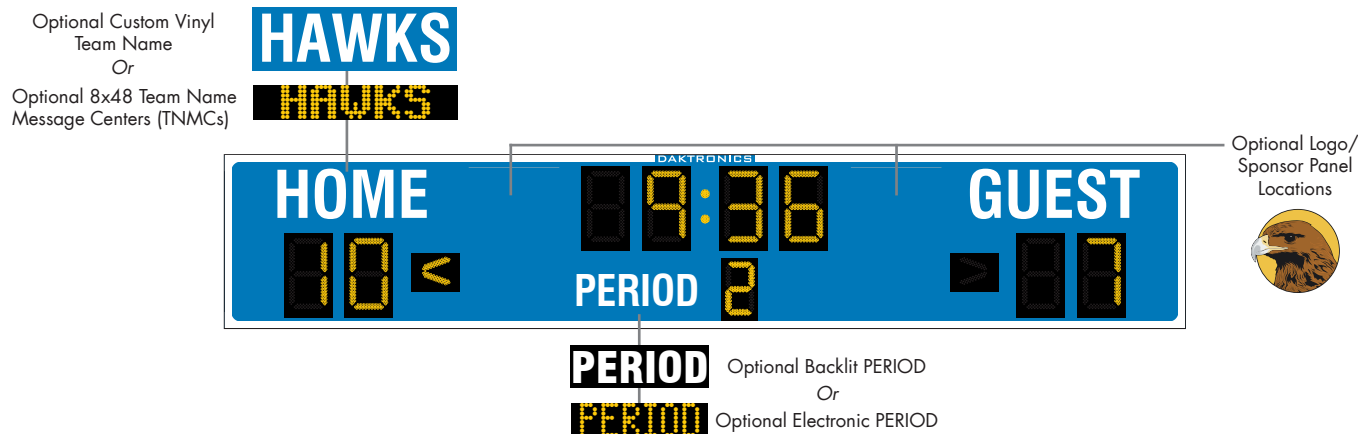


DAKTRONICS MS-2028 PRODUCT SPECIFICATIONS



This outdoor LED multisport scoreboard displays period time to 99:59, HOME and GUEST scores to 99, PERIOD to nine, and indicates team penalty. When period time is less than one minute, the scoreboard displays time to 1/10 of a second.

		VINYL CAPTIONS (STANDARD)	TNMCs & VINYL CAPTIONS	TNMCs & ELECTRONIC CAPTIONS	BACKLIT & VINYL CAPTIONS
POWER (120 VAC)*	Red/Amber Digits	170 Watts, 1.5 Amps	270 Watts, 2.3 Amps	305 Watts, 2.6 Amps	265 Watts, 2.3 Amps
	White Digits	340 Watts, 2.9 Amps	570 Watts, 4.8 Amps	650 Watts, 5.5 Amps	435 Watts, 3.7 Amps
UNCRATED WEIGHT		427 lb (194 kg)	547 lb (248 kg)	587 lb (266 kg)	511 lb (232 kg)
DIMENSIONS		4'-6" H x 25'-0" W x 8" D (1.37 m x 7.62 m x 203 mm)			

*Scoreboard requires a dedicated circuit. Models with 240 VAC power at half the indicated amperage are also offered (International Use Only).

DIGITS & INDICATORS

- Clock and score digits are 24" (610 mm) high. PERIOD digit is 18" (457 mm) high.
- Select red, amber, or white LED digits and indicators.
- Scoreboard features weather-sealed PanaView® digits (see [DD2495646](#)).
- Digits may be dimmed for night viewing.

DISPLAY COLOR

Choose a color from the Daktronics standard paint book (see [SL-02730](#)).

CONSTRUCTION

Alcoa aluminum alloy 5052 for excellent corrosion resistance

PRODUCT SAFETY APPROVAL

ETL-listed to UL 48, tested to CSA standards, and CE-labeled

CAPTIONS & STRIPING

- HOME and GUEST captions are 15" (381 mm) high. PERIOD caption is 10" (254 mm) high.
- Standard captions are vinyl, applied to the display face.
- Optional backlit captions consist of white letters on a black background. Team names are 14" (356 mm) high. All other captions are 12" (305 mm) high.
- Optional electronic PERIOD caption changes according to the sport mode, eliminating the need for caption panels. Electronic captions and TNMCs are 10.6" (269 mm) high.
- Standard captions and border striping are white vinyl. Choose another vinyl color at no additional cost (see [DD2101644](#)).

OPERATING TEMPERATURES

- Display: -22° to 122° Fahrenheit (-30° to 50° Celsius)
- Console: 32° to 130° Fahrenheit (0° to 54° Celsius)

WWW.DAKTRONICS.COM E-MAIL: SALES@DAKTRONICS.COM

201 Daktronics Drive, PO Box 5128, Brookings, SD 57006
Phone: 1-800-325-8766 or 605-692-0200 Fax: 605-697-4746
DD3645470 012725 Page 1 of 9



DAKTRONICS MS-2028 PRODUCT SPECIFICATIONS

CONTROL CONSOLE

All Sport® 5000
(see [SL-03991](#))

CONTROL OPTIONS

Wireless: 2.4 GHz spread spectrum radios feature 64 non-interfering channels and 8 broadcast groups (see [SL-04370](#)). This is a popular upgrade.

Wired: Two-pair shielded cable of 22 AWG minimum is required. A cover plate with mounted connector and standard 2" x 4" x 2" (51 mm x 102 mm x 51 mm) outlet box is provided. Connector mates with signal cable from control console.

SEGMENT TIMER MODE

The segment timer mode is ideal for keeping practices on schedule. The horn at the end of a segment allows coaches and athletes to focus on the practice and to listen for the horn when it is time to change drills (see [SL-04004](#)).

TIME OF DAY MODE

This scoreboard features a Time of Day (TOD) mode that allows it to act as a clock when the control console is unplugged or off. Refer to the scoreboard installation manual for instructions on how to enable the Time of Day mode.

MOUNTING

Scoreboard is typically mounted on two vertical beams or poles. Hardware to mount scoreboard on two beams is included; hardware for more beams is at additional cost. Standard mounting uses I-beam clamps. Optional mounting method using angle brackets is also offered; maximum beam width is 12" (305 mm) and maximum beam depth is 22" (559 mm). Refer to attached drawings for more information on mounting methods.

SERVICE ACCESS

Digit panels and electronics are serviced from the front of the scoreboard.

GENERAL INFORMATION

Scoreboard provides scoring capabilities for two teams. 100% solid state electronics are housed in an all aluminum cabinet. Scoreboard is shipped in one section. Scoreboard power is to be provided on a dedicated circuit to prevent loss of game information due to failure of another component on the circuit. Specifications and pricing are subject to change without notice.

ADVERTISING/IDENTIFICATION PANELS

Backlit & Non-Backlit:

1'-6" H x 25'-0" W (457 mm x 7.62 m)
2'-0" H x 25'-0" W (610 mm x 7.62 m)
2'-6" H x 25'-0" W (762 mm x 7.62 m)
3'-0" H x 25'-0" W (914 mm x 7.62 m)
4'-0" H x 25'-0" W (1.22 m x 7.62 m)
5'-0" H x 25'-0" W (1.52 m x 7.62 m)

For additional non-backlit panel sizes, see [SL-03761](#).

FAN FAVORITE OPTIONS

These are the most commonly requested enhancements:

- Custom vinyl team name caption in place of HOME *or* Two Digital Team Name Message Centers (TNMCs) in place of HOME and GUEST captions (see [DD1696958](#)) *or* Backlit team name captions
- Two 3'-10" tall x 2'-4" wide (1.17 m x 711 mm) logo/ sponsor areas. Copy is applied to the display face.
- Horn

OTHER ACCESSORIES & UPGRADES

The options below are available for additional customization:

- Backlit *or* electronic PERIOD caption
- Reversible HALF and QTR caption panel
- Individual digit protective screens (see [SL-04939](#))
- Protective netting (see [DD2690927](#))
- Angle bracket mounting method

COMPLETE YOUR SYSTEM

Contact Daktronics about adding any of this equipment to create a unique scoring and display system:

- Advertising/identification panels
- Decorative accents
- Shot clocks
- Sportsound® Audio
- Video displays
- Live web streaming of scores and stats

FOR ADDITIONAL INFORMATION

- Installation Specifications: DWG-1183308 (attached)
- Standard I-beam Mounting: DWG-1052565 (attached)
- LVX I-Beam Mounting: DWG-3918361 (attached)
- Optional Pole Mounting: DWG-1048184 (attached)
- Component Locations (Red/Amber Digits): DWG-4166431 (attached)
- Component Locations (White Digits): DWG-4166433 (attached)
- Architectural Specifications: See [DD3645463](#)

DAKTRONICS MS-2028 PRODUCT SPECIFICATIONS

ALTERNATE CAPTIONS & SCORING MODES



Lacrosse/Field Hockey Mode –
vinyl, backlit & electronic captions shown



Football Mode –
vinyl*, backlit & electronic captions shown



Soccer Mode –
vinyl*, backlit & electronic captions shown

**Optional HALF/QTR Vinyl
Captions on Reversible Panel*

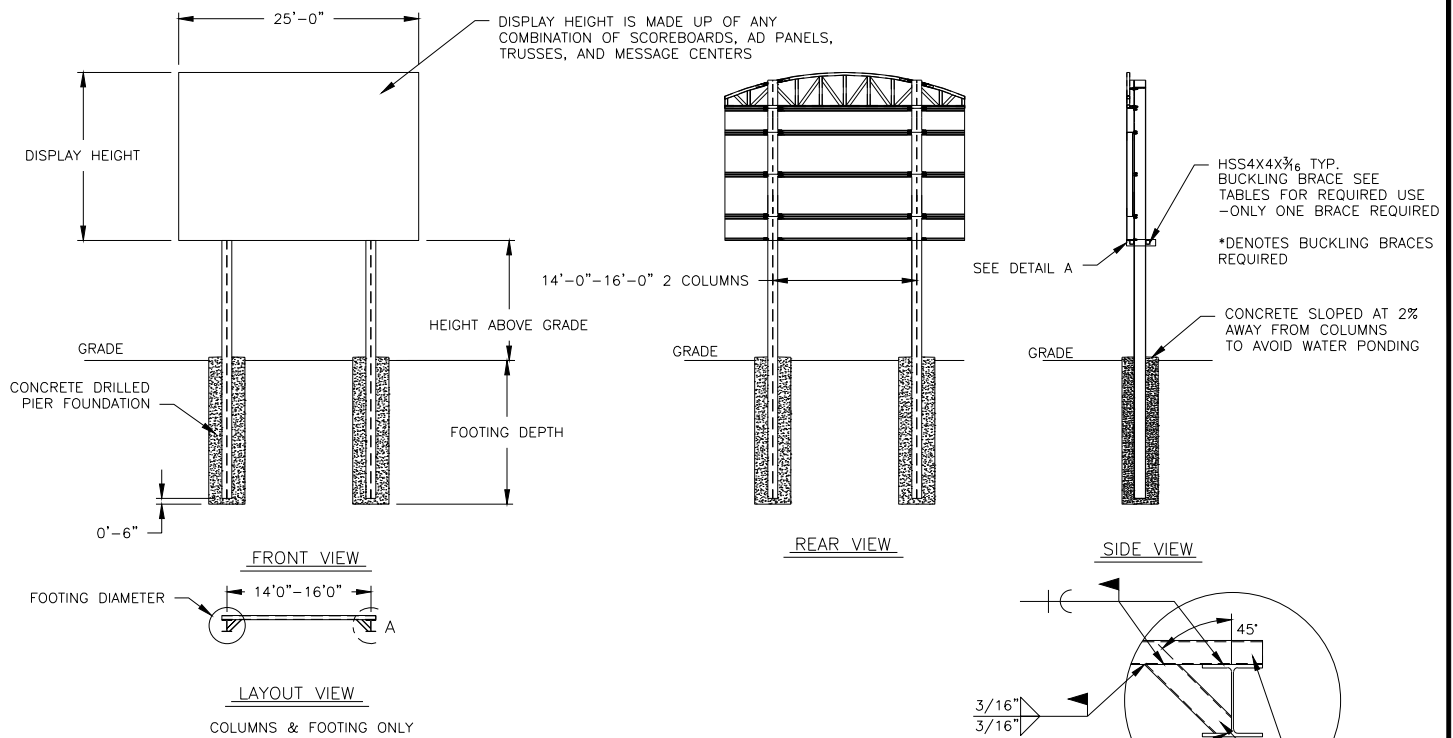


TABLE A - MOUNTING

EXPOSURE B

HEIGHT ABOVE GRADE = 10'						HEIGHT ABOVE GRADE = 15'					
DISPLAY HEIGHT (FT)		DESIGN WIND VELOCITY				DISPLAY HEIGHT (FT)		DESIGN WIND VELOCITY			
		115 MPH	130 MPH	150 MPH	170 MPH			115 MPH	130 MPH	150 MPH	170 MPH
8	COLUMN FOOTING	W8X28 3.0'X8.0'	W8X31 3.0'X9.0'	W14X38 3.0'X10.0'	W12X40 3.0'X11.0'	8	COLUMN FOOTING	W10X39 3.0'X9.0'	W14X43 3.0'X10.0'	W10X49 3.0'X11.0'	W12X58 3.0'X12.0'
10	COLUMN FOOTING	W10X33 3.0'X9.0'	W10X39 3.0'X10.0'	W14X43 3.0'X11.0'	W12X53 3.0'X12.0'	10	COLUMN FOOTING	W10X45 3.0'X10.0'	W12X53 3.0'X11.0'	W12X58 4.0'X11.0'	W16X67 4.0'X13.5'
12	COLUMN FOOTING	W10X39 3.0'X10.0'	W14X43 3.0'X10.5'	W12X53 3.0'X12.0'	W14X61 4.0'X12.0'	12	COLUMN FOOTING	W12X53 3.0'X11.0'	W12X58 3.0'X12.0'	W12X72 3.0'X13.5'	W18X76 3.0'X13.5'
14	COLUMN FOOTING	W14X43 3.0'X10.5'	W12X53 3.0'X11.5'	W12X58 4.0'X11.5'	W16X67 4.0'X13.0'	14*	COLUMN FOOTING	W14X48 3.0'X11.5'	W18X55 3.0'X13.0'	W21X62 4.0'X13.0'	W24X68 4.0'X15.0'
16	COLUMN FOOTING	W12X53 3.0'X11.5'	W14X61 4.0'X11.0'	W12X72 4.0'X12.5'	W18X86 4.0'X14.5'	16*	COLUMN FOOTING	W21X48 4.0'X11.0'	W21X62 4.0'X12.0'	W21X68 4.0'X14.5'	W24X76 4.0'X17.0'
18*	COLUMN FOOTING	W16X40 3.0'X12.0'	W21X48 4.0'X12.0'	W21X55 4.0'X14.0'	W21X68 4.0'X16.0'	18*	COLUMN FOOTING	W21X55 4.0'X12.0'	W16X67 3.0'X16.0'	W18X76 4.0'X16.0'	W27X84 4.0'X18.5'
20*	COLUMN FOOTING	W14X48 3.0'X13.0'	W18X55 3.0'X15.0'	W21X62 4.0'X15.0'	W24X68 4.0'X18.0'	20*	COLUMN FOOTING	W21X62 4.0'X12.5'	W24X68 4.0'X14.5'	W24X84 4.0'X17.5'	W30X90 5.0'X17.5'

FOOTING DIMENSIONS = DIAMETER X DEPTH

* DENOTES ADDITIONAL BRACES REQUIRED AT THE MID HEIGHT OF DISPLAY

EXPOSURE C

HEIGHT ABOVE GRADE = 10'				HEIGHT ABOVE GRADE = 15'			
DISPLAY HEIGHT (FT)		DESIGN WIND VELOCITY		DISPLAY HEIGHT (FT)		DESIGN WIND VELOCITY	
		115 MPH	140 MPH			115 MPH	140 MPH
8	COLUMN FOOTING	W10X33 3.0'X9.5'	W12X40 3.0'X10.5'	8	COLUMN FOOTING	W14X43 3.0'X10.0'	W12X58 3.0'X12.0'
10	COLUMN FOOTING	W14X43 3.0'X10.5'	W12X53 3.0'X11.5'	10	COLUMN FOOTING	W12X53 3.0'X11.5'	W12X65 3.0'X13.5'
12	COLUMN FOOTING	W14X48 3.0'X11.5'	W12X58 4.0'X11.5'	12	COLUMN FOOTING	W14X61 4.0'X12.0'	W18X76 4.0'X13.0'
14	COLUMN FOOTING	W12X53 4.0'X11.0'	W16X67 4.0'X13.0'	14*	COLUMN FOOTING	W21X48 4.0'X12.0'	W21X68 4.0'X14.5'
16	COLUMN FOOTING	W12X65 4.0'X11.5'	W18X76 4.0'X14.0'	16*	COLUMN FOOTING	W21X62 4.0'X13.0'	W18X76 4.0'X16.0'
18*	COLUMN FOOTING	W21X48 4.0'X12.5'	W21X62 4.0'X15.5'	18*	COLUMN FOOTING	W21X68 4.0'X14.0'	W24X84 4.0'X18.0'
20*	COLUMN FOOTING	W21X55 4.0'X13.5'	W21X68 4.0'X17.0'	20*	COLUMN FOOTING	W18X76 4.0'X15.5'	W30X90 5.0'X17.0'

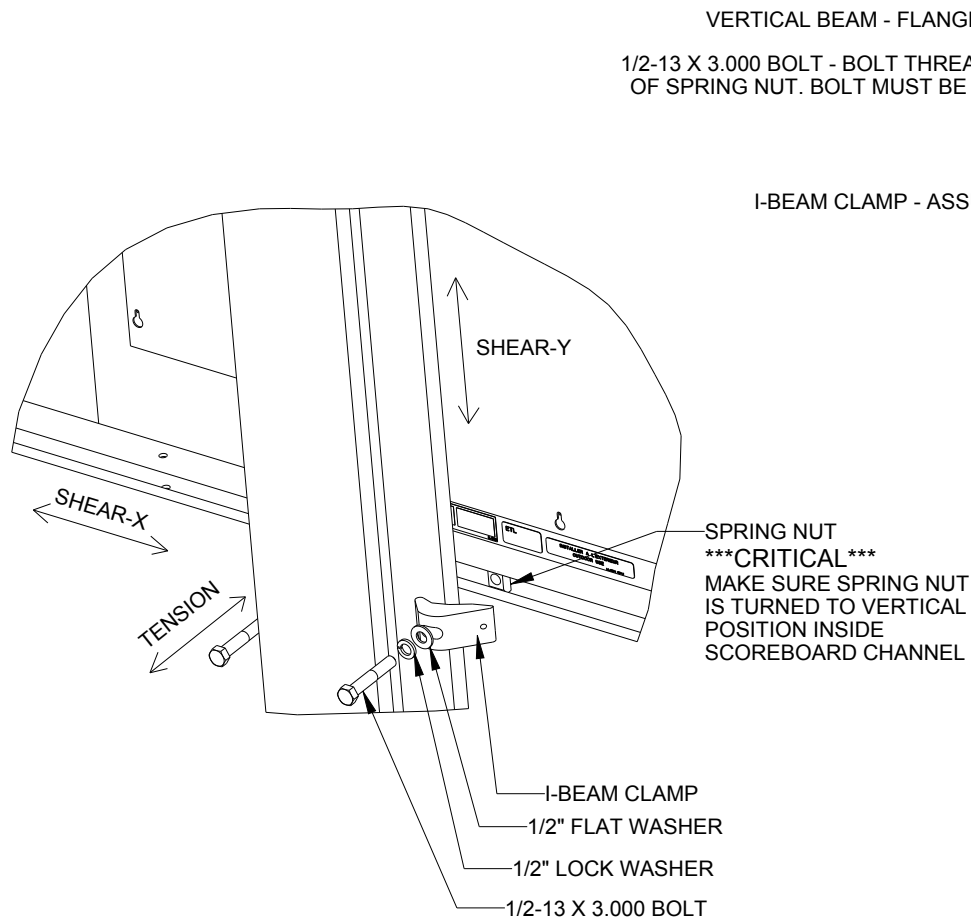
FOOTING DIMENSIONS = DIAMETER X DEPTH

* DENOTES ADDITIONAL BRACES REQUIRED AT THE MID HEIGHT OF DISPLAY

NOTES:

1. FOOTING AND COLUMN SIZES ARE SUGGESTIONS ONLY, PROVIDED TO ASSIST WITH ESTIMATING INSTALLATION COSTS AND ARE NOT INTENDED FOR CONSTRUCTION PURPOSES. THE DESIGN MUST BE CERTIFIED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF THE INSTALLATION BEFORE THEY CAN BE USED FOR FABRICATION OR ERECTION.
2. INTERNATIONAL BUILDING CODE 2012 USED IN DESIGN OF COLUMNS AND FOOTINGS WITH IMPORTANCE FACTOR=1, Kzt=1.0, Kd=0.85, G=0.85. SEISMIC DESIGN WAS NOT CONSIDERED.
3. FOOTING DIMENSIONS ARE BASED ON ASSUMED SOIL CLASS 4 (ALLOWABLE LATERAL BEARING PRESSURE OF 150 psf).
4. STRUCTURAL STEEL IS GRADE A992 (50 ksi) STEEL. CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 2500 psi.
5. THE AVERAGE DISPLAY WEIGHT FOR A LAYOUT CAN NOT EXCEED 8 PSF.
6. DAKTRONICS INC. IS NOT RESPONSIBLE FOR STRUCTURES DESIGNED AND INSTALLED BY OTHERS.
7. LOCAL BUILDING OFFICIALS SHOULD BE CONTACTED TO DETERMINE THE WIND SPEED AND EXPOSURE CATEGORY FOR THE PROPOSED SIGN LOCATION. THE EXPOSURE CATEGORY C IS DEFINED AS:
EXPOSURE B - URBAN AND SUBURBAN AREAS, OR OTHER TERRAIN WITH NUMEROUS SPACED OBSTRUCTIONS HAVING THE SIZE OF SINGLE-FAMILY DWELLINGS OR LARGER. THESE CONDITIONS MUST PREVAIL FOR A DISTANCE FROM THE SIGN OF AT LEAST 2,600 FT OR 20 TIMES THE SIGN HEIGHT, WHICHEVER IS GREATER
EXPOSURE C - OPEN TERRAIN WITH SCATTERED OBSTRUCTIONS HAVING HEIGHTS GENERALLY LESS THAN 30 FT. THIS CATEGORY INCLUDES FLAT OPEN COUNTRY, GRASSLANDS, AND ALL WATER SURFACES IN HURRICANE PRONE REGIONS.
8. FOR SPECIFIC PRODUCT DETAILS ON WEIGHT, MOUNTING, ETC. REFER TO THE INDIVIDUAL PRODUCT SPECIFICATION SHEETS.

		DAKTRONICS, INC. BROOKINGS, SD 57006 DO NOT SCALE DRAWING		THE CONCEPTS EXPRESSED AND DETAILS SHOWN ON THIS DRAWING ARE CONFIDENTIAL AND PROPRIETARY. DO NOT REPRODUCE BY ANY MEANS WITHOUT THE EXPRESS WRITTEN CONSENT OF DAKTRONICS, INC. COPYRIGHT 2014 DAKTRONICS, INC.	
		PROJ: OUTDOOR SCOREBOARD INSTALLATION TITLE: 25' WIDTH SCOREBOARD INSTALLATION SPECS. DESIGN: TTASCHN DRAWN: TTASCHN DATE: 22JUL14 SCALE: 1/16" = 1'			
SHEET		REV		JOB NO:	
		00		P1538	
				FUNC-TYPE-SIZE	
				E-10-A	
1183308					



EXPLODED REAR ISOMETRIC VIEW

STANDARD MOUNTING METHOD

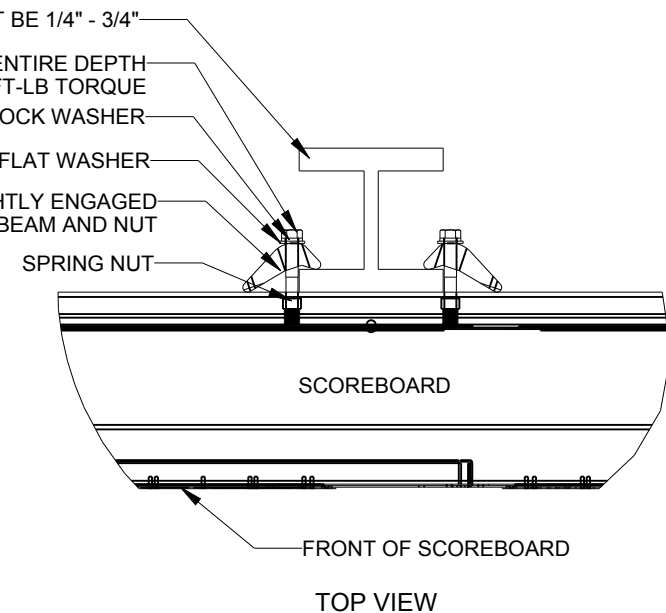
MOUNTING INSTRUCTIONS:

1. PLACE SPRING NUTS INTO SCOREBOARD CHANNEL IN APPROXIMATE LOCATION OF VERTICAL BEAMS
2. LIFT SCOREBOARD INTO POSITION
3. MAKE SURE THE 1/2-13 BOLTS ARE AS CLOSE TO THE I-BEAM FLANGES AS POSSIBLE
4. WHEN SCOREBOARD IS ADJUSTED TO FINAL DESIRED POSITION, TIGHTEN BOLTS FIRMLY
5. IF FLANGE THICKNESS IS MORE THAN 3/4" THICK LONGER BOLTS WILL BE REQUIRED AT THE CUSTOMER'S EXPENSE.


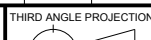
STRUCTURAL NOTES

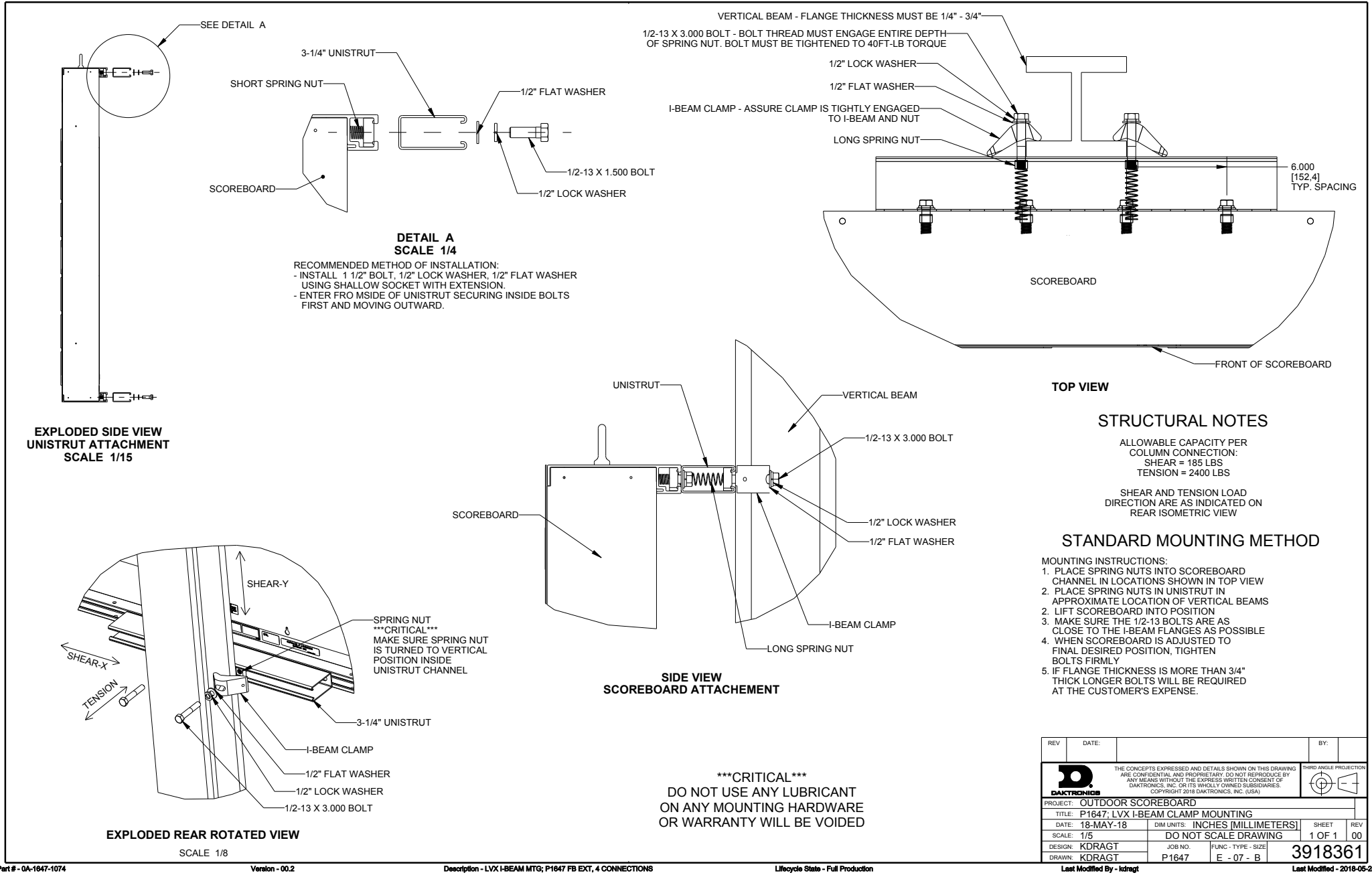
ALLOWABLE CAPACITY PER EACH CLAMP:
SHEAR = 160 LBS
TENSION = 2300 LBS

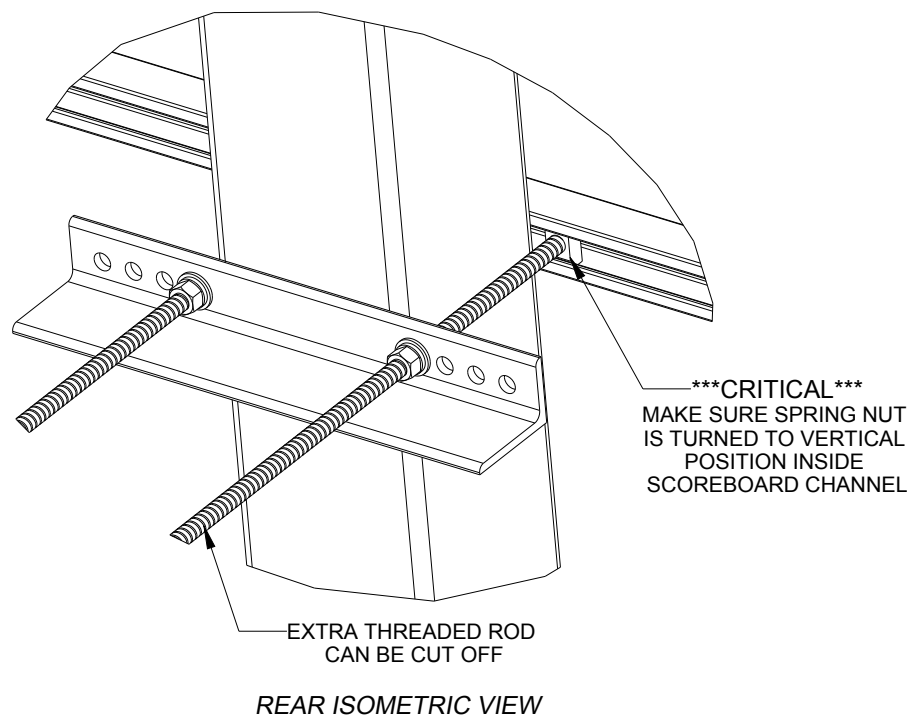
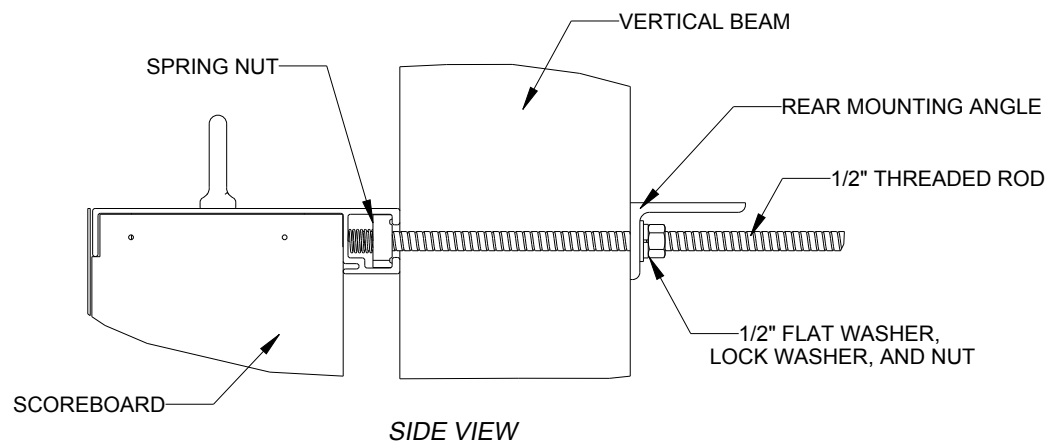
SHEAR AND TENSION LOAD
DIRECTION ARE AS INDICATED ON
REAR ISOMETRIC VIEW



05	22 DEC 15	PER EC-22871; ADDED LUBRICANT NOTE	PJS 18704
04	06 JAN 14	ADDED ALLOWABLE TENSION AND SHEAR CAPACITY DETAILS	JAVA
03	23 OCT 13	PER EC-12382; CHANGED BOLT TORQUE FROM 30 FT-LB TO 40 FT-LB	NJM
02	07 MAR 12	ADDED STANDARD MOUNTING METHODS NOTES	KDD
01	21 FEB 12	CHANGED ROCKER TO I-BEAM	KDD
REV	DATE:		BY:

		<small>THE CONCEPTS EXPRESSED AND DETAILS SHOWN ON THIS DRAWING ARE CONFIDENTIAL AND PROPRIETARY. DO NOT REPRODUCE BY ANY MEANS WITHOUT THE EXPRESS WRITTEN CONSENT OF DAKTRONICS, INC. OR ITS WHOLLY OWNED SUBSIDIARIES. COPYRIGHT 2016 DAKTRONICS, INC. (USA)</small>							
PROJECT: OUTDOOR SCOREBOARD									
TITLE: P1647; I-BEAM CLAMP MOUNTING									
DATE: 22-DEC-15				DIM UNITS: INCHES [MILLIMETERS]		SHEET	REV		
SCALE: 1/8				DO NOT SCALE DRAWING		1 OF 1	05		
DESIGN: MCARSRU		JOB NO.	FUNC - TYPE - SIZE		1052565				
DRAWN: MCARSRU		P1647	E - 07 - A						

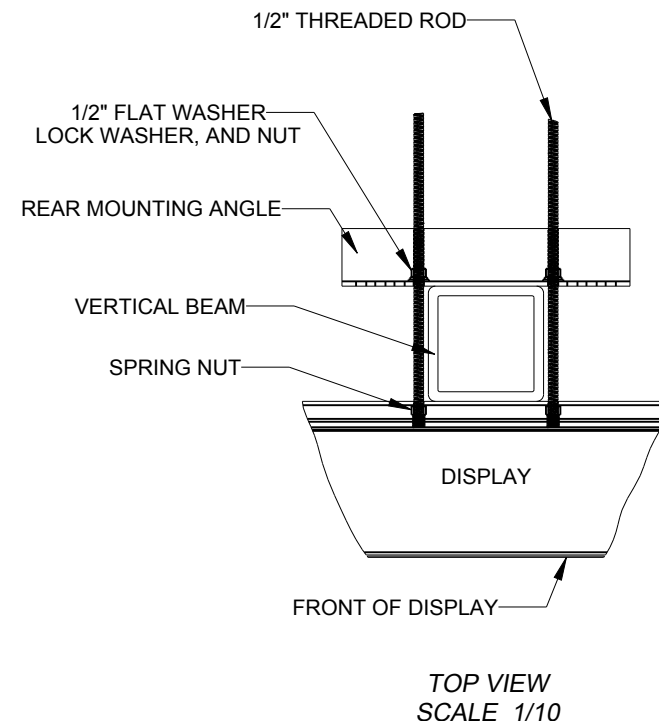




STRUCTURAL NOTES:
- BOLT TORQUE: 30 FT-LB

NOTES:

- THREADED RODS RUN ALONG BOTH SIDES OF BEAM
- RODS DO NOT PASS THROUGH THE FLANGES OF THE BEAM
- NO DRILLING NECESSARY
- MAKE SURE SPRING NUT IS PERPENDICULAR TO CHANNEL OPENING ON SCOREBOARD

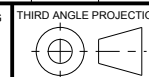


*****CRITICAL*****
DO NOT USE ANY LUBRICANT
ON ANY MOUNTING HARDWARE
OR WARRANTY WILL BE VOIDED

04	22 DEC 15	PER EC-22871; ADDED LUBRICANT WARNING	PJS 18704	
03	03 JULY 13	ADDED STRUCTURAL NOTE	TTF	
02	20 SEP 12	PER EC-7114; REMOVED CHAMFER FROM 0M-133259	LMG	
01	06 OCT 11	REPLACED VERTICAL I-BEAM WITH 6" X 6" SQUARE TUBE	JAVA	
REV	DATE:		BY:	

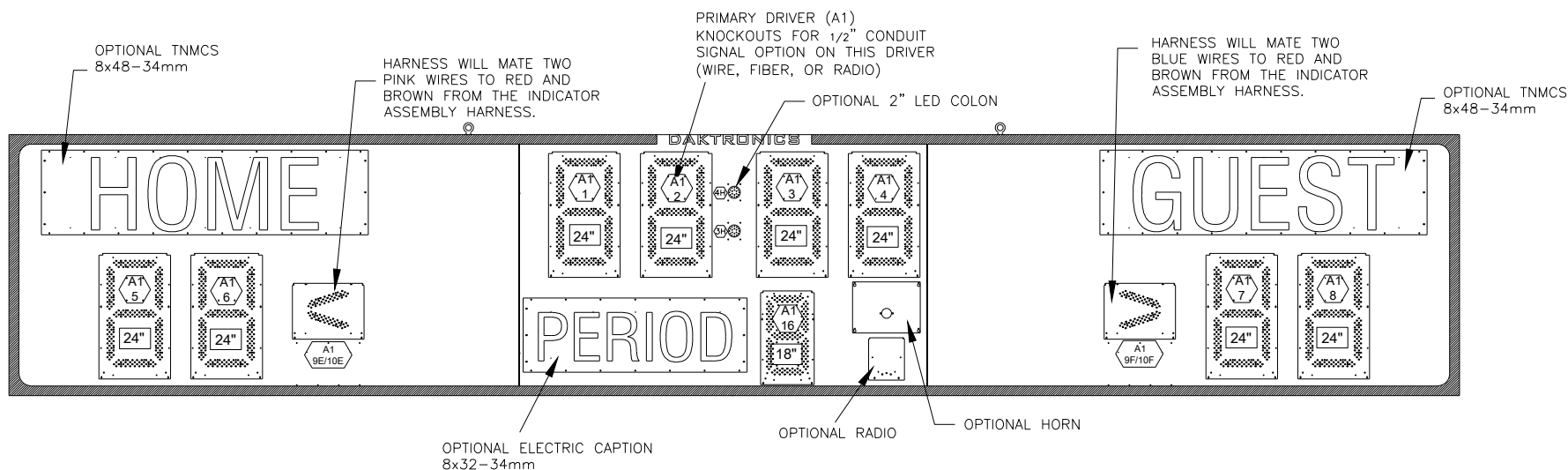


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PROJECT: OUTDOOR SCOREBOARDS				
TITLE: P1647; POLE MOUNTING OPTIONS				
DATE: 22-DEC-15	DIM UNITS: INCHES [MILLIMETERS]		SHEET	REV
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DRAWN: DOPPELT	P1647	E - 10 - A		

MS-2028-R/A



FRONT VIEW

NOTES:

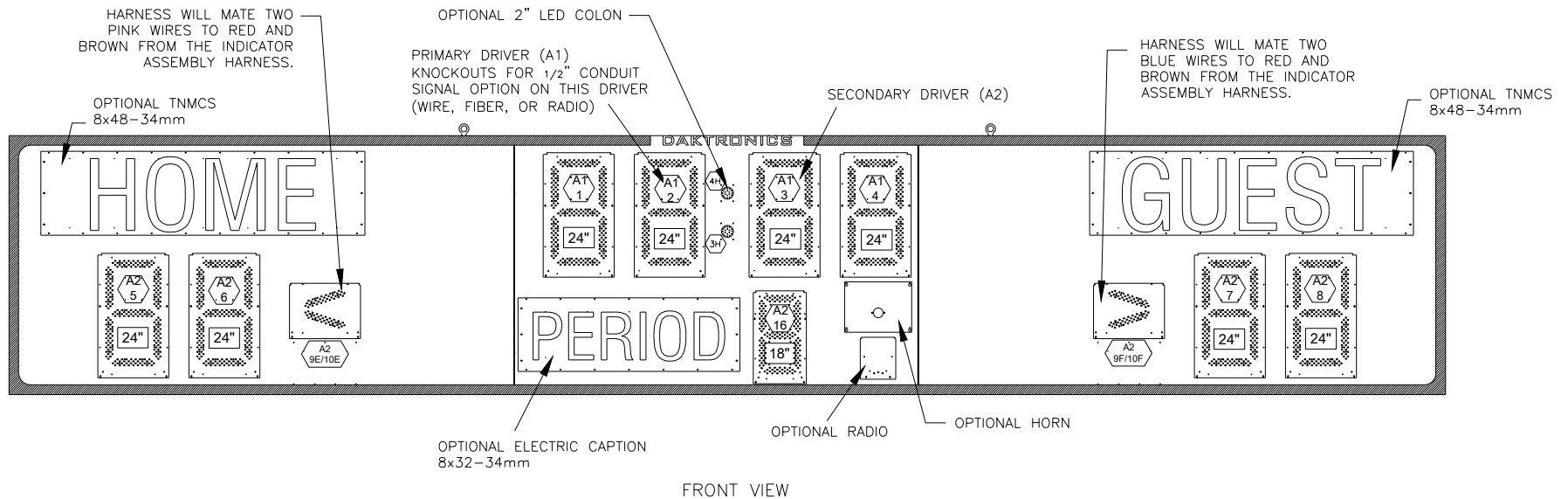
A1
1 = LED DRIVER NUMBER &
LED DRIVER CONNECTOR
WIRED TO THAT DIGIT

18" = DIGIT SIZE

A1 = DRIVER NUMBER


REV 01	DATE: 25 AUG 20	CN-108603:REMOVE LABELS TO NEW STANDARD	BY: CJC
		THE CONCEPTS EXPRESSED AND DETAILS SHOWN ON THIS DRAWING ARE CONFIDENTIAL AND PROPRIETARY. DO NOT REPRODUCE BY ANY MEANS WITHOUT THE EXPRESS WRITTEN CONSENT OF DAKTRONICS, INC. OR ITS WHOLLY OWNED SUBSIDIARIES. COPYRIGHT 2019 DAKTRONICS, INC. (USA)	THIRD ANGLE PROJECTION
PROJECT: OUTDOOR EXTRUSION SCOREBOARD			
TITLE: COMPONENT LOCATION; MS-2028-201X-R/A-PV-F			
DATE: 18 APR 19	DIM UNITS: INCHES [MILLIMETERS]	SHEET	REV 01
SCALE: 1=25	DO NOT SCALE DRAWING		
DESIGN: K MILLER	JOB NO.	FUNC - TYPE - SIZE	
DRAWN: DMASON	P1647	E - 10 - A	
			4166431


MS-2028-W




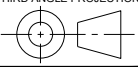
FRONT VIEW

NOTES:

 = LED DRIVER NUMBER & LED DRIVER CONNECTOR WIRED TO THAT DIGIT

 = DIGIT SIZE

 = DRIVER NUMBER

REV 01	DATE: 25 AUG 20	CN-108603:REMOVE LABELS TO NEW STANDARD	BY: CJC
		THE CONCEPTS EXPRESSED AND DETAILS SHOWN ON THIS DRAWING ARE CONFIDENTIAL AND PROPRIETARY. DO NOT REPRODUCE BY ANY MEANS WITHOUT THE EXPRESS WRITTEN CONSENT OF DAKTRONICS, INC. OR ITS WHOLLY OWNED SUBSIDIARIES. COPYRIGHT 2019 DAKTRONICS, INC. (USA)	THIRD ANGLE PROJECTION 
PROJECT: OUTDOOR EXTRUSION SCOREBOARD			
TITLE: COMPONENT LOCATION; MS-2028-201X-W-PV-F			
DATE: 18 APR 19	DIM UNITS: INCHES [MILLIMETERS]	SHEET	REV 01
SCALE: 1=25	DO NOT SCALE DRAWING		
DESIGN: K MILLER	JOB NO.	FUNC - TYPE - SIZE	4166433
DRAWN: DMASON	P1647	E - 10 - A	