & Railway Group Standards

<u>Description</u>	<u>Details</u>
Mounting options	Single, Double & Triple BMAC units
Operating temperature	-25°C to +55°C

<u>Sealing when Fitted</u>	
Front of unit	IP 66
Rear of unit	IP 44
Body and lens material	High impact polycarbonate

<u>Photometric Requirements</u>	
Type of light source	LED
Colour of light output	Red
Light output	100cd min on optical axis

<u>Electrical</u>	<u>110v dc</u>	<u>74v dc</u>	<u>24v dc</u>
Nominal voltage	110v	74v	24v
Nominal current	25mA	25mA	75mA
Nominal wattage	2.75W	1.8W	1.8W

Unipart Dorman Part No	Description
LFT2N/R/01/A/00	LED Fixed Tail Lamp, 110V, to fit BMAC single light unit
LFT2N/R/01/B/02	LED Fixed Tail Lamp, 110V, to fit BMAC double light unit
LFT2N/R/01/B/03	LED Fixed Tail Lamp, 110V, to fit BMAC triple light unit
LFT2N/R/01/A/04	LED Fixed Tail Lamp, 110V, to fit J Stone light unit
LFT2N/R/01/B/05	LED Fixed Tail Lamp, 110V, to fit class 47 tail light unit
LFT2N/R/03/A/00	LED Fixed Tail Lamp, 110V, to fit BMAC single light unit
LFT2N/R/03/A/04	LED Fixed Tail Lamp, 110V, to fit J Stone light unit
LFT2N/R/02/A/00	LED Fixed Tail Lamp, 110V, to fit BMAC single light unit
LFT2N/R/02/B/02	LED Fixed Tail Lamp, 110V, to fit BMAC double light unit
LFT2N/R/02/B/03	LED Fixed Tail Lamp, 110V, to fit BMAC triple light unit
LFT2N/R/01/A/04	LED Fixed Tail Lamp, 110V, to fit J Stone light unit
LFT2N/R/01/B/06	LED Fixed Tail Lamp, 110V AMP Superseal connector, customer specified mounting ring



LED MK3 Portable Flashing Tail Lamp

- Compliant with Railway Group Standard GM/RT 2483 : Issue 1
- High reliability LEDs
- Impact resistant polycarbonate lens and one piece body moulding
- Retro-reflective label which can be printed with customer logo
- Battery life approximately 10,000 hours when continuously operated with two 50Ahr air alkaline batteries (PADS No 0054/128366)
- Battery condition constantly monitored and displayed on both sides of lamp.
- Electronic components sealed in compartment to IP65
- No body seals to be damaged when changing batteries
- Robust rotary switch incorporating a solid state optical device with no moving contact parts
- Integral bracket for mounting on standard lamp iron.
Other brackets are available, contact Unipart Dorman.
- Flash rate 120 flashes per minute
- Export versions available
- The Tail Lamp can be supplied with a permanently engraved customer logo
Please contact Unipart Dorman for details

Catalogue No	Unipart Dorman Part No	Description
0055/050319	BRTLN3/R	MK3 Portable Flashing Tail Lamp
0054/128366	B13.12170	50Ahr Air Alkaline Battery
-	B05.04018	Base
-	B17.16146	Bolt
0055/039690	D28.28010	Bracket & Fasteners

Portable Headlight

- Powered by integral rechargeable sealed lead acid battery
- Supplied with double insulated battery charger
- Compliant with Railway Group Standard GM/RT 2483 : Issue 1
- Quartz halogen lamp – 12V 8 Watt
- Up to 18 hours continuous use from a single charge
- Body manufactured from high impact resistance xenoy plastic
- Low battery warning LED indication
- Filament failure warning LED indication
- The Headlight can be supplied with a permanently engraved customer logo - Please contact Unipart Dorman for details



Catalogue No	Unipart Dorman Part No	Description
0017/070014	BRH2N/C	Portable Headlamp & Charger
0017/007201	BRH2N/C/NC	Portable Headlamp
0017/007200	B13.12104	Charger

LED Portable Headlight Spares

Catalogue No	Unipart Dorman Part No	Spare Parts Description
0017/070017	D57.56000	Front Lens Kit
0017/070019	D57.56001	Lens/Reflector Inc Clamps
0017/070020	B09.08007	Replacement Gasket
0017/070021	B09.08036	O Ring
0017/070022	D57.56002	Plastic Foot Kit
0017/070023	D29.28010	Bracket Kit Inc Fasteners
0017/070024	D57.56003	Case Bolt Kit
0017/070025	B05.04011	Charger Socket Cover
0017/070026	D57.56004	Rechargable Battery Kit
-	B13.12023	Switch Seal
0017/070027	D57.56005	Replacement Circuit
0017/070028	D57.56006	Replacement Lamp Kit
0017/070029	D57.56007	Charger Socket Kit
0017/070030	D57.56008	Head Lamp Rear Case
0017/070031	D57.56009	Head Lamp Rear Case plus Brackets

Products Approved for Overseas Markets

As well as our core UK products, Unipart Dorman manufactures a range of products for our overseas customers. The latest additions to our range include the LED 12V Barrier Boom Light and also the LED European Marker Tail Lamp (pictures below).

MK3 Tail Lamp

The LED MK3 Tail Lamp has all the same features as our UK approved lamp and has been approved for use in Australia, Angola, Ireland, Portugal, Spain & USA.



LED European Marker Tail Lamp

The LED European Marker Tail Lamp has been designed and approved for the European market. The lamp is a combined marker and tail lamp with the ability to display a Red or White indication from a single unit.

LED Flagger Lantern

The LED Flagger Lantern was originally designed to satisfy the requirements on New York City Transit, the lanterns are manufactured from extremely robust Polycarbonate and provide a battery life more than three times better compared to a tungsten filament light.





LED Tunnel Signal for Australia

Designed for use in the Melbourne Tunnel Projects this signal uses the same Signal Lamp Modules as the UK Tunnel Signal but in a much narrower case. The use of three SLMs means these signals can display up to 6 different aspects

Unipart Dorman Signal Module

Designed in close consultation with a specific Asian customer the DSM contains many innovative features which will allow it to be an extremely cost effective retrofittable unit for use in environments of - 40° to +70° Celsius



End of Train Marker for Australia

Originally designed as a derivative of the Mk 3 Portable Tail Lamp for the Australian Market, the Unipart Dorman End of Train Marker Light has now been supplied worldwide and features engraved customer logos to prevent theft and a number of bespoke mounting bracket options

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 laurels. We have already built a market leading range of products for the UK market and have taken on-board projects from overseas for customers who have asked us to produce bespoke signalling to fit their needs.

We attend a number of major rail exhibitions in both the UK and overseas markets. 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 the overseas markets.

Our products are now used globally:

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

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