

SPECIFICATIONS



CHAPTER 2

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Overview

The ViewMarq LED display is a tri-color completely enclosed unit that is intended to be controlled over serial RS-232/485 or Ethernet networks by a PLC utilizing ASCII or Modbus. It is configured using the ViewMarq Software running on a PC over either RS-232/485 or Ethernet.

The ViewMarq is a fully enclosed NEMA 4/12 indoor use only unit, hose-down rated, corrosion resistant display. When the supplied wall-mount brackets are used and customer supplied flexible conduit is used for all cables, the message display meets appropriate UL requirements.

The display may be powered by either 24VDC or 120/240 VAC nominally.



NOTE: *The ViewMarq LED message display can accept either DC power (24VDC) or AC power (120 or 240 VAC) but not both simultaneously.*

Specifications

ViewMarq 1-Line Message Displays Specifications				
Part Number	MD4-0112T	MD4-0112T-1	MD4-0124T	MD4-0124T-1
Description	1 Line X 12 Character		1 Line X 24 Character	
Display				
• Type	LED matrix: Tri-color (Green, Red, Amber)			
• LED Life	100,000 hours			
• LED Pitch	0.19 in [5mm]			
• Center to Center Spacing of each LED	0.27 in [7mm]			
• Number of Lines	1 (Based on 5 x 7 pixel sized characters)			
• Text Height	1.25 in, 2in (Depends on character set selected)			
• Character Set	English			
• Approximate Viewing Distance	100ft			
AC Electrical				
• Input Voltage	100-240 VAC (+10% / -15%), 50 / 60 Hz			
• Maximum Current	0.5 A		0.8 A	
• Power Consumption (MAX)	22W		38W	
• Maximum Inrush Current (Cold and Hot)	25A		26A	
• Input Fuse Protection (Internal)	Yes (not user replaceable)			
• Output Protection for Overcurrent, Over Voltage and Over Temperature	Yes – Self Resetting			
• Insulation Resistance	> 10 MOhms @ 500VAC			
DC Electrical				
• Input Voltage	24VDC (+10% / -15%)			
• Maximum Current	1A		1.5 A	
• Maximum Inrush Current (Cold and Hot)	3A		4.5 A	
• Input Fuse Protection (Internal)	Yes (not user replaceable)			
• Reverse Polarity Protection	Yes			
Dimensions / Weight				
• Enclosure Approximate Weight	4.9 lbs [2.2 kg]		9.0 lbs [4.1 kg]	

Specifications continued on the next page...

ViewMarq 2-Line Message Displays Specifications				
Part Number	MD4-0212T	MD4-0212T-1	MD4-0224T	MD4-0224T-1
Description	2 Line X 12 Character		2 Line X 24 Character	
Display				
• Type	LED matrix: Tri-color (Green, Red, Amber)			
• LED Life	100,000 hours			
• LED Pitch	0.19 in [5mm]			
• Center to Center Spacing of each LED	0.27 in [7mm]			
• Number of Lines	2 (Based on 5 x 7 pixel sized characters)			
• Text Height	1.25 in, 2 in, 4 in (Depends on character set selected)			
• Character Set	English			
• Approximate Viewing Distance	200ft			
AC Electrical				
• Input Voltage	100-240 VAC (+10% / -15%), 50 / 60 Hz			
• Maximum Current	1A		2A	
• Power Consumption (MAX)	38W		74W	
• Maximum Inrush Current (Cold and Hot)	26A		24A	
• Input Fuse Protection (Internal)	Yes (not user replaceable)			
• Output Protection for Overcurrent, Over Voltage and Over Temperature	Yes – Self Resetting			
• Insulation Resistance	> 10 MOhms @ 500 VAC			
DC Electrical				
• Input Voltage	24VDC (+10% / -15%)			
• Maximum Current	2A			3.5 A
• Maximum Inrush Current (Cold and Hot)	10.5A			
• Input Fuse Protection (Internal)	Yes (not user replaceable)			
• Reverse Polarity Protection	Yes			
Dimensions / Weight				
• Enclosure Approximate Weight	7.3 lbs [3.3 kg]		13.1 lbs [6.0 kg]	

Specifications continued on the next page...

ViewMarq 4-Line Message Displays Specifications				
Part Number	MD4-0412T	MD4-0412T-1	MD4-0412T	MD4-0424T-1
Description	4 Line X 12 Character		4 Line X 24 Character	
Display				
• Type	LED matrix: Tri-color (Green, Red, Amber)			
• LED Life	100,000 hours			
• LED Pitch	0.19 in [5mm]			
• Center to Center Spacing of each LED	0.27 in [7mm]			
• Number of Lines	4 (Based on 5 x 7 pixel sized characters)			
• Text Height	1.25 in, 2in, 4in, 6in, 8in (Depends on character set selected)			
• Character Set	English			
• Approximate Viewing Distance	400ft			
AC Electrical				
• Input Voltage	100-240 VAC (+10% / -15%), 50 / 60 Hz			
• Maximum Current	2A		2A	
• Power Consumption (MAX)	74W		123W	
• Maximum Inrush Current (Cold and Hot)	24A		9.5 A	
• Input Fuse Protection (Internal)	Yes (not user replaceable)			
• Output Protection for Overcurrent, Over Voltage and Over Temperature	Yes – Self Resetting			
• Insulation Resistance	> 10 MOhms @ 500VAC			
DC Electrical				
• Input Voltage	24VDC (+10% / -15%)			
• Maximum Current	3.5 A		4A	
• Maximum Inrush Current (Cold and Hot)	10.5 A		12A	
• Input Fuse Protection (Internal)	Yes (not user replaceable)			
• Reverse Polarity Protection	Yes			
Dimensions / Weight				
• Enclosure Approximate Weight	12.1 lbs [5.5 kg]		22.5 lbs [10.2 kg]	

Specifications continued on the next page...

Environmental Specifications

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ViewMarq Message Displays Specifications		
Environmental		
Part Numbers	MD4-0112T, MD4-0124T MD4-0212T, MD4-0224T MD4-0412T, MD4-0424T	MD4-0112T-1, MD4-0124T-1 MD4-0212T-1, MD4-0224T-1 MD4-0412T-1, MD4-0424T-1
• Storage Temperature	-30 to +85 °C (-22 to +185 °F)	
• Operating Ambient Temperature	0 to 60 °C (32 to +140 °F)	
• Humidity	5 – 95% non-condensing	
• Altitude	Up to 2000 meters (6562ft)	
• Enclosure Ratings	UL Rated: Enclosure Type 1, Indoor Use, Dry Locations, NEMA 12 indoor only*, NEMA 4 indoor only*	
• Vibration	IEC 60068-2-6 (Test Fc)	
• Shock	IEC 60068-2-27 (Test Ea)	
• Noise Immunity	EN61131-2	
• Pollution Degree	2	
• Overvoltage Category	II	
• Agency Approvals	UL508, NEMA 4, NEMA 12, RoHS, REACH CE (EN61131-2:2007)	UL61010, UL61010-2-201 (E139594), NEMA 4, NEMA 12, RoHS, REACH CE EN61010, EN61010-2-201 (Safety) EN61131-2 (EMC)

* Not evaluated by UL

Power Supply and Communication Specifications

Power Supply Removable Terminal Blocks

Power Supply Removable Terminal Blocks							
Part Number	Terminal	Connector	Wire Size	Screw Torque	Voltage Rating	Current Rating	Temperature Rating
MD-TERM-SET	AC Power	Removable 3-pin terminal block	12-14 AWG copper conductor, rated 75°C, solid or stranded	4.5 in-lbs (0.5 N·m)	300V	15A	105°C (221°F)
	DC Power	Removable 2-pin terminal block					



NOTE: Use solid or stranded copper conductors, rated for 75°C.

AC Power Supply Specifications

AC Power Supply General Specifications						
Part Number	MD4-0112T MD4-0112T-1	MD4-0124T MD4-0124T-1	MD4-0212T MD4-0212T-1	MD4-0224T MD4-0224T-1	MD4-0412T MD4-0412T-1	MD4-0424T MD4-0424T-1
Input Voltage	100-240 VAC (+10% / -15%), 50 / 60 Hz					
Maximum Current	0.5 A	0.8 A	1A	2A		
Power Consumption (MAX)	22W	38W		74W	123W	
Maximum Inrush Current (Cold and Hot)	25A	26A		24A	9.5 A	
Input Fuse Protection (Internal)	Yes (not user replaceable)					
Output Protection for Overcurrent, Over Voltage and Over Temperature	Yes – Self Resetting					
Under Input Voltage Lockout	25-60 VAC	40-65 VAC		40-70 VAC	30-70 VAC	
Over Input Voltage Lockout	No	265-285 VAC				
Input Transient Protection	Varistor Plus Input Choke and Passive Filter					
Voltage Withstand (Dielectric)	3250VDC for 2s*, 4200VDC for 5s**					
Insulation Resistance	> 10 MOhms @ 500 VAC					

*For models MD4-0112T, MD4-0124T, MD4-0212T, MD4-0224T, MD4-0412T and MD4-0424T

**For models MD4-0112T-1, MD4-0124T-1, MD4-0212T-1, MD4-0224T-1, MD4-0412T-1 and MD4-0424T-1

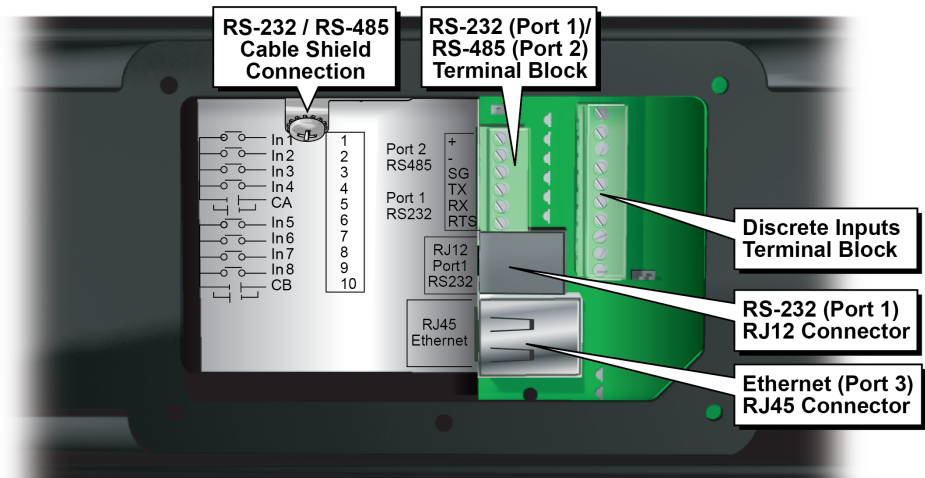
External DC Power Supply Requirements

DC Power Supply General Specifications						
Part Number	MD4-0112T MD4-0112T-1	MD4-0124T MD4-0124T-1	MD4-0212T MD4-0212T-1	MD4-0224T MD4-0224T-1	MD4-0412T MD4-0412T-1	MD4-0424T MD4-0424T-1
Input Voltage	24VDC (+10% / -15%)					
Maximum Current	1A	1.5 A	2A	3.5 A		4A
Maximum Inrush Current (Cold and Hot)	3A	4.5 A	10.5 A			12A
Reverse Polarity Protection	Yes					

Communication and Discrete Input Connections

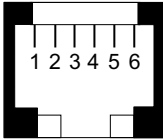
The following table describes the communication connections available in the ViewMarq display.

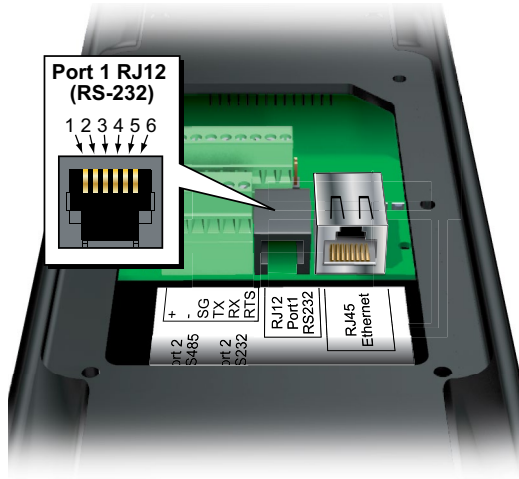
Communications and Discrete Input Connections				
Port	Type	Connector	Wire Size	Screw Torque
Port 1	RS-232	RJ12	n/a	
Port 1 / Port 2	RS-232 / RS-485	Removable 6-pin terminal block	14-28 AWG	1.7 in-lbs (0.2 N·m)
Port 3	Ethernet	RJ45	n/a	
Port 4	Discrete Inputs	Removable 10-pin terminal block	14-28 AWG	1.7 in-lbs (0.2 N·m)



RS-232 Port 1 RJ12 Connector

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Port1 - RS-232 RJ12 Connector			
Description	Specification		
Designation	Port 1		
Serial Communications	Physical Layer: Non-isolated, Conforms to RS-232 Communications Interface		
Communication Port Settings	2400, 9600,19200, 38400 Data Length: 7/8 bits, Stop Bit: 1 bit, Parity: None, Even/Odd, No RTS signal		
Connector Type	Female RJ12	Pin Number	Signal Name
		1 2 3 4 5 6	Signal GND Not Used RXD TXD Not Used Signal GND



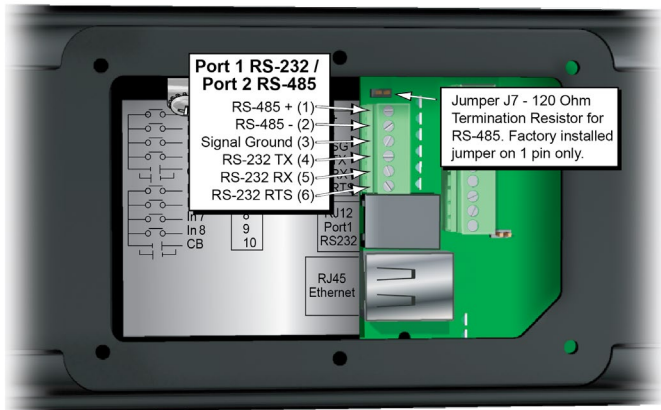
Port 1 RS-232 Terminal Block Connection

Port 1 - RS-232 Terminal Block	
Description	Specification
Designation	Port 1
Serial Communications	Physical Layer: Non-isolated, Conforms to RS-232 Communications Interface
Communication Port Settings	2400, 9600, 19200, 38400 Data Length: 7/8 bits, Stop Bit: 1 bit, Parity: None, Even/Odd, RTS signal on pin 6

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Port 2 RS-485 Terminal Block Connection

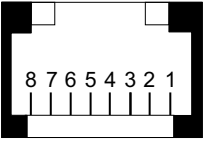
Port 2 - RS-485 Terminal Block	
Description	Specification
Designation	Port 2
Serial Communications	Physical Layer: Non-isolated, Conforms to RS-485 Communications Interface
Communication Port Settings	9600, 19200, 38400 Data Length: 7/8 bits, Stop Bit: 1 bit, Parity: None, Even/Odd

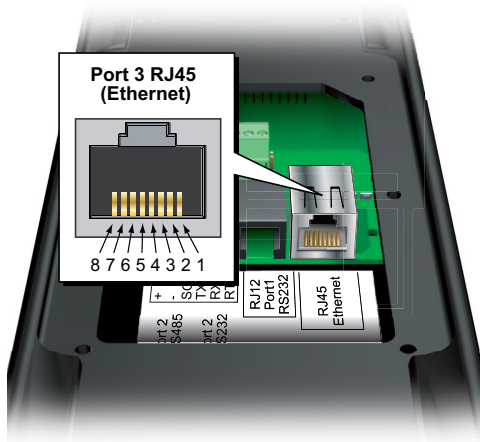


6 Position Terminal Block Pin Number	Signal Name
1	RS-485 +
2	RS-485 -
3	Signal Ground
4	RS-232 TX
5	RS-232 RX
6	RS-232 RTS

Port 3 Ethernet Connection

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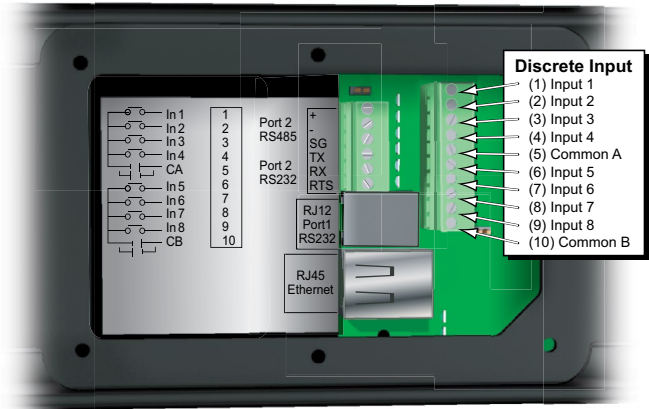
Port 3 - Ethernet			
Description	Specification		
Standard Specification	Conforms to IEEE802.3		
Communication Speed	10/100BASE-T(auto crossover)		
Cable Specification	Cat5e		
Physical Jack	RJ45, Module jack		
Connector Type	Female RJ45	Pin Number	Signal Name
		1 2 3 4 5 6 7 8	TD+ TD- RD+ No Connection No Connection RD- No Connection No Connection



Discrete Input Specifications

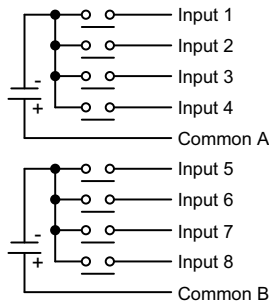
Discrete Inputs	
Description	Specification
Inputs per Module	8 (sinking / sourcing)
Commons per Module	2 isolated (4 inputs per common)
Input Voltage Range	10-28 VDC
ON Voltage / Current Level	>9.5 VDC / 3 mA
OFF Voltage / Current Level	<4.5 VDC / 0.5 mA
Maximum Input Current	7mA @ 28VDC
Input Impedance	4.7 kohm @ 24VDC
OFF to ON Response	2 to 9 ms
ON to OFF Response	2 to 9 ms
Peak Voltage	30VDC

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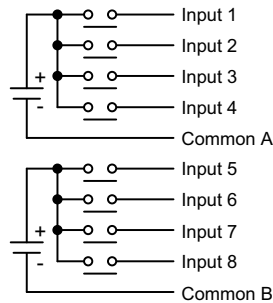


10 Position Terminal Block Pin Number	Signal Name
1	Input 1
2	Input 2
3	Input 3
4	Input 4
5	Common A
6	Input 5
7	Input 6
8	Input 7
9	Input 8
10	Common B

Sourcing Input Wiring



Sinking Input Wiring

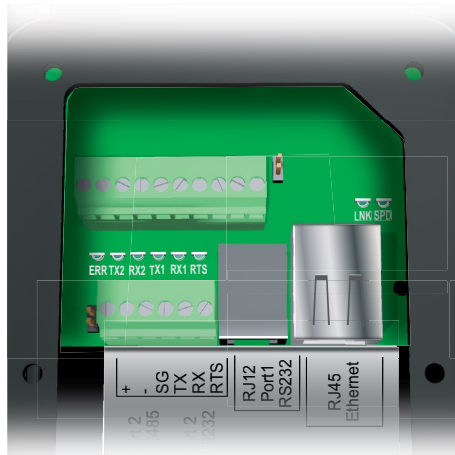


NOTE: In order to maintain the UL rating, discrete inputs must be powered from a Class 2 power supply.

Communication LEDs

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Communication LEDs			
LED	Color	Silkscreen Label	Meaning
Ethernet Speed	Green	SPD	OFF = 10M Connection, ON = 100M Connection
Ethernet Link Status Condition		LNK	OFF - No link, ON = Link, Blinking = Network Activity
RS-232 Request to Send		RTS	Blinking = RS-232 is attempting to establish connection
RS-232 Receive Data		RX1	Blinking = Receiving Data
RS-232 Transmit Data		TX1	Blinking = Transmitting Data
RS-485 Receive Data		RX2	Blinking = Receiving Data
RS-485 Transmit Data		TX2	Blinking = Transmitting Data
Error		ERR	Communication Error

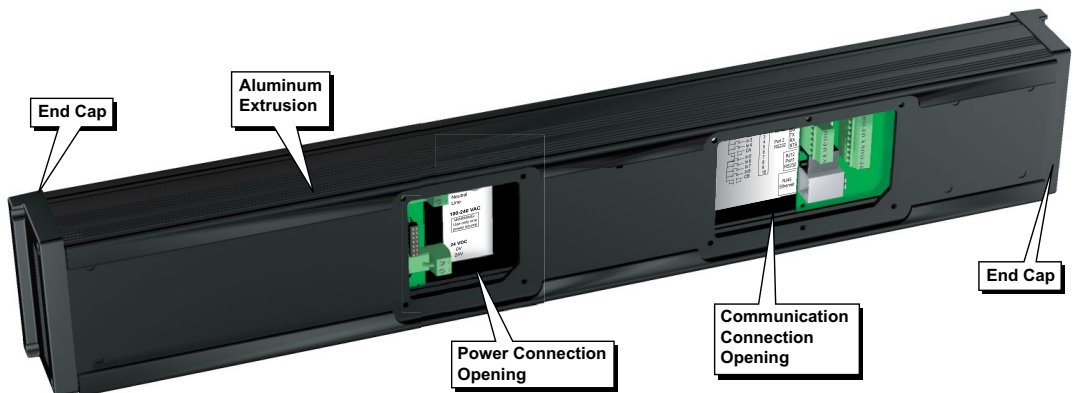


Mechanical Features

Front View



Back View



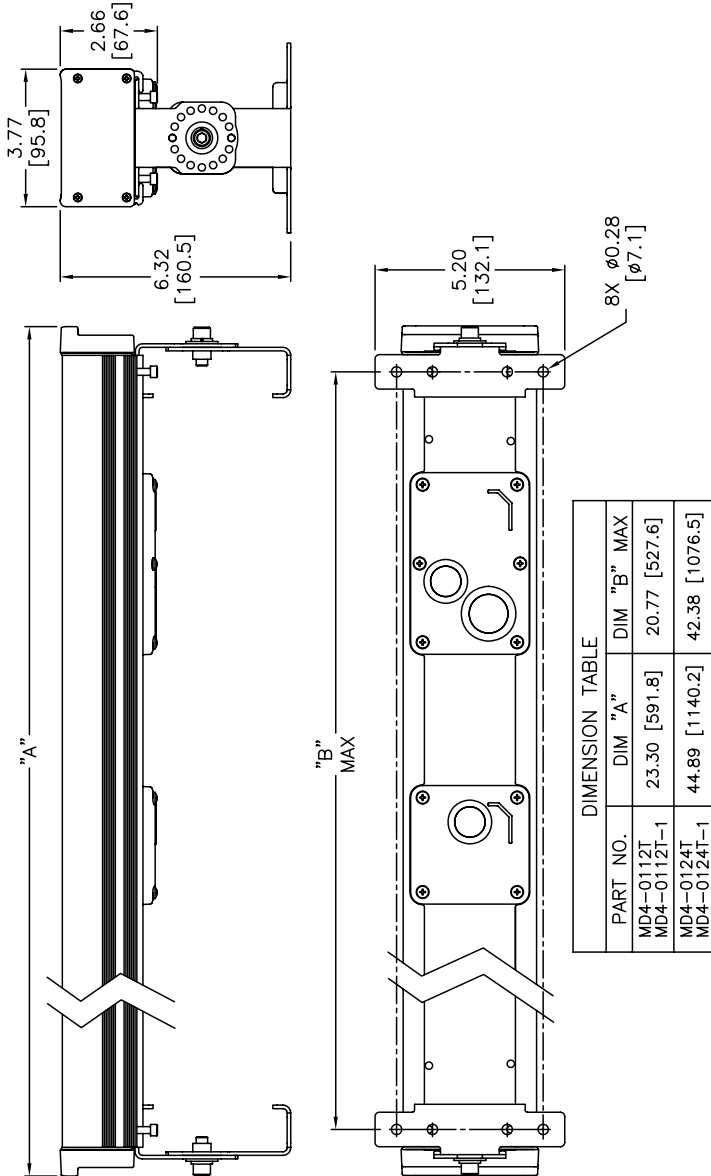
ViewMarq Housing Materials	
Aluminum Extrusion	AL6063-T5 Black Anodized
End Caps	Polycarbonate
End Cap Gaskets	Silicon
Back Covers	Polycarbonate
Back Cover Gaskets	Silicon
Lens	Polycarbonate
Lens Seal	Silicon

Dimensional Drawings

MD4-0112T, MD4-0124T, MD4-0112T-1 and MD4-0124T-1

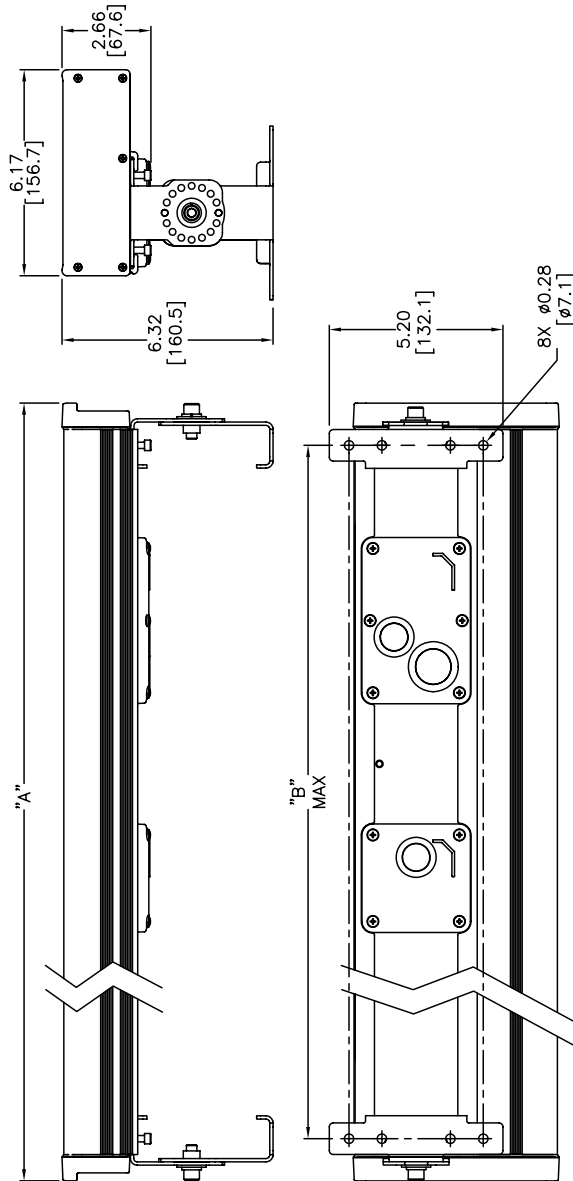
Dimensions: in [mm]

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MD4-0212T, MD4-0224T, MD4-0212T-1 and MD4-0224T-1

Dimensions: in [mm]



DIMENSION TABLE			
PART NO.	DIM "A"	DIM "B" MAX	DIM "B" MAX
MD4-0212T	23.30 [591.8]	20.77 [527.6]	
MD4-0212T-1			
MD4-0224T	44.89 [1140.2]	42.38 [1076.5]	
MD4-0224T-1			

MD4-0412T, MD4-0424T, MD4-0412T-1 and MD4-0424T-1

Dimensions: in [mm]

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