

SPECIFICATIONS



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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 UL508 requirements.

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



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

Specifications

ViewMarq 1-Line Message Displays Specifications		
Part Number	MD4-0112T	MD4-0124T
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 [5 mm]	
• Center to Center Spacing of each LED	0.27 in [7 mm]	
• Number of Lines	1 (Based on 5 x 7 pixel sized characters)	
• Text Height	1.25 in, 2 in (Depends on character set selected)	
• Character Set	English	
• Approximate Viewing Distance	100 ft	
AC Electrical		
• Input Voltage	100-240 VAC (+10% / -15%), 50 / 60 Hz	
• Maximum Current	0.5A	0.8A
• Power Consumption (MAX)	22W	38W
• Maximum Inrush Current (Cold and Hot)	25A	26A
• Input Fuse Protection (Internal)	Yes (not user replaceable)	
• Output Protection for Over-current, Over Voltage and Over Temperature	Yes – Self Resetting	
• Insulation Resistance	> 10 MOhms @ 500 VAC	
DC Electrical		
• Input Voltage	24 VDC (+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	MD4-0224T
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 [5 mm]	
• Center to Center Spacing of each LED	0.27 in [7 mm]	
• 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	200 ft	
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 Over-current, Over Voltage and Over Temperature	Yes – Self Resetting	
• Insulation Resistance	> 10 MOhms @ 500 VAC	
DC Electrical		
• Input Voltage	24 VDC (+10% / -15%)	
• Maximum Current	2A	3.5A
• 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	MD4-0424T
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 [5 mm]	
• Center to Center Spacing of each LED	0.27 in [7 mm]	
• Number of Lines	4 (Based on 5 x 7 pixel sized characters)	
• Text Height	1.25 in, 2 in, 4 in, 6 in, 8 in (Depends on character set selected)	
• Character Set	English	
• Approximate Viewing Distance	400 ft	
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	9.5A
• Input Fuse Protection (Internal)	Yes (not user replaceable)	
• Output Protection for Over-current, Over Voltage and Over Temperature	Yes – Self Resetting	
• Insulation Resistance	> 10 MOhms @ 500 VAC	
DC Electrical		
• Input Voltage	24 VDC (+10% / -15%)	
• Maximum Current	3.5A	4A
• Maximum Inrush Current (Cold and Hot)	10.5A	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

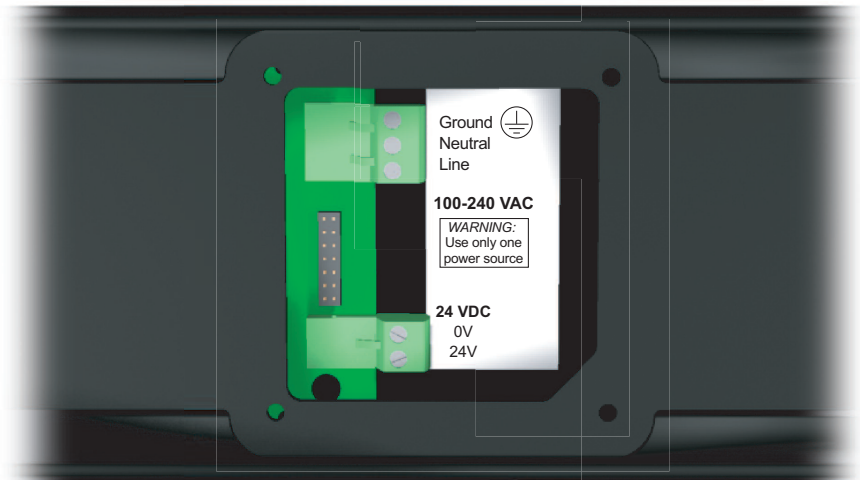
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ViewMarq Message Displays Specifications	
<i>Environmental</i>	
• Storage Temperature	-30 to +85 °C (-22 to +185 °F)
• Operating Temperature	0 to 60 °C (32 to +140 °F)
• Humidity	5 – 95% non-condensing
• Enclosure Ratings	NEMA 12 indoor only, NEMA 4 indoor only
• Vibration	IEC 60068-2-6 (Test Fc)
• Shock	IEC 60068-2-27 (Test Ea)
• Noise Immunity	EN61131-2:2007
• Agency Approvals	UL508, NEMA 4, NEMA 12, RoHS, REACH CE (EN61131-2:2007) - Pollution Degree 2, Overvoltage Category II

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 solid or stranded	4.5 in-lbs (0.5 N-m)	300V	15A	105 °C (221 °F)
	DC Power	Removable 2-pin terminal block					



AC Power Supply Specifications

AC Power Supply General Specifications						
Part Number	MD4-0112T	MD4-0124T	MD4-0212T	MD4-0224T	MD4-0412T	MD4-0424T
Input Voltage	100-240 VAC (+10% / -15%), 50 / 60 Hz					
Maximum Current	0.5A	0.8A	1A	2A		
Power Consumption (MAX)	22W	38W		74W		123W
Maximum Inrush Current (Cold and Hot)	25A	26A		24A		9.5A
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					Active Power Factor Correction
Voltage Withstand (Dielectric)	AC Mains to SELV SELV = Secondary Extra Low Voltage (RS232, RS485, Ethernet)					3250 VDC / 2 Seconds
Insulation Resistance	> 10 MOhms @ 500 VAC					

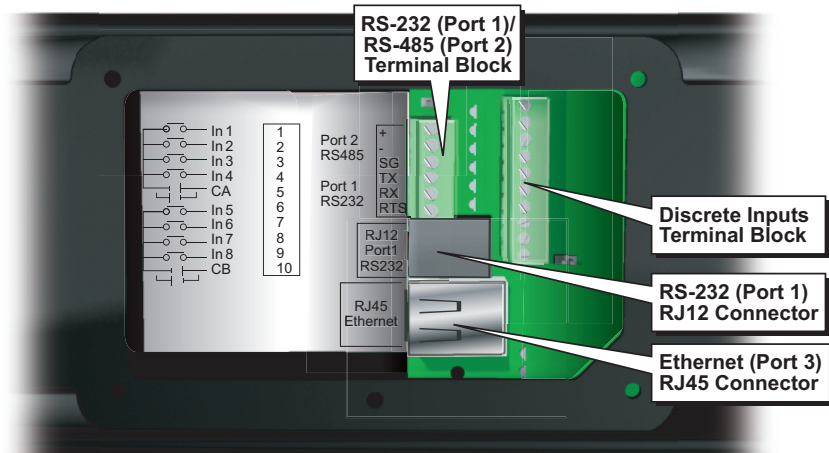
External DC Power Supply Requirements

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

Communication and Discrete Input Connections

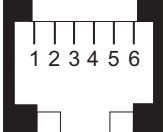
The following table describes the communication connections available in the ViewMarq display.

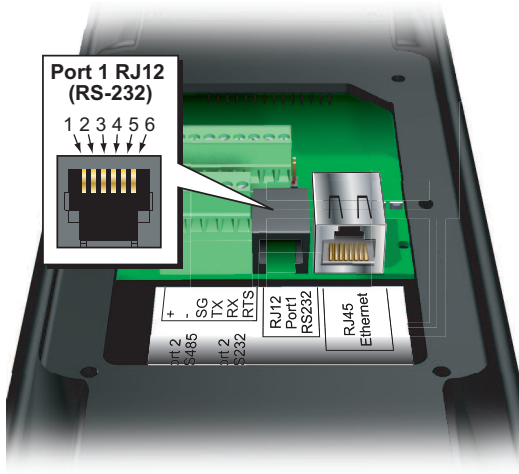
Communications and Discrete Input Connections				
Port	Type	Connector	Wire Size	Screw Torque
Port 1	RS-232	RJ12		n/a
Port 1 / Port 2	RS-232 / RS-485	Removable 6-pin terminal block	14-28 AWG	1.7 in-lbs (0.2 N-m)
Port 3	Ethernet	RJ45		n/a
Port 4	Discrete Inputs	Removable 10-pin terminal block	14-28 AWG	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 	<table border="1"> <thead> <tr> <th>Pin Number</th> <th>Signal Name</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Signal GND</td> </tr> <tr> <td>2</td> <td>Not Used</td> </tr> <tr> <td>3</td> <td>RXD</td> </tr> <tr> <td>4</td> <td>TXD</td> </tr> <tr> <td>5</td> <td>Not Used</td> </tr> <tr> <td>6</td> <td>Signal GND</td> </tr> </tbody> </table>	Pin Number	Signal Name	1	Signal GND	2	Not Used	3	RXD	4	TXD	5	Not Used	6	Signal GND
Pin Number	Signal Name															
1	Signal GND															
2	Not Used															
3	RXD															
4	TXD															
5	Not Used															
6	Signal GND															

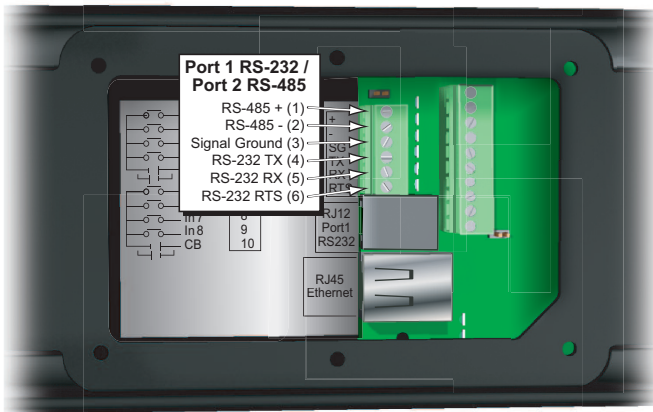


Port 1 RS232 Terminal Block Connection

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

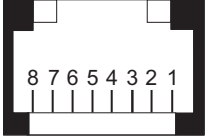
Port 2 RS-485 Terminal Block Connection

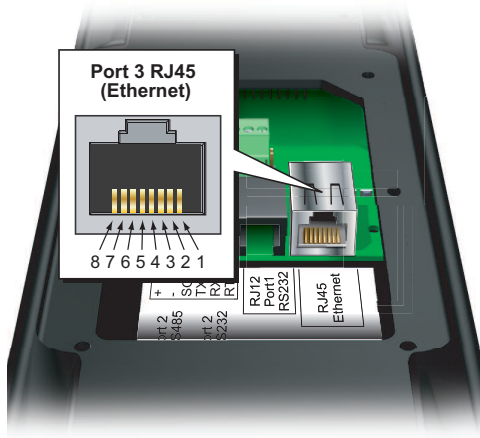
Port 2 - RS-485 Terminal Block	
Description	Specification
Designation	Port 2
Serial Communications	Physical Layer: Non-isolated, Conforms to RS485 Communications Interface
Communication Port Settings	9600,19200, 38400 Data Length: 7/8 bits, Stop Bit: 1 bit, Parity: None, Even/Odd



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

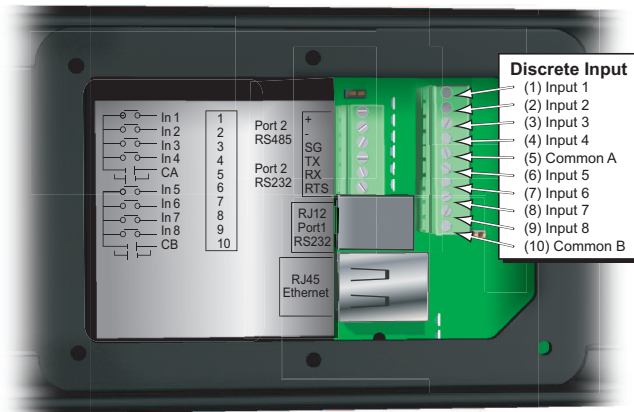
Port 3 - Ethernet			
Description	Specification		
Standard Specification	Conforms to IEEE802.3		
Communication Speed	10/100BASE-T(auto crossover)		
Cable Specification	Cat5e		
Physical Jack	RJ45, Module jack		
Connector Type	Female RJ45	Pin Number	Signal Name
		1 2 3 4 5 6 7 8	TD+ TD- RD+ No Connection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



Discrete Input Specifications

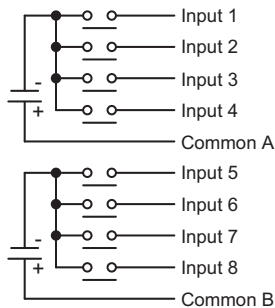
Discrete Inputs	
Description	Specification
Inputs per Module	8 (sinking / sourcing)
Commons per Module	2 isolated (4 inputs per common)
Input Voltage Range	10-28 VDC
ON Voltage / Current Level	9 VDC / 3mA
OFF Voltage / Current Level	4 VDC / 0.5 mA
Maximum Input Current	13 mA @ 28 VDC
Input Impedance	2.2 kohm @ 24 VDC
OFF to ON Response	2 to 9ms
ON to OFF Response	2 to 9ms
Peak Voltage	30 VDC

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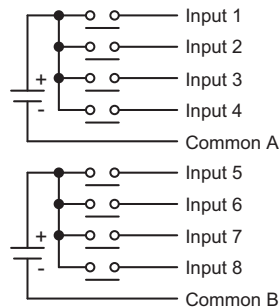


10 Position Terminal Block Pin Number	Signal Name
1	Input 1
2	Input 2
3	Input 3
4	Input 4
5	Common A
6	Input 5
7	Input 6
8	Input 7
9	Input 8
10	Common B

Sourcing Input Wiring



Sinking Input Wiring

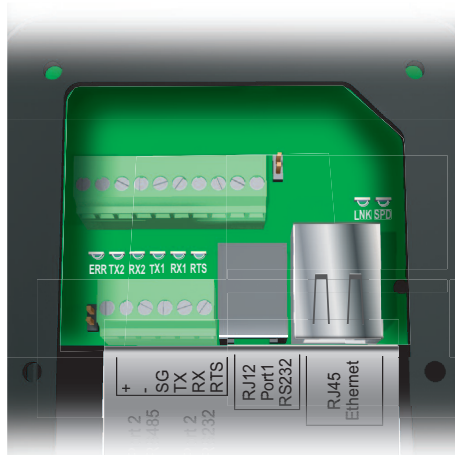


NOTE: In order to maintain UL508 rating, discrete inputs must be powered from a Class 2 power supply.

Communication LEDs

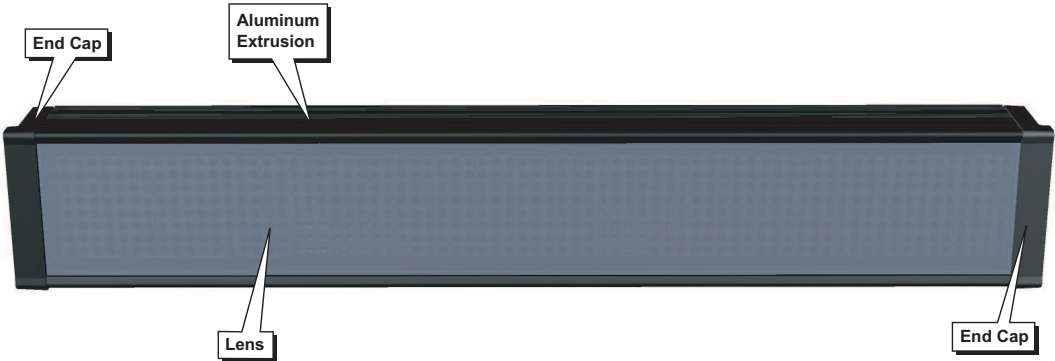
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Communication LEDs			
LED	Color	Silkscreen Label	Meaning
Ethernet Speed	Green	SPD	OFF = 10M Connection, ON = 100M Connection
Ethernet Link Status Condition		LNK	OFF - No link, ON = Link, Blinking = Network Activity
RS-232 Request to Send		RTS	Blinking = RS232 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

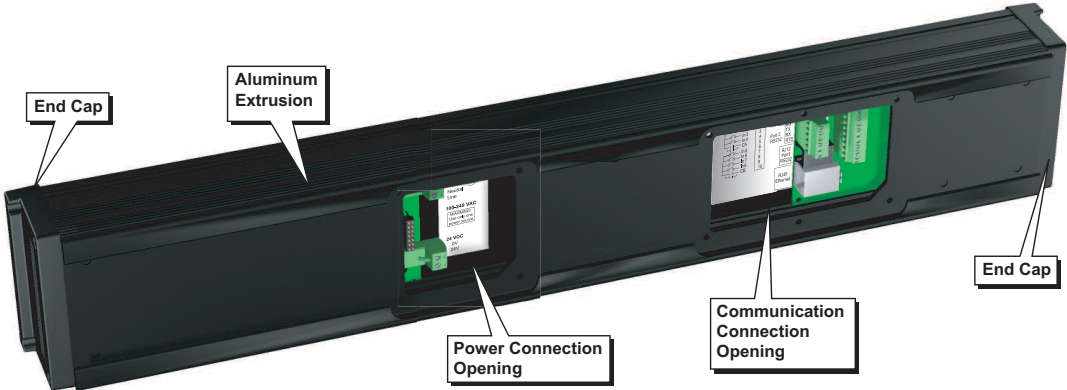


Mechanical Features

Front View



Back View



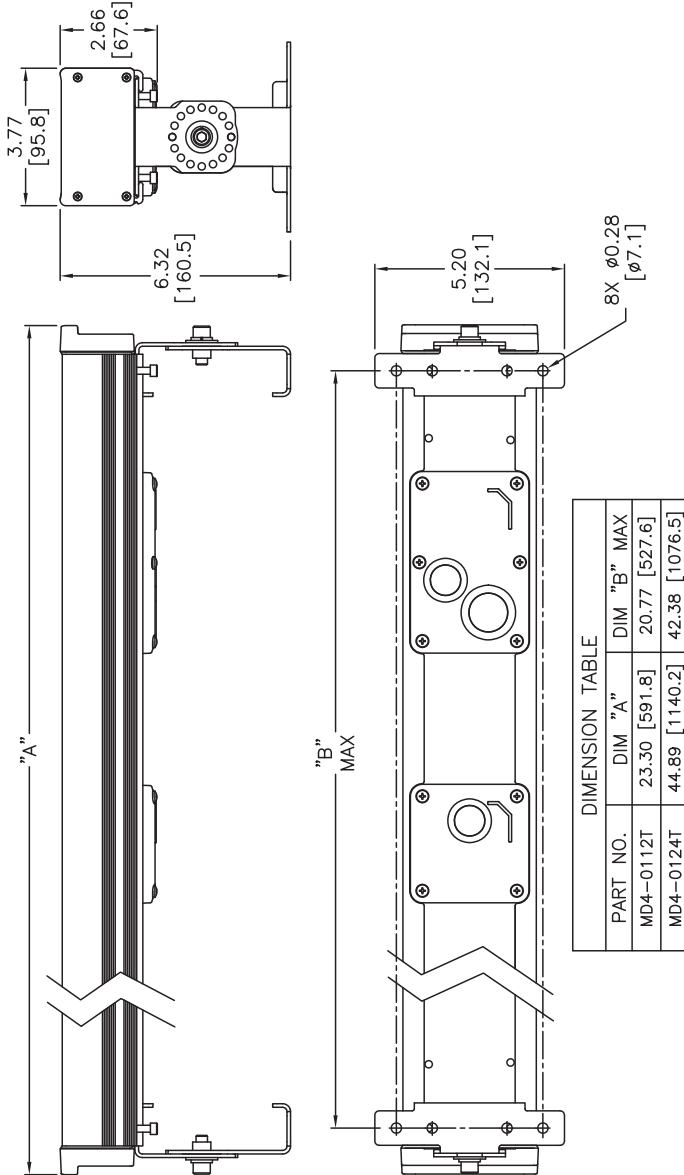
ViewMarq Housing Materials	
<i>Aluminum Extrusion</i>	AL6063-T5 Black Anodized
<i>End Caps</i>	Polycarbonate
<i>End Cap Gaskets</i>	Silicon
<i>Back Covers</i>	Polycarbonate
<i>Back Cover Gaskets</i>	Silicon
<i>Lens</i>	Polycarbonate
<i>Lens Seal</i>	Silicon

Dimensional Drawings

MD4-0112T and MD4-0124T

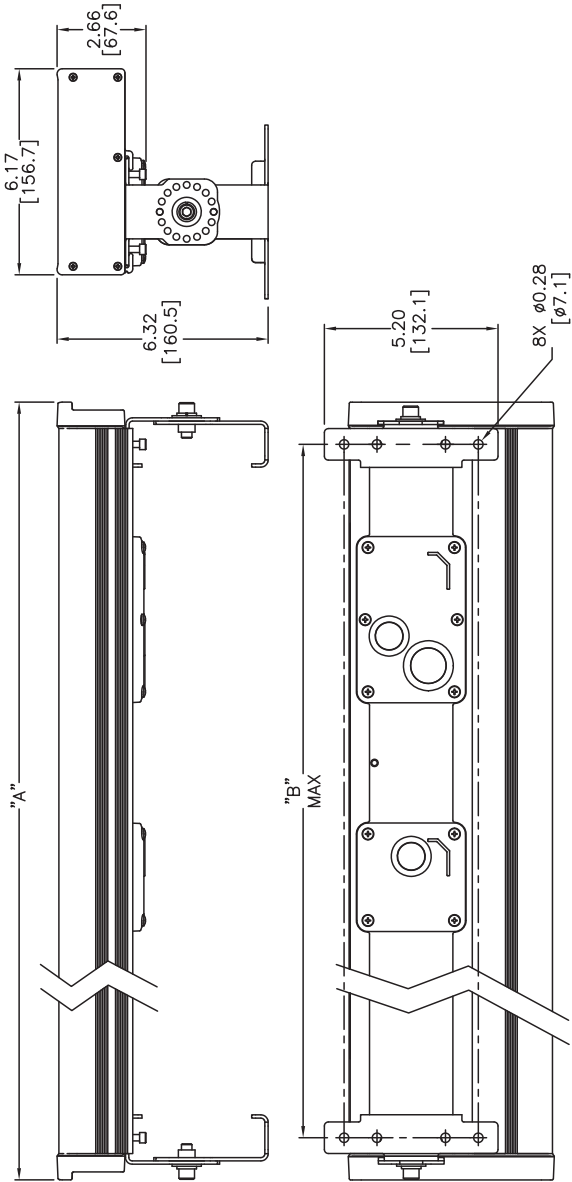
Dimensions: in [mm]

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MD4-0212T and MD4-0224T

Dimensions: in [mm]



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

MD4-0412T and MD4-0424T

Dimensions: in [mm]

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