

MB-CDT

The MetaBright™ Compact Diffused Tube line light is one of the best kept secrets in line scan. It is a low-profile version of Metaphase’s diffused tube light with an aperture designed for line scan applications. Its diffused and multi-directional light output makes this light ideal for inspecting highly specular applications. The MB-CDT allows you to see beyond clear plastic and images the product with minimal glare and feedback from the plastic wrap. With its highly diffused light output you can image metallic materials and curved items with minimal glare or hot spotting.



FEATURES

- Compact design and aperture for line scan
- Diffused and multi-directional light output for highly specular applications
- Lengths range from 2 inches to 85 inches
- High Uniformity using Metaphase’s unique diffuser technology
- Built-in constant current driver(s) provides consistent illumination output

APPLICATIONS

- Reflective, mirror like surfaces
- Metallic materials such as aluminum, brass, copper, steel and stainless steel
- Ball bearings, gel tablets
- Ideal for any round or cylindrical shaped highly reflective items
- High gloss finishes

WAVELENGTHS

Order ID	Description / nanometers
W	White (6000K)
R	Red 630nm
G	Green 530nm
B	Blue 470nm
IR	Infrared 850nm
UVL	Ultraviolet Long 395nm
UVS	Ultraviolet Short 365nm

GENERAL SPECIFICATIONS

Power Source:	24VDC ±10%
Cable (Standard):	10-foot cable with flying leads
Housing:	Black Anodized Aluminum
Operating Temp:	-30°C to 60°C
Lifetime Expectancy:	75,000 hours
Illuminance (white):	80,000 Lux, minimal
Intensity Control:	Optional

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Single Color MetaBright™ Compact Diffused Tube Line Lights										
All models: Overall W=3.17", Camera Slot W=0.2"				Cable(s)			*Typical Current (Amps) @24VDC			
MODEL	Overall Length Inches / cm	Camera Slot Length Inches / cm	Weight ±10% lbs/Kg	Quantity	Length	AWG/ Conductors	Visible (White, Red, Green, Blue)	IR	UVS	UVL
MB-CDT106	2.72 / 69.2	2.0 / 5.080	0.5 / .23	1	10ft	24/4	.25A max.			
MB-CDT206	5.72 / 14.54	5.0 / 12.70	1.0 / .45				.45A max.			
MB-CDT306	10.72 / 27.24	10.0 / 25.40	1.8 / .82				1.5A max.			
MB-CDT406	15.72 / 39.94	15.0 / 38.10	2.7 / 1.2				1.9A max.			
MB-CDT506	20.72 / 52.64	20.0 / 50.80	3.5 / 1.6				2.3A max.			
MB-CDT606	25.72 / 65.34	25.0 / 63.50	4.3 / 2.0				2.7A max.			
MB-CDT706	30.72 / 78.04	30.0 / 76.20	5.2 / 2.4			3.2A max.				
MB-CDT806	35.72 / 90.74	35.0 / 88.90	6.0 / 2.7			3.7A max.				
MB-CDT906	40.72 / 103.4	40.0 / 101.6	6.9 / 3.1			4.3A max.				
MB-CDT1006	45.72 / 116.1	45.0 / 114.3				18/4				
MB-CDT1106	50.72 / 128.8	50.0 / 127.0								
MB-CDT1206	55.72 / 141.5	55.0 / 139.7								
MB-CDT1306	60.72 / 154.2	60.0 / 152.4								
MB-CDT1406	65.72 / 166.9	65.0 / 165.1								
MB-CDT1506	70.72 / 179.6	70.0 / 177.8		2	20ft		16/4			
MB-CDT1606	75.72 / 192.3	75.0 / 190.5								
MB-CDT1706	80.72 / 205.0	80.0 / 203.2								
MB-CDT1806	85.72 / 217.7	85.0 / 215.9								

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Single Cable Wiring	
Wire Color	Function
RED	+24VDC
GREEN	SIGNAL GROUND
BLACK	GROUND (24V RTN)
WHITE	0-10VDC Intensity Control

2 Cable Wiring			
Wire Color	Function	Wire Color	Function
RED	+24VDC	WHITE	0-10VDC Intensity Control
GREEN	GROUND (24V RTN)	GREEN	SIGNAL GROUND
BLACK	GROUND (24V RTN)		
WHITE	+24VDC		

3 Cable Wiring					
Wire Color	Function	Wire Color	Function	Wire Color	Function
RED	+24VDC	RED	+24VDC	WHITE	0-10VDC Intensity Control
GREEN	GROUND (24V RTN)	GREEN	GROUND (24V RTN)	GREEN	SIGNAL GROUND
BLACK	GROUND (24V RTN)	BLACK	GROUND (24V RTN)		
WHITE	+24VDC	WHITE	+24VDC		

M12 Speedcon (#1405879, 5 position male)	
Pin #	Function
1	+24VDC
2	0-10VDC Intensity Control
3	GROUND (24V RTN)
4	SIGNAL GROUND
5	No Connection

The M12 connector option is not recommended for lights rated in excess of 4 amps

SINGLE COLOR LIGHT with ULC-2 (4 conductor)	
WIRE COLOR	FUNCTION
RED, WHITE (+)	LED INPUT
BLACK, GREEN (-)	

Terminated within a 2 position BCP-508-2 connector to interface with the ULC-2 "LED Output"

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MODEL NUMBER KEY							
MODEL	COLOR (Wavelength)	STANDARD OPTION	VOLTAGE	ILS/ILD	M12	CUSTOM OPTION	
MB-CDTXXX	XXX	XXX	XXX	XXX	XX	XXX	
XXXX Enter model designator from above chart: 106 to 1806	W (White 6000K) R (Red 630nm) G (Green 530nm) B (Blue 470nm) IR (Infrared 850nm) UVL (UV Long 395nm) UVS (UV Short 365nm)	POL (Polarizer) BC (Barrel Conn.) PS (Power Supply) Z (Intensity Ctrl) Choose as many that apply or leave blank	24 (+24VDC) U (ULC-2 Controller) KEY (Keyence Controller) Choose one	ILD (In Line Dimmer) ILS (In Line Strobe) TRG (Internal Trigger)* Choose one or leave blank	T (M12 Conn.) M8 (M8 Conn.) Choose "T" or leave blank	XXX Customizable per order (ie. Customer's initials) XXM Custom cable length (ie. 12M for 12 meters) Choose one or leave blank	

*TRG (Internal Trigger feature)

The Trigger feature consists of two additional leads from the light. One lead is for a user provided NPN controlled input and a second lead for a PNP controlled input. The following chart describes the circuit operation:

Condition	NPN Input Lead	PNP Input Lead	Result
NPN mode	<.9VDC	N/A (float)	Enables Light
PNP mode	N/A (float)	>2.5VDC (24V max)	Enables Light
No Inputs	No Connection	No Connection	Light is Disabled

Note: When the Light is Enabled it is controlled by the 0-10VDC Intensity Control. For maximum intensity, tie the 0-10VDC Intensity Control line to +24 VDC and connect the Signal Ground line to 24V RTN.

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Sample Model Number: MB-CDT306-W-24

REVISIONS

REV.	DESCRIPTION	DATE	APPROVED
A	INITIAL RELEASE	5/19/2016	
B	CHANGED SCREW HOLES TO BE BLIND; REMOVED PREVIOUS SET SCREWS AND SILICONE	5/19/2016	

POWER CABLE
24 AWG Stranded;
2 conductor
10' Cut length

WHITE INTERNAL AREA
FOR SUPERIOR LIGHT REFLECTION.

BOTTOM VIEW

FINISH: BLACK ANODIZED W/ INTERIOR PAINTED WHITE - SEE SHEET 3.

Metaphase Technologies, Inc. 211 Sinclair Road, Suite 100, Bristol, PA. 19007 215-639-8699 Fax 215-639-0977

QUANTITY: Per order	TOLERANCE/FINISH UNLESS OTHERWISE SPECIFIED	THIS DOCUMENT IS THE PROPERTY OF METAPHASE TECHNOLOGIES, INC. WHOM MAY LOAN IT, SUBJECT TO RETURN UPON DEMAND. IT INCLUDES CONFIDENTIAL & PROPRIETARY INFORMATION WHICH MAY NOT BE DISCLOSED TO ANY THIRD PARTY, AND OR USED FOR ANY PURPOSE CONTRARY TO ITS INTENDED USE, WITHOUT THE EXPRESSED PRIOR WRITTEN CONSENT OF METAPHASE TECHNOLOGIES, INC.	TITLE Top Assembly; CDT306 -10" Light
MATERIAL: Per BOM	INCHES/MILL X .XX .XXX .005 ANGLE±.1° [±.76] [±.25] [±.13]		USED ON Per customer
Approval Signature _____	FINISH: See note	SIZE B	DRAWING NUMBER CDT306-1
Date // /	TREATMENT: N/A	SCALE 1:4	REV B SHEET 1 OF 3

COMPLIANCE



IEC
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