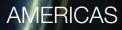
DIALIGHT INDUSTRIAL LED LIGHTING For Oil & Gas



Dialight

13 23 Ja

WHY LIGHTING MATTERS in Oil and Gas Applications



Lighting is of critical importance in Oil and Gas applications to maximize both safety and productivity. These sites are among the most dangerous to work due to extremely harsh conditions and explosive environments. It is without question that the lighting must be able to withstand ignitible atmospheres and prevent explosions, while also providing clear illumination for workers to perform tasks safely.



<u>!</u>

Noisy, complex heavy machinery

High heat and high vibration

Chemical vapors, dust and debris

Physical hazards, such as slips, falls, and moving objects

Arc Flash



Flammable and explosive environments



Poor illumination can contribute to tragic work site accidents and injuries in the Oil and Gas sector. Between 2009-2018 the US Bureau of Labor statistics cited:





While significant strides have been made by organizations such as OSHA over the past few decades to improve safety, the Oil and Gas industries inherently involve risks and hazards that demand high quality lighting. When choosing a lighting partner for your facilities, care must be taken to ensure their products have proven to perform safely and reliably in your environments and offer a sustainable solution.



www.dialight.com



Dialight

Oil and Gas Applications

DIALIGHT SOLUTIONS for Oil and Gas Applications

Dialight is the world leader in industrial LED lighting technology with millions of fixtures installed worldwide. We specialize in lighting products designed for the world's harshest industrial environments - enabling industrial customers to reduce their energy costs, maintenance costs, and carbon footprint while maximizing the safety and productivity of their employees and facility. From our signature High Bay line to our versatile Linear fixtures, Dialight offers a large selection of rugged products ideally suited for environments and applications found within the Oil and Gas Industry.



WHERE TO USE DIALIGHT PRODUCTS in Oil and Gas Applications

UPSTREAM

- DERRICKS
- MUD TANKS
- DRILLING FLOOR
- GENERATORS, PUMPS
- CONTROL HOUSE
- OPERATOR'S HOUSE
- OPEN AREAS
- PERIMETER/SECURITY AREAS

See product portfolio pages for more detailed product and ordering information

MIDSTREAM & DOWNSTREAM

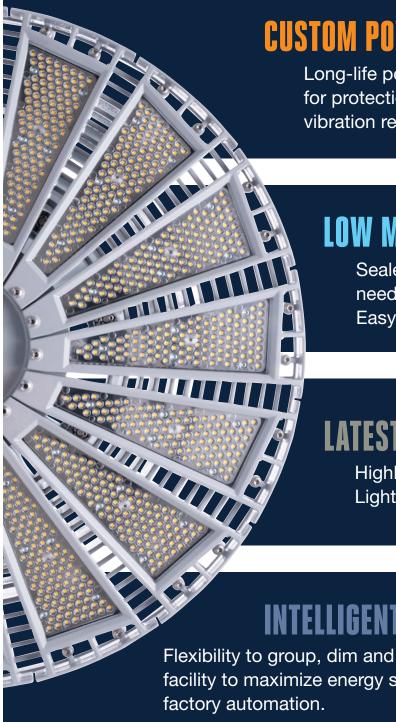
- STORAGE TANKS, STAIRS/LADDERS
- SWITCHGEAR, SWITCHRACKS
- PERIMETER, SECURITY AREAS
- LOADING RACKS, DOCKS
- PUMPS, MOTORS, MANIFOLDS, VALVES

www.dial

- PLATFORMS, CATWALKS
- COOLING TOWERS
- FACILITY ROADWAYS

TECHNOLOGY DIFFERENTIATION

When choosing an LED Lighting partner, consider how their products are engineered, constructed and tested prior to making your decision. Most Dialight products are engineered to a **10 year warranty** and were designed with harsh environments, such as Oil and Gas applications, in mind.



www.dialight.com

CUSTOM POWER SUPPLIES

Long-life potted drivers with optimized thermal dissipation for protection against environmental contaminants and vibration related failures.

LOW MAINTENANCE MECHANICAL DESIGN

Sealed and optimized to reduce or eliminate the need for maintenance over the life of the fixture. Easy to install and retrofit to existing infrastructure.

LATEST LEDS AND ADVANCED OPTICS

Highly efficient, crisp, low-glare illumination. Lighting where you need it, not where you don't.

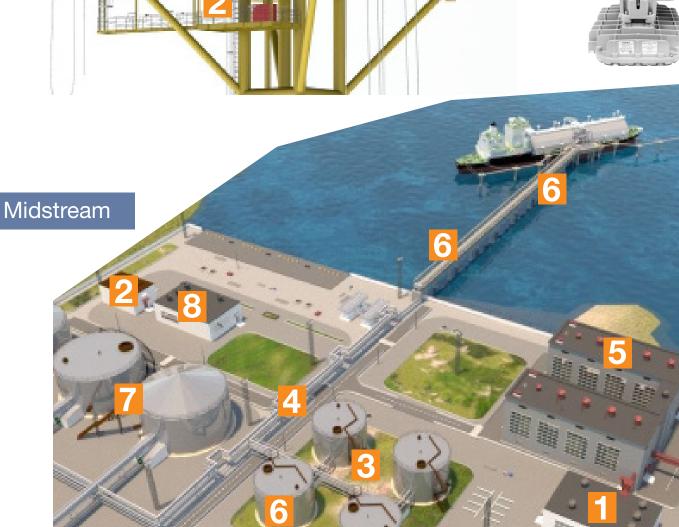
INTELLIGENT CONTROLS

Flexibility to group, dim and schedule lights around the unique needs of a facility to maximize energy savings. Plus, seamless integration with existing

Dialight

APPLICATION GUIDE for Oil and Gas Sites









applications*

SafeSite[®] and



SafeSite® and Vigilant[®] Low Bays

For hazardous and non-hazardous lower ceiling indoor or outdoor applications where wider light distribution is critical





ProSite

Floodlight

F1 Model

or outdoor flood

multiple beam

ProSite Floodlight F2 Model

For non-hazardous indoor or outdoor high power flood applications (Typical 1,000 watt or better HID replacement)





www.dialight.com

chemical storage and processing

MARKAN SIDE CONTRACTOR

Vigilant[®]Area Lights

For hazardous and non-hazardous

lower ceiling indoor or outdoor process and stanchion mount

Oil and Gas Applications

*Ask about our retrofit adapters to save labor by retrofitting to existing HID infrastructure

Dialight

SafeSite® and Vigilant[®]LP/ **TČ** Linears

available

For non-hazardous and hazardous indoor

lighting applications;



For hazardous and non-hazardous indoor or outdoor fluorescent strip/vaportite replacements, task or inspection lighting, electrical rooms, shops, and process areas. 4ft and 2ft versions

Vigilant[®] **High Output** High Bay -Low Profile

For non-hazardous high ceiling high bay applications typically 40 feet or above



Vigilant[®] High

For non-hazardous indoor or outdoor high bay applications over 14 feet. Remote power supply option available.



StreetSense[®] **Street Light**

Ю

For plant maintained roadways and general outdoor illumination



Downstream

Oil and Gas Applications

CASE STUDY Valero Refinery San Diego, California

Ever-escalating environmental standards mean that the world's most demanding industrial locations are facing a new set of requirements. Not only do they need smart new lighting ideas and innovative approaches to enhancing safety, they also need lighting that reduces CO_2 emissions, improves energy efficiency and cuts the total cost of ownership. Valero, the largest refiner in North America, partnered with Dialight to implement a new, energy efficient, safe and environmentally friendly lighting approach.

Valero's first priority was safety and improved lighting. As a result, SafeSite provides better visual acuity, reduces eye strain and enables Valero to create an even safer work environment for employees relying heavily on visual judgment in tasks like maneuvering, reading placards or identifying color coded wiring. The new lighting eliminates any need for portable lights to get the job done safely by improving access to the Valero plant equipment as well as improving worker safety with less chance of accidental slips and trips. Light pollution is greatly reduced with SafeSite lighting fixtures which utilize the latest LED technology with proprietary optics designed to focus light directionally so that they illuminate only the required area within the Valero refinery, such as straight walkways, avoiding adjacent and upward light spill. Unlike conventional lights, LEDs achieve 100% light output from the second they are switched on and are rated down to -40°C and still provide 100% of the rated lumen output.

- Fewer lighting fixtures needed
- Shorter installation time
- Reduced energy consumption and $\mathrm{CO}_{\!_2}$ emissions
- Zero maintenance
- Improved safety from better quality of light
- Minimized light spill
- Cold start capable
- Instant on ability
- Lower cost of ownership

CASE STUDIES Rubis Terminal Rotterdam, The Netherlands

Rubis Group is the fifth largest independent operator in Europe of downstream petroleum and chemical facilities. With a new Rotterdam location, designers were looking for a better solution, aiming to light the new facility with the latest-generation LED fixtures to provide the most energy efficient, safe and reliable illumination. Because of its harbor location, reducing light pollution for the benefit and well-being of both humans and wildlife was also a priority, making Dark Sky-compliant lighting a must. By opting for Dialight's next-generation LED fixtures, Rubis reduced energy lighting consumption, along with the greenhouse gases produced as a result, at the new facility by 60 percent compared to conventional lighting. Based on maintenance expenditures at other similar facilities, the company also saved around 100,000 euros per year on maintenance, for lights that were guaranteed to last, multiplying the annual savings accordingly.

- Installed over 270 ATEX certified and non-certified fixtures
- Sought alternative to failure-prone fluorescent fixtures
- 100,000 euros annual maintenance savings
- Reduced energy consumption 60 percent
- Zero-emissions facility



For more case study information please visit www.dialight.com.

PRODUCT PORTFOLIO High Bays

PRODUCT PORTFOLIO High Bays

					11/					
			Part Number	Certification	Fixture Lumens	Wattage	lm/W	ССТ	Lens	Beam Distribution
ACCOUNT	A CONTRACTOR OF THE OWNER OWNER OF THE OWNER OWNE OWNER OWNE	-				Vigilar	nt® High	ı Bay		
Contract of the second	A STATE OF THE STA		VEU7MC2ANNWNGN	UL 1598, CSA	11,000	65	169	5000K (cool white)	Glass - Clear	Medium
· · · · · · · · · · · · · · · · · · ·			VEU7MC2BNNWNGN	UL 1598, CSA	13,600	80	170	5000K (cool white)	Glass - Clear	Medium
			VEU7MC2CNNWNGN	UL 1598, CSA	17,400	96	181	5000K (cool white)	Glass - Clear	Medium
VIGILANT® HIGH BAY	SAFESITE® HIGH BAY	RELIANT [™] HIGH BAY	VEU7MC2ENNWNGN	UL 1598, CSA	23,900	140		5000K (cool white)	Glass - Clear	Medium
For use in non-hazardous indoor and outdoor	For use in hazardous classified high bay	For use in indoor non-hazardous applications to				SafeSi	te [®] Higl	h Bay		
high bay and occasionally flood lighting applications. Replaces up to 1,000 watt traditional HID fixtures.	applications where oil, gas and chemical vapors are present. See technical spec sheet for applicable certifications.	replace either HID or Fluorescent fixtures up to 1,000 watts where harsh environment protection is less of a concern.	VED7MC2ANNWNGN	UL 844 (CID2)	11,000	65	169	5000K (cool white)	Glass - Clear	Medium
Ideally suited for:	Ideally suited for:	Ideally suited for:	VED7MC2BNNWNGN	UL 844 (CID2)	13,600	80	170	5000K (cool white)	Glass - Clear	Medium
STORAGE/WAREHOUSE MAINTENANCE SHOPS	PROCESS AREAS OIL AND GAS STORAGE	STORAGE/WAREHOUSE MAINTENANCE SHOPS	VED7MC2CNNWNGN	UL 844 (CID2)	17,400	96	181	5000K (cool white)	Glass - Clear	Medium
	LOADING/UNLOADING		VED7MC2ENNWNGN	UL 844 (CID2)	23,900	140	171	5000K (cool white)	Glass - Clear	Medium
4888888						Relian	t [™] High	Bay*		
			RHU5MC2FDCNNGN	UL 1598, CSA	26,400	199	133	5000K (cool white)	Diffused Polycarbonate	Medium
			RHU5MC2HDCNNGN UL 1598, CSA 31,500	239	132	5000K (cool white)	Diffused Polycarbonate	Medium		
		South and a second s	Vigilant [®] Low Bay							
			VEULUC29NNWNGN	UL 1598, CSA	9,000	60	150	5000K (cool white)	Polycarbonate Dome - Diffused	Ultra Wide
						SafeSi	ite [®] Lov	v Bay		
			VEDLUC29NNWNGN	UL 844 (CID2)	9,000	60	150	5000K (cool white)	Polycarbonate Dome - Diffused	Ultra Wide
VIGILANT® HIGH OUTPUT HIGH BAY- LOW PROFILE	VIGILANT® LOW BAY	SAFESITE® LOW BAY	*Polycarbonate lens option	ns available. Consul	t product spec	c sheet for m	ore info	rmation.		
For use in high output or high ceiling non- hazardous indoor and outdoor high bay applications. Replaces up to 1,500 watt traditional HID fixtures with mounting heights up to 100'.	For use in indoor and outdoor lower mounting height high bay applications where wider light distribution is required. Replaces up to 250+ watt traditional HID fixtures.	For use in lower mounting height hazardous applications where oil, gas and chemical vapors are present. See technical spec sheet for applicable certifications.								
Ideally suited for:	Ideally suited for:	Ideally suited for:					1		I I I IIIII	
STORAGE/WAREHOUSE	WAREHOUSES	PROCESS AREAS						200000000000000000000000000000000000000		÷ 1
VERY HIGH MOUNTING HEIGHTS	MCC/ELECTRICAL ROOMS	OIL AND GAS STORAGE					F		STATE OF	2 10
	MAINTENANCE SHOPS	LOADING/UNLOADING								

WARNING - INSTALLATION & SECONDARY RETENTION. Use of any Dialight products without proper installation (including secondary retention / netting) and periodic inspections could cause severe injury or death. Dialight recommends that all installations should use secondary retention / netting (appropriate to the installation environment) where applicable. It is the exclusive responsibility of the contractor, installer and/or end-user to: (a) determine the suitability of the product for its intended application; and, (b) ensure that the product is safely installed (with secondary retention / netting where appropriate) and in compliance with all applicable laws and regulations. To the extent permissible under applicable laws, Dialight disclaims all liability for personal injury and/or other damage resulting from any dislodgment or other dislocation of its products.

www.dialight.com

WARNING - INSTALLATION & SECONDARY RETENTION. Use of any Dialight products without proper installation (including secondary retention / netting) and periodic inspections could cause severe injury or death. Dialight recommends that all installations should use secondary retention / netting (appropriate to the installation environment) where applicable. It is the exclusive responsibility of the contractor, installer and/or end-user to: (a) determine the suitability of the product for its intended application; and, (b) ensure that the product is safely installed (with secondary retention / netting where appropriate) and in compliance with all applicable laws and regulations. To the extent permissible under applicable laws, Dialight disclaims all liability for personal injury and/or other damage resulting from any dislodgment or other dislocation of its products.

www.dialight.com

TT

121 32

PRODUCT PORTFOLIO Area Lights

PRODUCT PORTFOLIO Area Light Accessories



For more details on product specifications including mounting information, please visit www.dialight.com

WARNING - INSTALLATION & SECONDARY RETENTION. Use of any Dialight products without proper installation (including secondary retention / netting) and periodic inspections could cause severe injury or death. Dialight recommends that all installations should use secondary retention / netting (appropriate to the installation environment) where applicable. It is the exclusive responsibility of the contractor, installer and/or end-user to: (a) determine the suitability of the product for its intended application; and, (b) ensure that the product is safely installed (with secondary retention / netting where appropriate) and in compliance with all applicable laws and regulations. To the extent permissible under applicable laws, Dialight disclaims all liability for personal injury and/or other damage resulting from any dislodgment or other dislocation of its products

dislocation of its products.

www.dialight.com

12

ertilite [®] V Retrofit Kit - HZXTHKL					Thomas & Betts Hazlux® Retrofit Kit - HZXTHTB							
ing	ng Wall		Stanchion		Pendant	Pendant Cone	Flexible Pendan		Ceiling		Wall	
k VMX-	2 VMB2B & V	VMB2B & VMB-2			ЗP	ЗF	3C		ЗW		5S	
k VMX-	3 VMB3B & V	VMB3B & VMB-3			4P	4F			4W		6S	
B, 8B,	9B		VMS5B			-					5J, 6J	
50					Wall	25° Angle Stanchion	25° Ang Stanchic		Straight Stanchion		Straight Stanchion	
				VB2-VIB	VS4	VS4-VI	В	VL4		VL4-VIB		
ster III Retrofit Kit - HZXTHAP				VB3-VIB	VS5	VS5-VI	В	VL5		VL5-VIB		
ng Wall Stanchion					GE Lightin	g Solutions	s – Filtr-G	iarc	I™ Retrofit	Kit	- HZXTHGE	
-75	KPWB-75	K	PS-125		Pendant	Ceiling	Wall	5	Stanchion		Quad Mount	
100	KPWB-100	K	PS-150	l	3P	ЗF	3C	ЗW			5S	
		K	PST-125	ľ	4P	4F		4W		4W		
		KF	PST-150	Γ.							5J, 6J	

For more details on product specifications including mounting information, please visit www.dialight.com

WARNING - INSTALLATION & SECONDARY RETENTION. Use of any Dialight products without proper installation (including secondary retention / netting) and periodic inspections could cause severe injury or death. Dialight recommends that all installations should use secondary retention / netting (appropriate to the installation environment) where applicable. It is the exclusive responsibility of the contractor installer and/or end-user to: (a) determine the suitability of the product for its intended application; and, (b) ensure that the product is safely installed (with secondary retention / netting where appropriate) and in compliance with all applicable laws and regulations. To the extent permissible under applicable laws, Dialight disclaims all liability for personal injury and/or other damage resulting from any dislodgment or other

PRODUCT PORTFOLIO Floodlights

PRODUCT PORTFOLIO Linear Lights



For more details on product specifications, please visit www.dialight.com.

14

WARNING - INSTALLATION & SECONDARY RETENTION. Use of any Dialight products without proper installation (including secondary retention / netting) and periodic inspections could cause severe injury or death. Dialight recommends that all installations should use secondary retention / netting (appropriate to the installation environment) where applicable. It is the exclusive responsibility of the contractor, installer and/or end-user to: (a) determine the suitability of the product for its intended application; and, (b) ensure that the product is safely installed (with secondary retention / netting where appropriate) and in compliance with all applicable laws and regulations. To the extent permissible under applicable laws, Dialight disclaims all liability for personal injury and/or other damage resulting from any disloggment or other dislocation of its products.

dislocation of its products.

*Battery backup unit

Dialight



SAFESITE® LP/TC LINEAR

Now featuring Dialight's exclusive 10 year warranty. Available in 2ft and 4ft varieties. For use in indoor and outdoor hazardous certified linear and low mounting height applications where explosive gases may be present. CID1 linear available in a different series. Refer to Dialight website for more information.

Ideally suited for: PIPE RACKS

PROCESS AREAS

DRILLING FLOOR

n/W	ССТ	Lens	Beam Distribution		
[®] Low	Profile Linear				
139	5000K (cool white)	Clear Polycarbonate	Medium		
128	5000K (cool white)	Clear Polycarbonate	Medium		
137	5000K (cool white)	Clear Polycarbonate	Medium		
® Low	/ Profile Linear				
137	5000K (cool white)	Clear Polycarbonate	Medium		
139	5000K (cool white)	Clear Polycarbonate	Medium		
128	5000K (cool white)	Clear Polycarbonate	Medium		
93	5000K (cool white)	Clear Tempered Glass	Medium		
82	5000K (cool white)	Clear Polycarbonate	Medium		

For more details on product specifications, please visit www.dialight.com.

WARNING - INSTALLATION & SECONDARY RETENTION. Use of any Dialight products without proper installation (including secondary retention / netting) and periodic inspections could cause severe injury or death. Dialight recommends that all installations should use secondary retention / netting (appropriate to the installation environment) where applicable. It is the exclusive responsibility of the contractor, installer and/or end-user to: (a) determine the suitability of the product for its intended application; and, (b) ensure that the product is safely installed (with secondary retention / netting where appropriate) and in compliance with all applicable laws and regulations. To the extent permissible under applicable laws, Dialight disclaims all liability for personal injury and/or other damage resulting from any dislodgment or other

HAZARDOUS LOCATIONS RATINGS

Fixed and portable fixtures for installation and use in hazardous (classified) locations Class I, Divisions 1 and 2, Groups A, B, C, and D; Class II, Division 1, Groups E, F, and G; Class II, Division 2, Groups F and G; and Class III, Divisions 1 and 2, in accordance with the National Electrical Code, NFPA 70

Classes

The classes define the general nature of hazardous material in the surrounding atmosphere.

Class	Hazardous Material in Surrounding Atmosphere
Class I	Hazardous due to the presence of flammable gases or vapors in the air in quantities to produce explosive or ignitible mixtures
Class II	Hazardous due to the presence of combustible and/or conductive dusts
Class III	Hazardous due to the presence of easily ignitible fibers and flyings, such as wood chips, cotton, flax and nylon. Group classifications are not applied to this class

Divisions

The division defines the likelihood of hazardous substances being present in ignitible concentrations in the surrounding atmosphere.

Division	Presence of Hazardous Material				
Division 1	The hazard exists during normal operating conditions				
Division 2	The hazard is present only due to accidental system breakdowns or abnormal operations				

Groups

The group(s) are determined by the specific hazardous materials which may be present.

Group	Hazardous Material in Surrounding Atmosphere						
	Class I Groups						
Group A	Acetylene						
Group B	Hydrogen, fuel and combustible process gases containing more than 30% hydrogen by volume or gases of equivalent hazard such as butadiene, ethylene oxide, propylene oxide and acrolein						
Group C	Carbon monoxide, methyl ether, hydrogen sulfide, methylacetylene, cyclopropane, ethyl and ethylene or gases of equivalent hazard						
Group D	Gasoline, acetone, ammonia, benzene, butane, cyclopropane, ethanol, hexane, methanol, methane, vinyl chloride, natural gas, naphtha, propane or gases of equivalent hazard						
	Class II Groups						
Group E	Combustible metal dusts, including aluminum, magnesium and their commercial alloys or other combustible dusts whose particle size, abrasiveness and conductivity present similar hazards in connection with electrical equipment						
Group F	Carbonaceous dusts that have more than 8 percent total entrapped volatiles or that have been sensitized by other materials so that they present an explosion hazard. Coal, carbon black, charcoal, and coke dusts are examples of carbonaceous dusts						
Group G	Flour dust, grain dust, flour, starch, sugar, wood, plastic and chemicals						

North American HQ 1501 Route 34 South

Farmingdale, NJ 07727 Tel: 732-919-3119 Fax: 732-751-5778 info@dialight.com Reference 2020 NEC Code

WARNING / DISCLAIMERS:

Installation & secondary retention. The use of this product without proper installation (including secondary retention / netting) and periodic inspections, could cause severe injury or death. Dialight recommends that all installations should use secondary retention / netting (appropriate to the installation environment) as applicable. Dialight products are intended for ultimate purchase, installation and operation by knowledgeable persons trained in the functional assessment, installation, use and maintenance of such products and all customers (including but not limited to end customers) are responsibile for assessing the suitability of Dialight products for any given installation, use and maintenance of such products and all customers (including but not limited to end customers) are responsibility of the contractor, installer and/or end-cuser to: (a) determine the suitability of the product for its intended application; and, (b) ensure that the product is safely installed (with secondary retention / netting as appropriate) and in compliance with all applicable laws and regulations. *Product specifications & warranties*. All product information provided is, to the best of Dialight's knowledge, accurate as of the date of publication. All values and performance data herein are design or typical values when measured under laboratory conditions. The information herein is subject to change without notice. The products is products and/or unauthorised use of its products. When ordering, refer to <u>www.dialight.com</u> for current versions of: (a) relevant product documentation (including relevant product data sheets); (b) Dialight terms and conditions of sale; and, (c) the relevant product warranties. To the extent that any contract is deemed formed between Dialight and the purchase of Dialight products and on end-user, versions of documents available at <u>www.dialight.com</u> as at the date of sale shall be the versions incorporated therein. In the event of any discrepancy between this document and information provided at <u>w</u>

Exclusion of liability. To the extent permissible under the relevant law, Dialight disclaims all liability for personal injury and/or other damage resulting from any dislodgment or other dislocation of its products. Whilst Dialight has used its reasonable endeavours to ensure the completeness and accuracy of information herein, Dialight does not assume any liability for damages resulting from use of this information or for any third-party representations made in relation to Dialight products.

Dialight