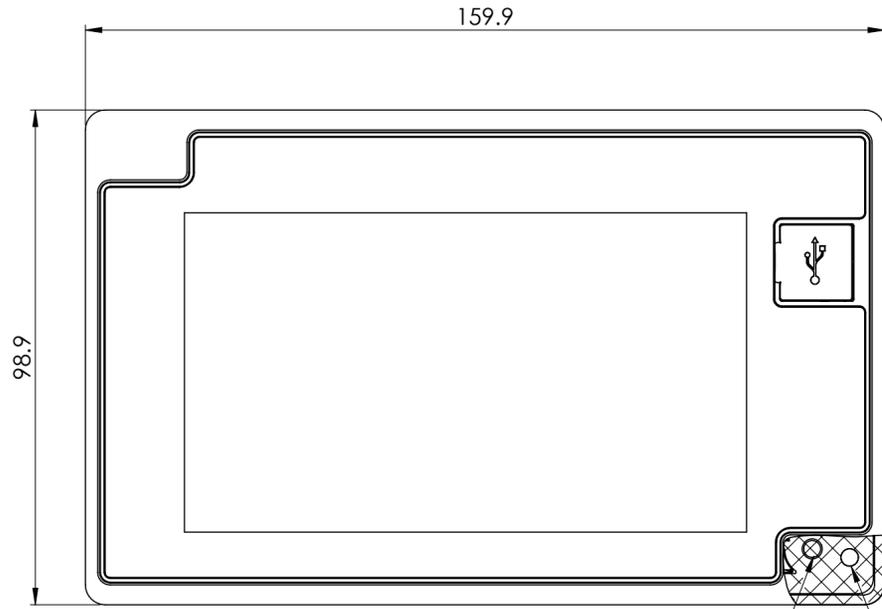
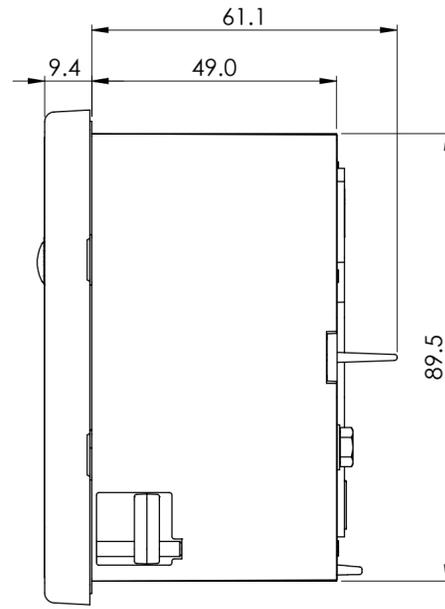


12 11 10 9 8 7 6 5 4 3 2 1

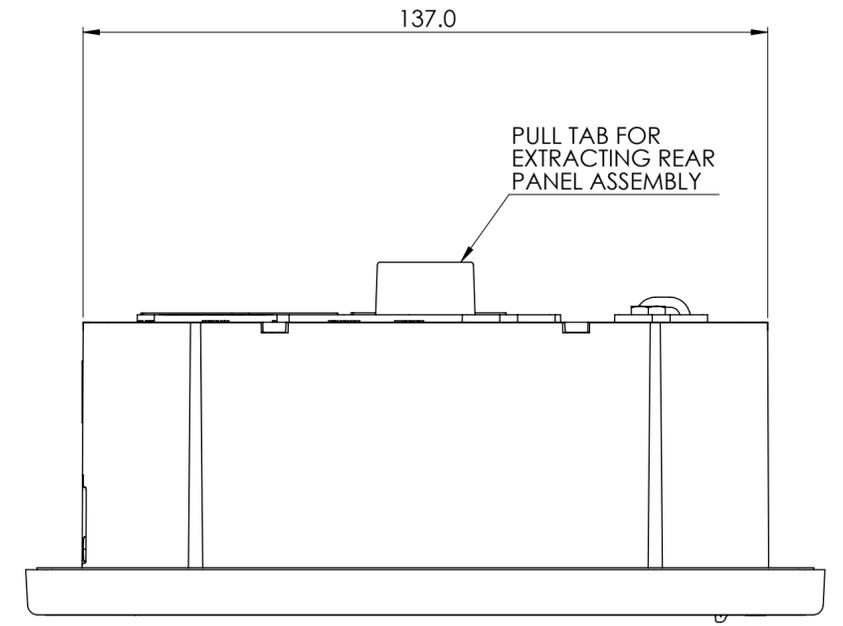
FRONT VIEW



SIDE VIEW



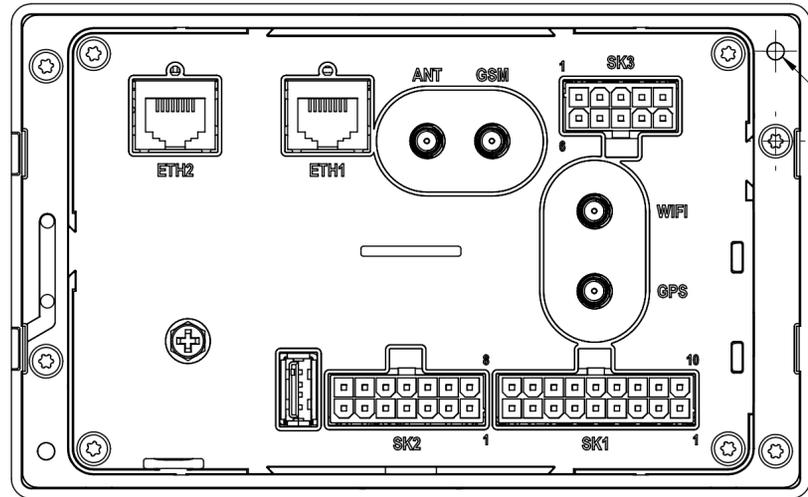
PLAN VIEW



BEZEL CUT-AWAY VIEW -
SHOWING CAM SCREW EXPOSED.
(ONE EACH CORNER)
SEE NOTE AT BOTTOM.

ALTERNATIVE DIRECT
SCREW MOUNT HOLE
(ONE EACH CORNER)

REAR VIEW



ALTERNATIVE DIRECT
SCREW MOUNT HOLE
POSITIONS FROM REAR

138.0

CUT OUT SIZE AND
TOLERANCES BASED
ON DIN43700

CUT OUT

92.0

NOTE: THE MAXIMUM TORQUE THAT SHOULD BE APPLIED TO THE CAM SCREWS IS 0.2Nm. TORX MANUAL SCREWDRIVERS ARE THE PREFERRED TOOL. DO NOT USE A WRENCH AND POWER TOOLS SHOULD BE USED AT THE LOWEST SETTING.

REV	DATE	ECN No.	CR/SR/DR	REVISED BY	APPROVED BY	DESCRIPTION:
A	20/12/2021	7333B	DR0081	T Andrews	M Marin	ERIC G4 - CONTROLLER -
A						EG4 RJ45 FULL ASSY -
						INSTALLATION DETAILS

MATERIAL: SEE BOM

FINISH:

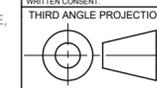
DO NOT SCALE DRAWING
DEBURR AND BREAK SHARP EDGES



UNIT 24, CLIFFE INDUSTRIAL ESTATE,
LEWES, E. SUSSEX,
BN8 6JL,
ENGLAND.
TEL: 01273 409200

DIM'S IN MM.
TOLERANCES
UNLESS
OTHERWISE
SPECIFIED:

0	+/- 0.5
.0	+/- 0.2
.00	+/- 0.1
∅	+0.2 / -0
∠	+/- 0.5°



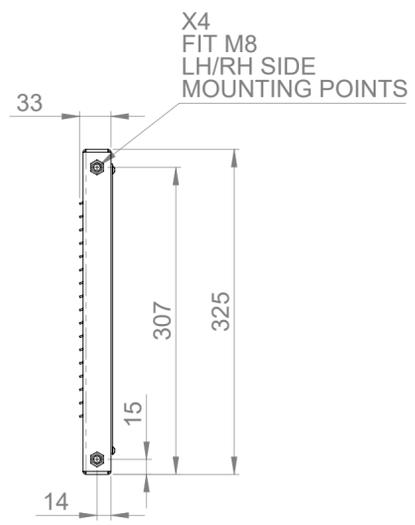
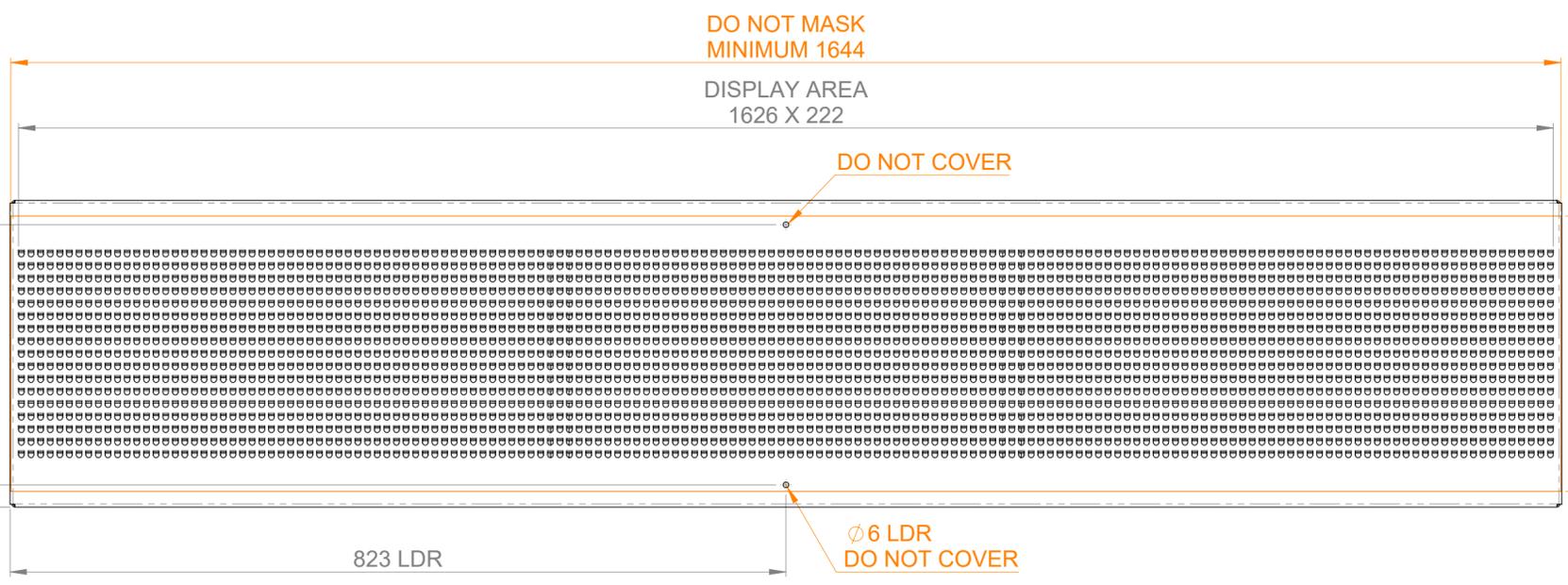
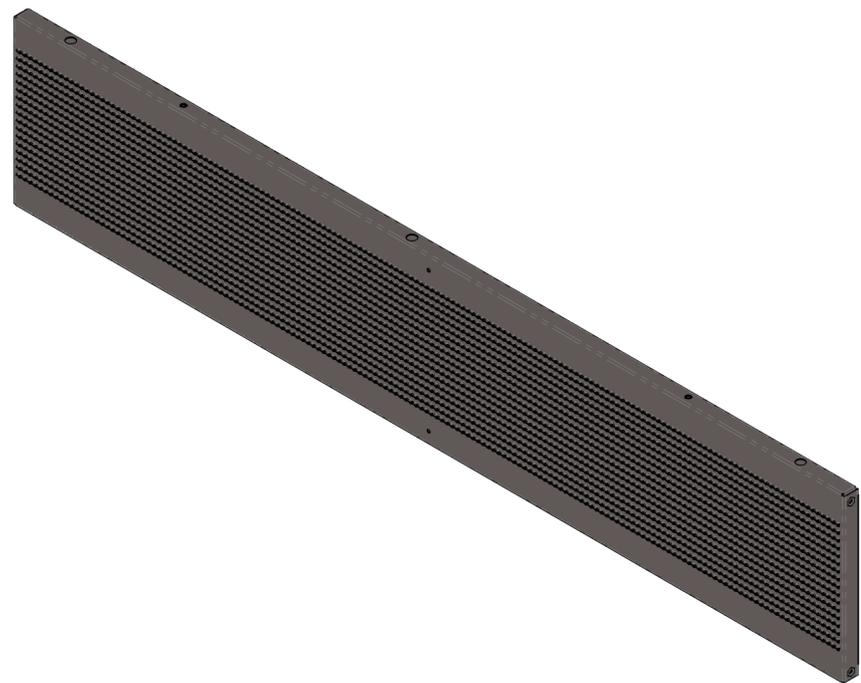
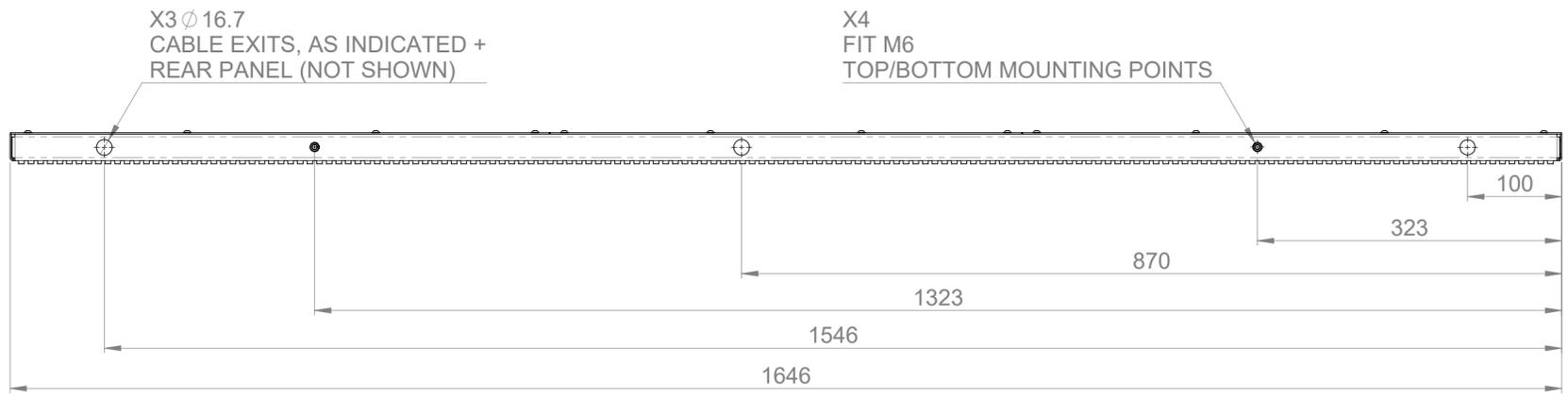
DRAWING No.
EG4.010

PRODUCT CODE / BK CODE:
EG4.010

SCALE	SHEET SIZE	SHEET	REV
1:1	A2	1 / 1	A

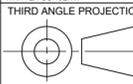
12 11 10 9 8 7 6 5 4 3 2 1

H
G
F
E
D
C
B
A



1. DO NOT COVER LDR
2. MASKING ON BUS GLASS MUST NOT OBSTRUCT DISPLAY
3. DISPLAY FIXING TO BE NO LONGER THAN 16mm.
4. THIS DISPLAY LENGTH IS >1000mm, HANOVER RECOMMEND THAT IT SHOULD BE MOUNTED USING THE TOP AND BOTTOM FIXING POINTS. SIDE MOUNTING POINTS ON THIS DISPLAY, SHOULD ONLY BE USED AS SECONDARY FIXING.
5. FOR ITXPT VARIANT, CABLE EXITS ARE TOP LEFT OR REAR PANEL ONLY (AS VIEWED FROM REAR).



REV	DATE	ECN No.	CR/SR/DR	REVISED BY	APPROVED BY	DESCRIPTION:
A	23/04/2020			M Marin	A Cowell	G4.002
B	29/07/2021		SR2498	M Marin	A Cowell	INSTALLATION DRAWING
C	08/09/2021		SR2498	M Marin	A Cowell	
D	03/11/2021		WW0003	M Marin	A Cowell	
						MATERIAL: N/A
						THICKNESS: N/A
						FINISH: PPC RAL 9005 (Jet Black; MATT)
DO NOT SCALE DRAWING DEBURR AND BREAK SHARP EDGES						DRAWING No. G4.002
 <p>UNIT 24, CLIFFE INDUSTRIAL ESTATE, LEWES, E. SUSSEX, BN8 6JL, ENGLAND. TEL: 01273 477528</p>						DIM'S IN MM. TOLERANCES UNLESS OTHERWISE SPECIFIED: 0 +/- 0.5 .0 +/- 0.2 .00 +/- 0.1 ϕ +0.2 / -0 < +/- 0.5°
						PRODUCT CODE / BK CODE: G4.002XX.MXX.XXX
SCALE		SHEET SIZE		SHEET		REV
1:5		A2		1 / 1		D

12 11 10 9 8 7 6 5 4 3 2 1


MECHANICAL DATA

CASE DIMENSIONS (excluding brackets)	W1646mm x H325mm x D33mm
DISPLAY VIEWING AREA	W1626mm x H222mm
CASE CONSTRUCTION	Aluminium, textured matt black powder coated finish
WEIGHT	7.6kg
CABLE EXIT POINTS (as viewed from back)	Rear panel*, top left*, top right, offset centre *Available for ITxPT

DISPLAY DATA

MAXIMUM CHARACTER HEIGHT	222mm
BRIGHTNESS	3500 cd/m ²
TEXT FORMAT	Static, paging or scrolling, 1 or 2 lines
FONT OPTIONS	Hanover fonts as supplied with HELEN programming software plus Windows™ fonts
DISPLAY TECHNOLOGY	High visibility LEDs (with integrated ambient light sensor)
COMMUNICATION INTERFACES	RS485 (standard), RS232, IBIS, J1708, Ethernet (via controller), Ethernet M12 connector (ITxPT)

LED SPECIFICATION

LIFETIME	Approx. 100,000 hours dependent on temperature and current
SIZE AND TYPE	PLCC-2 SMT package W2.8mm x H3.5mm x D1.9mm
DOMINANT COLOUR WAVELENGTH	Amber 588 - 594nm (typically 591nm)
PITCH	Horizontal 10.2mm / vertical 13.3mm
VIEWING ANGLE (horizontal)	120°

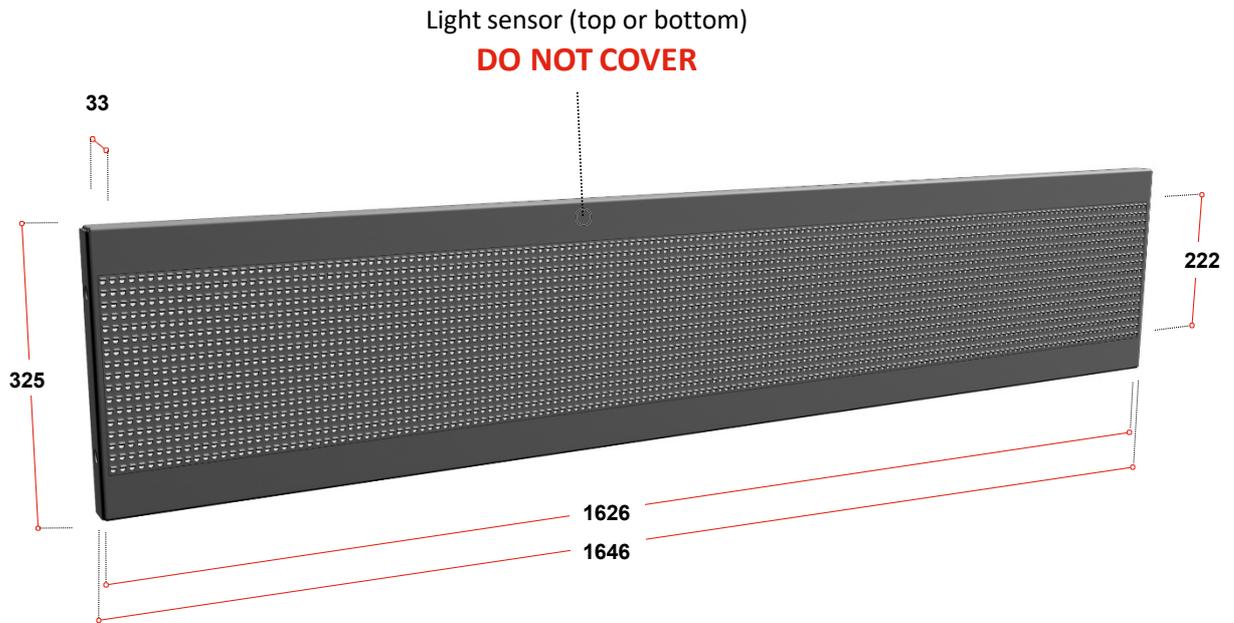
ELECTRICAL DATA

OPERATING VOLTAGE	24Vdc nominal (18-32V)
NORMAL POWER CONSUMPTION (33% LEDs lit at 50% brightness)	21 watts (0.87A with 24V input)
MAXIMUM POWER CONSUMPTION (all LEDs lit at 100% brightness)	61 watts (2.55A with 24V input)
ELECTRICAL PROTECTION	Anti-surge, reverse polarity
DISPLAY PROCESSOR FUSE RATING	5A quick blow

OPERATIONAL DATA

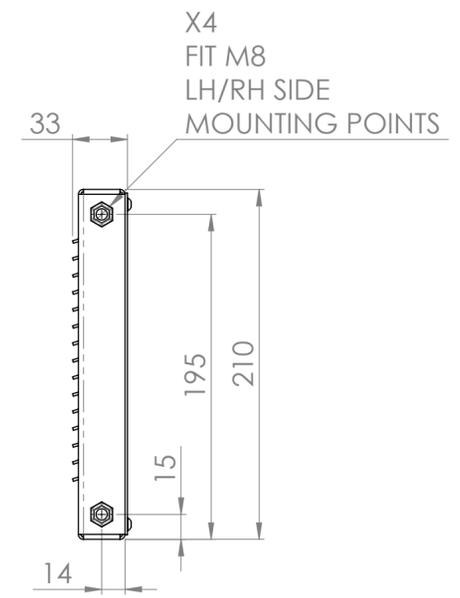
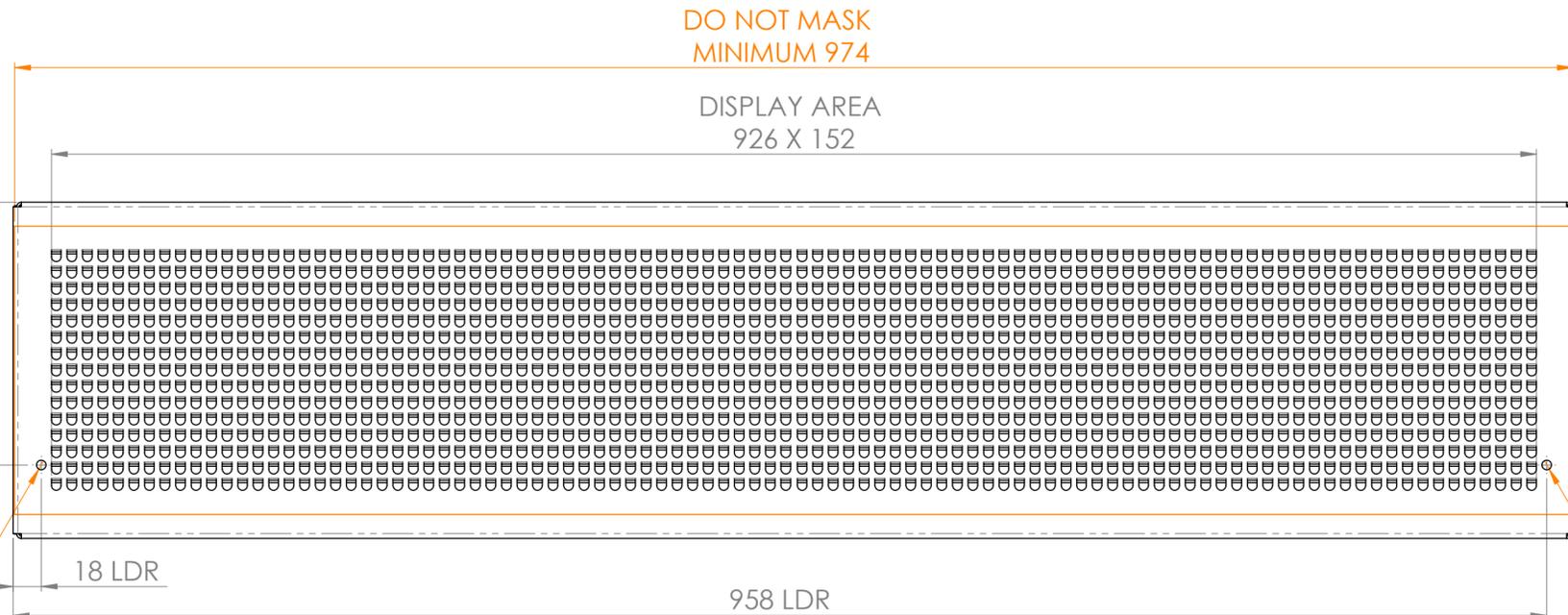
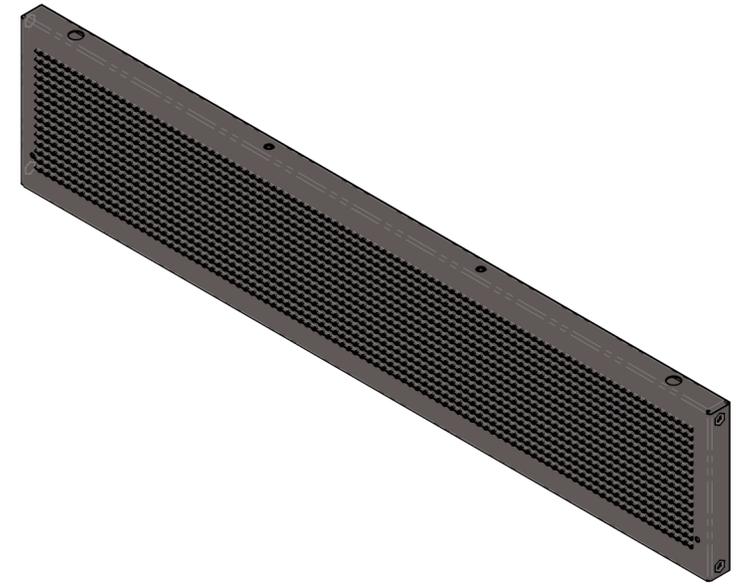
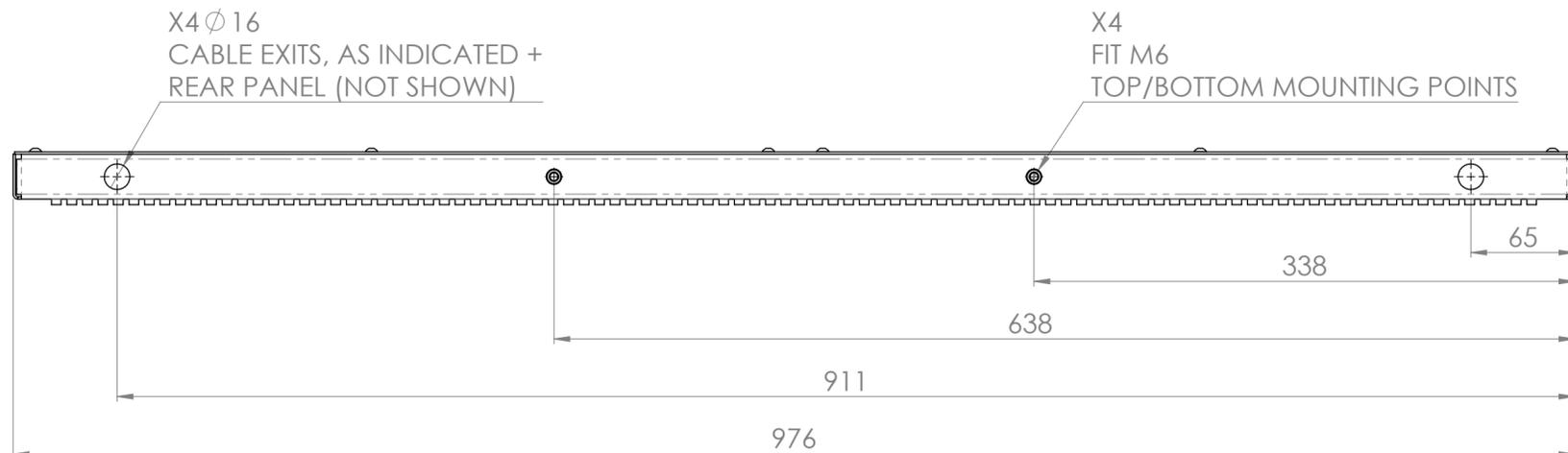
TEMPERATURE RANGE (STORAGE)	-20°C to +70°C (-40°C to +80°C)
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Hanover Displays LED signs meet United Nations Automotive EMC Directive ECE R10 as amended. Certificate No. E11*10R06/01*10973*01.
 Hanover Displays LED signs meet United Nations Automotive Burning Behaviour Directive ECE R118. Certificate No. E1*118R03/01*0283*00.
 Equality Act 2010 & PSV Accessibility Regulations compliant. Details subject to change.



MEASUREMENTS	WIDTH (mm)	HEIGHT (mm)	DEPTH (mm)
CASE DIMENSIONS (excluding brackets)	1646	325	33
DISPLAY VIEWING AREA	1626	222	

MECHANICAL DATA	
CASE CONSTRUCTION	Aluminium, textured matt black powder coated finish
WEIGHT	7.6kg
CABLE EXIT POINTS (as viewed from back)	Rear panel*, top left*, top right, offset centre *Available for ITxPT



REV	DATE	ECN No.	CR/SR/DR	REVISED BY	APPROVED BY	DESCRIPTION:
A	03/12/2020			M Marin	A Cowell	G4.012
B	24/06/2021		SR2498	M Marin	A Cowell	INSTALLATION DRAWING
C	10/09/2021		SR2498	M Marin	A Cowell	
D	04/11/2021		WW0003	M Marin	A Cowell	

MATERIAL: N/A
THICKNESS: N/A
FINISH: PPC RAL 9005 (Jet Black; MATT)

DO NOT SCALE DRAWING
DEBURR AND BREAK SHARP EDGES

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PART OR USED FOR ANY PURPOSE,
OTHER THAN THAT FOR WHICH IT IS
SUPPLIED, WITHOUT EXPRESS
WRITTEN CONSENT

HANOVER
UNIT 24, CLIFFE INDUSTRIAL ESTATE,
LEWES, E. SUSSEX,
BN8 6JL,
ENGLAND.
TEL: 01273 477528

THIRD ANGLE PROJECTION

DIM'S IN MM.
TOLERANCES
UNLESS
OTHERWISE
SPECIFIED:

0 +/- 0.5
.0 +/- 0.2
.00 +/- 0.1
∅ +0.2 / -0
∠ +/- 0.5°

DRAWING No.
G4.012
PRODUCT CODE / BK CODE:
G4.012XX.MXX.XXX

SCALE	SHEET SIZE	SHEET	REV
1:3	A2	1 / 1	D



- DO NOT COVER LDR
- MASKING ON BUS GLASS MUST NOT OBSTRUCT DISPLAY
- DISPLAY FIXINGS TO BE NO LONGER THAN 16mm.
- FOR ITXPT VARIANT, CABLE EXITS ARE TOP LEFT OR BOTTOM LEFT ONLY (AS VIEWED FROM REAR).


MECHANICAL DATA

CASE DIMENSIONS (excluding brackets)	W976mm x H210mm x D33mm
DISPLAY VIEWING AREA	W926mm x H152mm
CASE CONSTRUCTION	Aluminium, textured matt black powder coated finish
WEIGHT	3kg
CABLE EXIT POINTS (as viewed from back)	Rear panel, top left*, top right, bottom left*, bottom right *Available for ITxPT

DISPLAY DATA

MAXIMUM CHARACTER HEIGHT	152mm
BRIGHTNESS	3500 cd/m ²
TEXT FORMAT	Static, paging or scrolling, 1 or 2 lines
FONT OPTIONS	Hanover fonts as supplied with HELEN programming software plus Windows™ fonts
DISPLAY TECHNOLOGY	High visibility LEDs (with integrated ambient light sensor)
COMMUNICATION INTERFACES	RS485 (standard), RS232, IBIS, J1708, Ethernet (via controller), Ethernet M12 connector (ITxPT)

LED SPECIFICATION

LIFETIME	Approx. 100,000 hours dependent on temperature and current
SIZE AND TYPE	PLCC-2 SMT package W2.8mm x H3.5mm x D1.9mm
DOMINANT COLOUR WAVELENGTH	Amber 588 - 594nm (typically 591nm)
PITCH	Horizontal 9.7mm / vertical 10.2mm
VIEWING ANGLE (horizontal)	120°

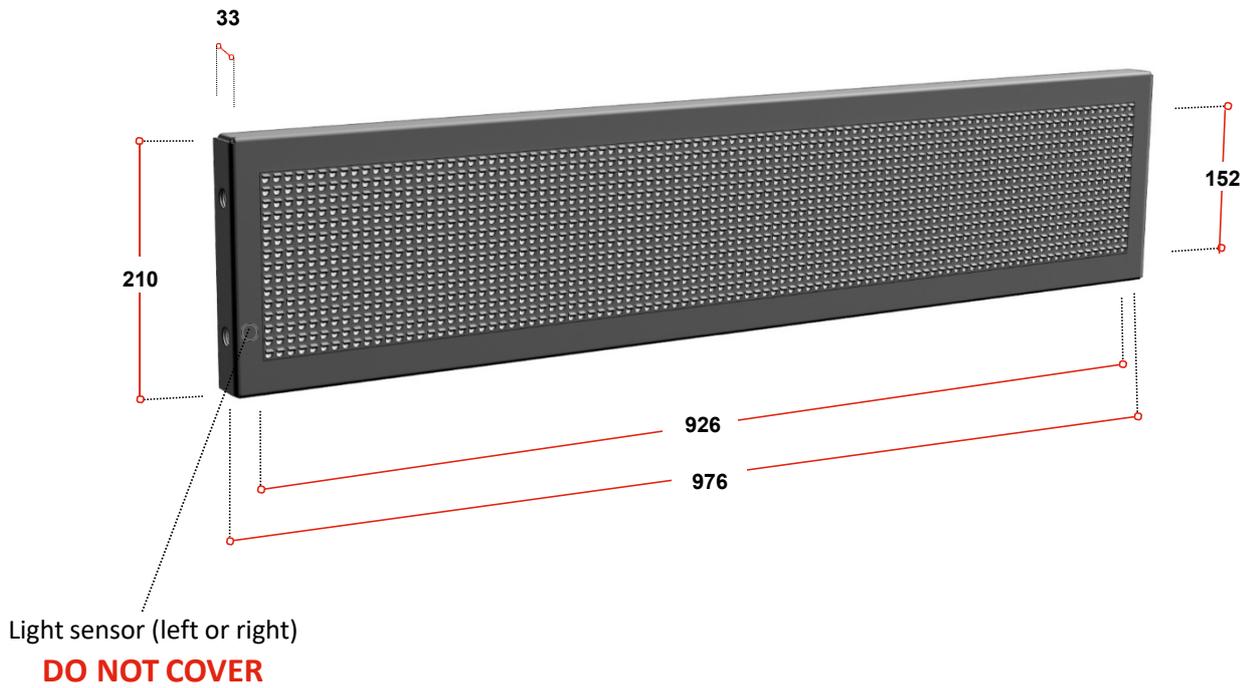
ELECTRICAL DATA

OPERATING VOLTAGE	24Vdc nominal (18-32V) / 12Vdc nominal (10-32V)
NORMAL POWER CONSUMPTION (33% LEDs lit at 50% brightness)	9 watts (0.37A with 24V input and 0.74A with 12V input)
MAXIMUM POWER CONSUMPTION (all LEDs lit at 100% brightness)	25 watts (1.05A with 24V input and 2.10A with 12V input)
ELECTRICAL PROTECTION	Anti-surge, reverse polarity
DISPLAY PROCESSOR FUSE RATING	5A quick blow

OPERATIONAL DATA

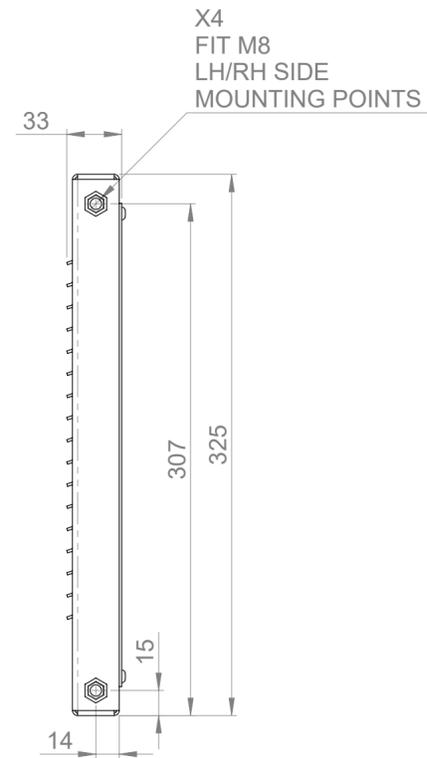
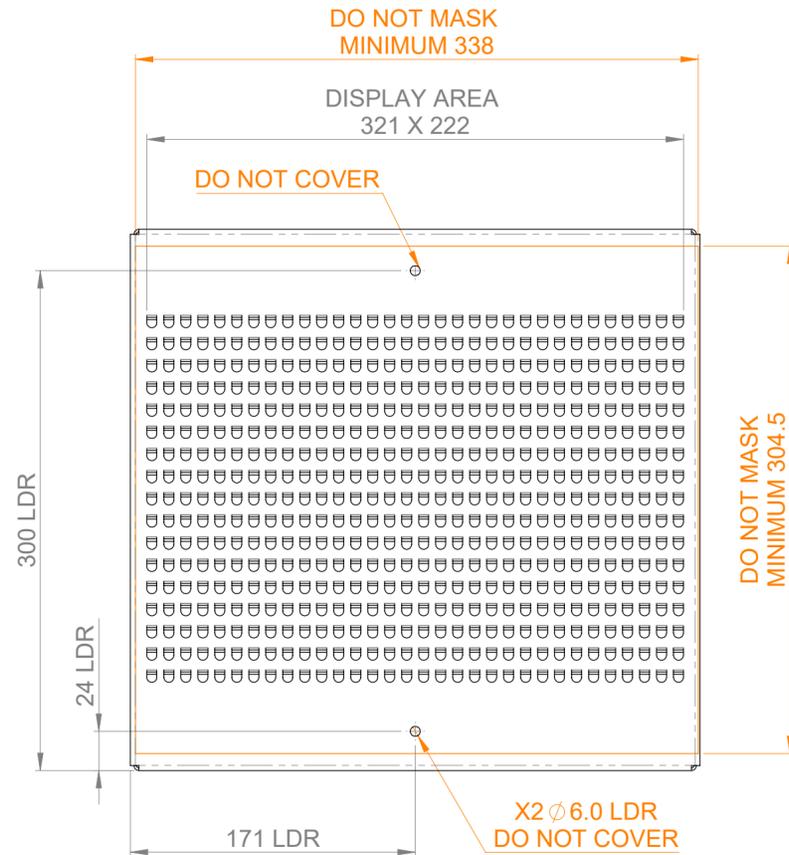
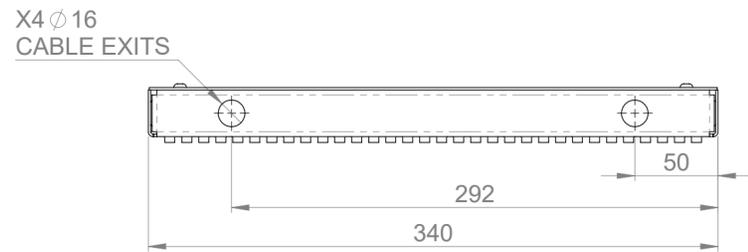
TEMPERATURE RANGE (STORAGE)	-20°C to +70°C (-40°C to +80°C)
------------------------------------	---------------------------------

Hanover Displays LED signs meet United Nations Automotive EMC Directive ECE R10 as amended. Certificate No. E11*10R06/01*10973*01.
 Hanover Displays LED signs meet United Nations Automotive Burning Behaviour Directive ECE R118. Certificate No. E1*118R03/01*0283*00.
 Equality Act 2010 & PSV Accessibility Regulations compliant. Details subject to change.



MEASUREMENTS	WIDTH (mm)	HEIGHT (mm)	DEPTH (mm)
CASE DIMENSIONS (excluding brackets)	976	210	33
DISPLAY VIEWING AREA	926	152	

MECHANICAL DATA	
CASE CONSTRUCTION	Aluminium, textured matt black powder coated finish
WEIGHT	3kg
CABLE EXIT POINTS (as viewed from back)	Rear panel, top left*, top right, bottom left*, bottom right *Available for ITxPT



1. DO NOT COVER LDR
2. MASKING ON BUS GLASS MUST NOT OBSTRUCT DISPLAY
3. DISPLAY FIXING TO BE NO LONGER THAN 16mm.
4. FOR ITXPT VARIANT, CABLE EXITS ARE TOP LEFT OR BOTTOM LEFT ONLY (AS VIEWED FROM REAR).

REV	DATE	ECN No.	CR/SR/DR	REVISED BY	APPROVED BY	DESCRIPTION:
A	24/04/2020			M Marin	A Cowell	G4.020
B	30/07/2021		SR2498	M Marin	A Cowell	INSTALLATION DRAWING
C	10/09/2021		SR2498	M Marin	A Cowell	
D	04/11/2021		WW0003	M Marin	A Cowell	
						MATERIAL: N/A
						THICKNESS: N/A
						FINISH: PPC RAL 9005 (Jet Black; MATT)
DO NOT SCALE DRAWING DEBURR AND BREAK SHARP EDGES						DRAWING No. G4.020
 <p>UNIT 24, CLIFFE INDUSTRIAL ESTATE, LEWES, E. SUSSEX, BN8 6JL, ENGLAND. TEL: 01273 477528</p>						DIM'S IN MM. TOLERANCES UNLESS OTHERWISE SPECIFIED: 0 +/- 0.5 .0 +/- 0.2 .00 +/- 0.1 ϕ +0.2 / -0 < +/- 0.5°
						PRODUCT CODE / BK CODE: G4.020XX.MXX.XXX
		SCALE	SHEET SIZE	SHEET	REV	
		1:3	A2	1 / 1	D	


MECHANICAL DATA

CASE DIMENSIONS (excluding brackets)	W340mm x H325mm x D33mm
DISPLAY VIEWING AREA	W321mm x H222mm
CASE CONSTRUCTION	Aluminium, textured matt black powder coated finish
WEIGHT	2kg
CABLE EXIT POINTS (as viewed from back)	Top left*, top right, bottom left*, bottom right *Available for ITxPT

DISPLAY DATA

MAXIMUM CHARACTER HEIGHT	222mm
BRIGHTNESS	3500 cd/m ²
TEXT FORMAT	Static, paging or scrolling, 1 or 2 lines
FONT OPTIONS	Hanover fonts as supplied with HELEN programming software plus Windows™ fonts
DISPLAY TECHNOLOGY	High visibility LEDs (with integrated ambient light sensor)
COMMUNICATION INTERFACES	RS485 (standard), RS232, IBIS, J1708, Ethernet (via controller), Ethernet M12 connector (ITxPT)

LED SPECIFICATION

LIFETIME	Approx. 100,000 hours dependent on temperature and current
SIZE AND TYPE	PLCC-2 SMT package W2.8mm x H3.5mm x D1.9mm
DOMINANT COLOUR WAVELENGTH	Amber 588 - 594nm (typically 591nm)
PITCH	Horizontal 10.2mm / vertical 13.3mm
VIEWING ANGLE (horizontal)	120°

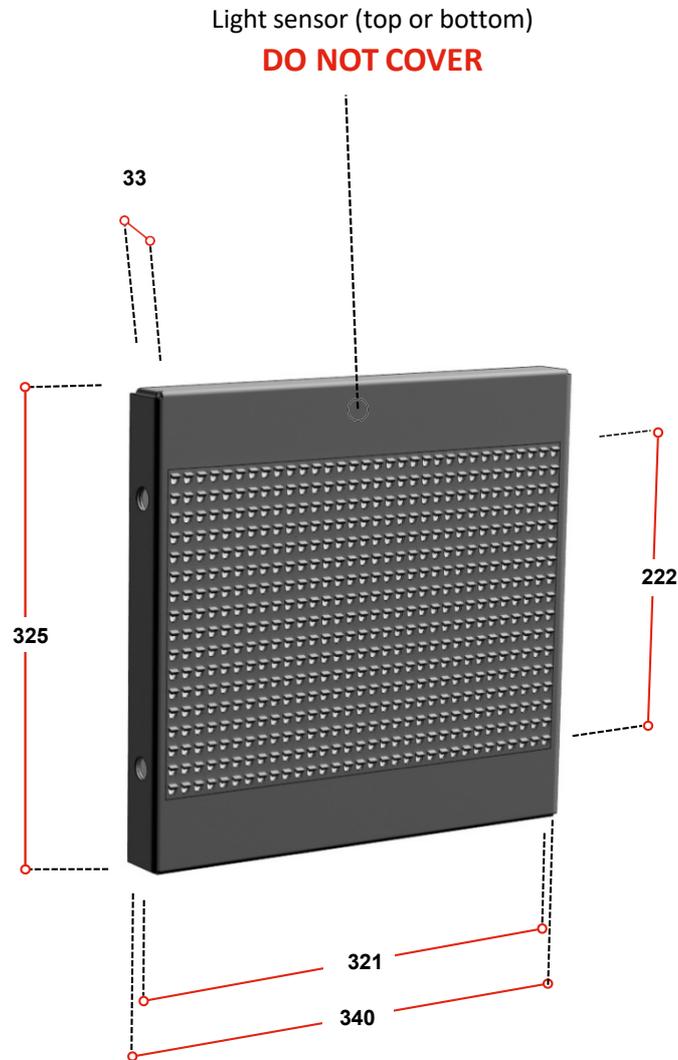
ELECTRICAL DATA

OPERATING VOLTAGE	24Vdc nominal (18-32V) / 12Vdc nominal (10-32V)
NORMAL POWER CONSUMPTION (33% LEDs lit at 50% brightness)	5 watts (0.19A with 24V input and 0.38A with 12V input)
MAXIMUM POWER CONSUMPTION (all LEDs lit at 100% brightness)	13 watts (0.56A with 24V input and 1.12A with 12V input)
ELECTRICAL PROTECTION	Anti-surge, reverse polarity
DISPLAY PROCESSOR FUSE RATING	5A quick blow

OPERATIONAL DATA

TEMPERATURE RANGE (STORAGE)	-20°C to +70°C (-40°C to +80°C)
------------------------------------	---------------------------------

Hanover Displays LED signs meet United Nations Automotive EMC Directive ECE R10 as amended. Certificate No. E11*10R06/01*10973*01.
 Hanover Displays LED signs meet United Nations Automotive Burning Behaviour Directive ECE R118. Certificate No. E1*118R03/01*0283*00.
 Equality Act 2010 & PSV Accessibility Regulations compliant. Details subject to change.



MEASUREMENTS	WIDTH (mm)	HEIGHT (mm)	DEPTH (mm)
CASE DIMENSIONS (excluding brackets)	340	325	33
DISPLAY VIEWING AREA	321	222	

MECHANICAL DATA	
CASE CONSTRUCTION	Aluminium, textured matt black powder coated finish
WEIGHT	2kg
CABLE EXIT POINTS (as viewed from back)	Top left*, top right, bottom left*, bottom right *Available for ITxPT

QNV-7012R

4MP IR Vandal Dome Camera

Network



FC | CE | EAC

Key Features

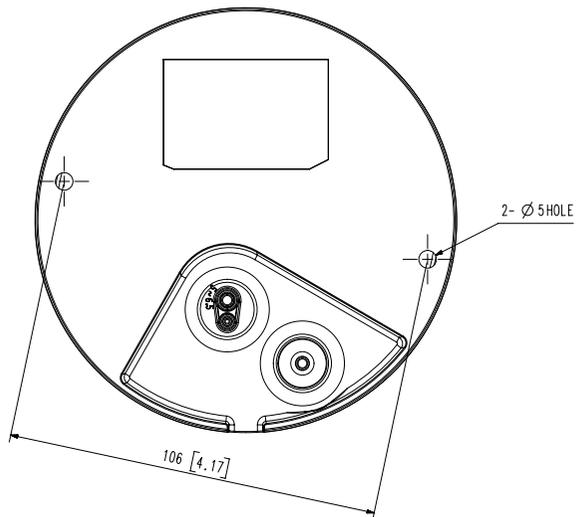
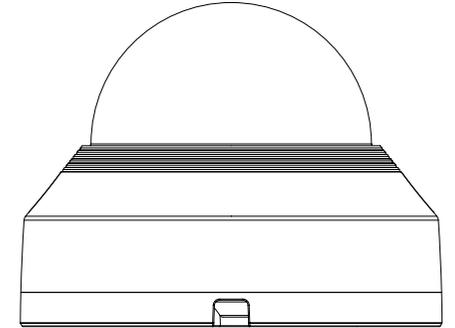
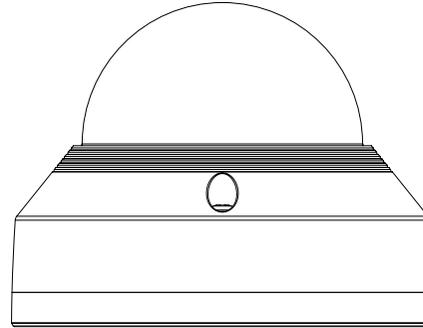
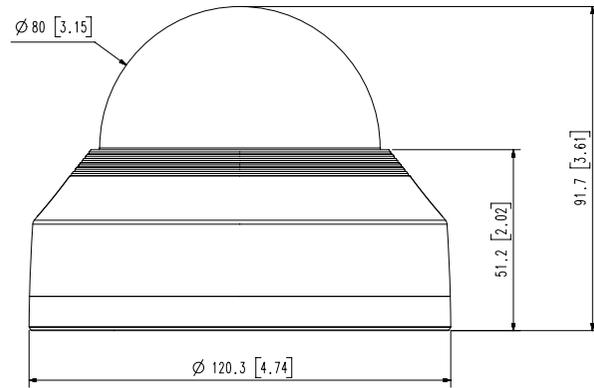
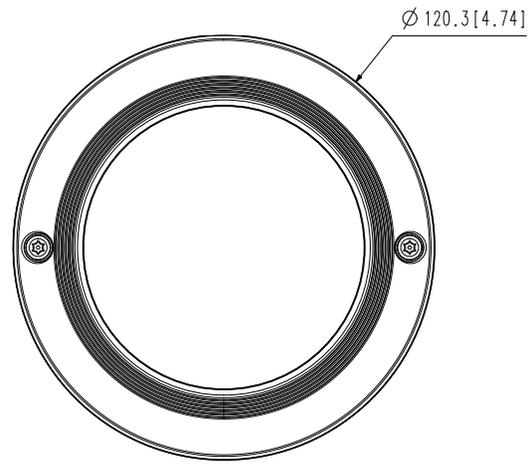
- Maximum 4MP resolution
- Colour : 0.15Lux (F2.0, 1/30sec) B/W : 0Lux (IR LED On)
- 2.8mm fixed focal
- Maximum 30fps@4MP all resolutions (H.265/H.264)
- H.265, H.264, MJPEG codec supported, Multiple streaming
- Motion detection, Tampering, Defocus detection
- Hallway view (90°/270°), LDC support
- Micro SD/SDHC/SDXC memory slot (128GB)
- IR viewable length 20m (65.62ft)
- IP66, IK10, PoE, 12VDC

Video	
Imaging Device	1/3" CMOS
Resolution	2560 x 1440, 1920 x 1080, 1280 x 960, 1280 x 720, 800 x 600, 800 x 448, 720 x 576, 720 x 480, 640 x 480, 640 x 360, 320 x 240
Max. Framerate	H.265/H.264 : Max. 30fps at 4M all resolutions, MJPEG : Max. 15fps
Min. Illumination	Color : 0.15Lux (F2.0, 1/30sec) B/W : 0Lux (IR LED On)
Video Out	CVBS : 1.0 Vpp/75Ω composite, 720x480(N), 720x576(P) for installation
Lens	
Focal Length (Zoom Ratio)	2.8mm fixed focal
Max. Aperture Ratio	F2.0
Angular Field of View	H : 107.5, V : 59.7, D : 122.0
Focus Control	Fixed
Pan / Tilt / Rotate	
Pan / Tilt / Rotate Range	0° ~ 350° / 0° ~ 67° / 0° ~ 355°
Operational	
Camera Title	Displayed up to 85 characters
Day & Night	Auto(ICR)
Backlight Compensation	BLC, WDR, SDR
Wide Dynamic Range	120dB
Digital Noise Reduction	SSNR
Motion Detection	4ea, polygonal zones
Privacy Masking	6ea, rectangular zones
Gain Control	Low / Middle / High
White Balance	ATW / AWC / Manual / Indoor / Outdoor
LDC	Support
Electronic Shutter Speed	Minimum/Maximum/Anti flicker (1/5~1/12,000sec)
Video Rotation	Flip, Mirror, Hallway view(90/270)
Analytics	Defocus detection, Directional detection, Motion detection, Enter/Exit, Tampering, Virtual line
Alarm I/O	Input 1ea / Output 1ea
Alarm Triggers	Analytics, Network disconnect, Alarm input
Alarm Events	File upload via FTP and e-mail, Notification via e-mail, SD/SDHC/SDXC or NAS recording at event triggers, Alarm output, Handover
Audio In	Selectable(mic in/line in) Supply voltage: 2.5VDC(4mA), Input impedance: 2K Ohm
IR Viewable Length	20m (65.62ft)
Network	

Ethernet	RJ-45 (10/100BASE-T)
Video Compression	H.265/H.264 : Main/High, MJPEG
Audio Compression	G.711 u-law / G.726 Selectable G.726(ADPCM) 8KHz, G.711 8KHz, G.726 16Kbps, 24Kbps, 32Kbps, 40Kbps
Smart Codec	Manual (5ea area), WiseStream II
Bitrate Control	H.264/H.265 : CBR or VBR MJPEG : VBR
Streaming	Unicast (6 users) / Multicast Multiple streaming (Up to 3 profiles)
Protocol	IPv4, IPv6, TCP/IP, UDP/IP, RTP(UDP), RTP(TCP), RTCP, RTSP, NTP, HTTP, HTTPS, SSL/TLS, DHCP, PPPoE, FTP, SMTP, ICMP, IGMP, SNMPv1/v2c/v3(MIB-2), ARP, DNS, DDNS, QoS, PIM-SM, UPnP, Bonjour, LLDP
Security	HTTPS(SSL) Login Authentication Digest Login Authentication IP Address Filtering User access Log 802.1X Authentication
Application Programming Interface	ONVIF Profile S/G/T, SUNAPI (HTTP API)
General	
Webpage Language	English, Korean, Chinese, French, Italian, Spanish, German, Japanese, Russian, Swedish, Portuguese, Czech, Polish, Turkish, Dutch, Hungarian, Greek
Edge Storage	Micro SD/SDHC/SDXC 1slot 128GB
Memory	512MB RAM, 256MB Flash
Environmental & Electrical	
Operating Temperature / Humidity	-40C~+55C (-40F~+131F) / Less than 95% RH * Start up should be done at -30C or above
Storage Temperature / Humidity	-40C~+60C (-40F~+140F) / Less than 95% RH
Certification	IP66, IK10
Input Voltage	PoE(IEEE802.3af, Class3), 12VDC
Power Consumption	PoE: Max 10.7W, typical 8.1W 12VDC: Max 9.1W, typical 6.5W
Mechanical	
Color / Material	White / Aluminum
RAL Code	RAL9003
Product Dimensions / Weight	Ø120.3 x 91.7mm (Ø4.74 x 3.61"), 510g (1.124 lb)
Compatible Conduit hole / Gangbox	- SBD-120GP : Single, Double, 4"Octagon
DORI (EN62676-4 standard)	
Detect (25PPM/ 8PPF)	37.5m(123.17ft)
Observe (63PPM/ 19PPF)	15.0m(49.27ft)
Recognize (125PPM/ 38PPF)	7.5m(24.63ft)
Identify (250PPM/ 76PPF)	3.8m(12.32ft)

- The latest product information / specification can be found at hanwha-security.eu
- Design and specifications are subject to change without notice.
- Wisenet is the proprietary brand of Hanwha Techwin, formerly known as Samsung Techwin.

QNV-6012R/6022R/6032R
QNV-8010R/8020R/8030R
UNIT : mm[inch]



12 11 10 9 8 7 6 5 4 3 2 1

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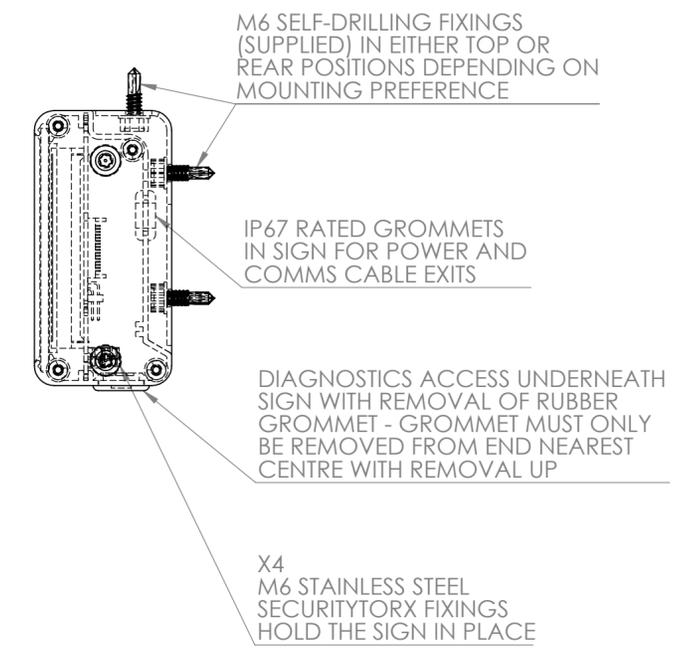
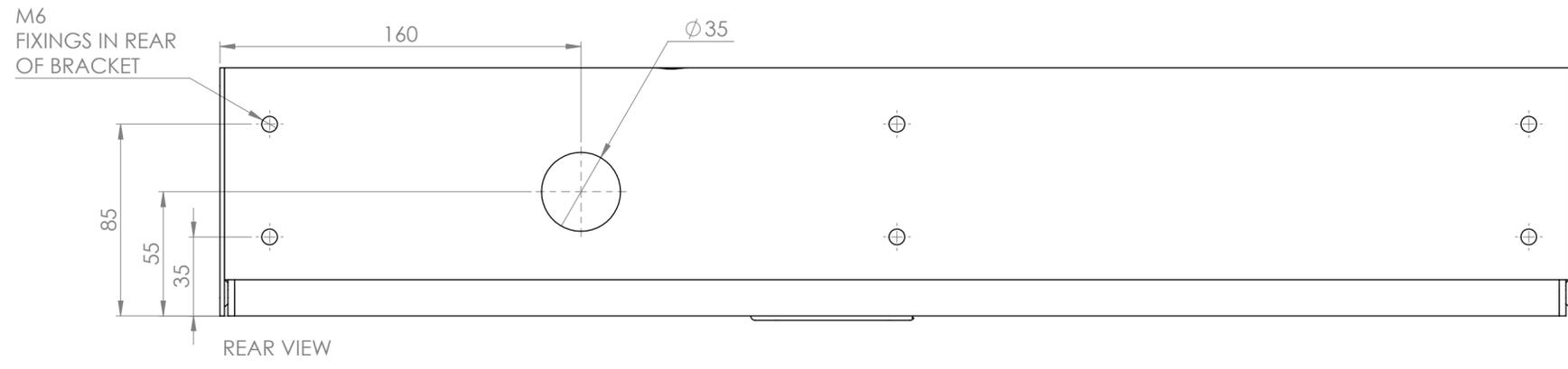
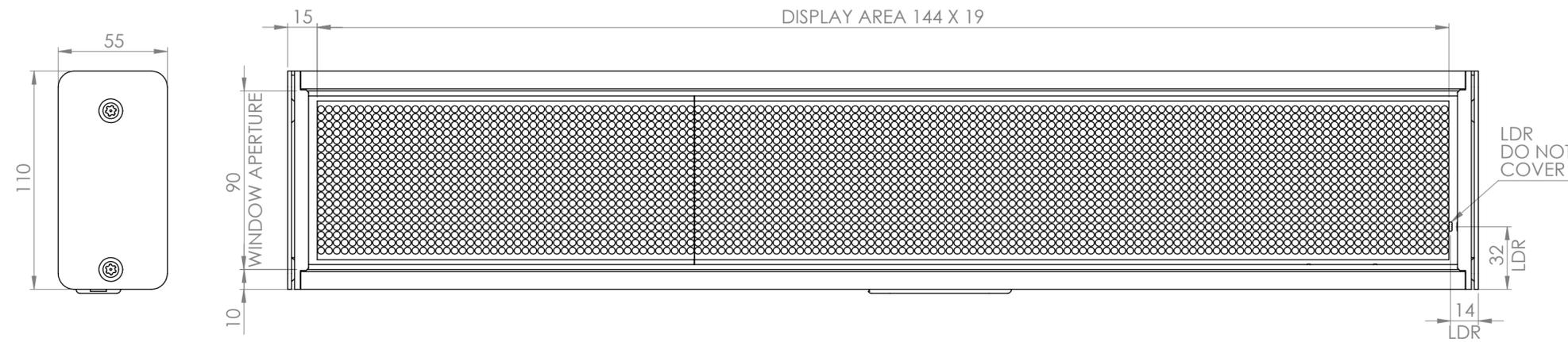
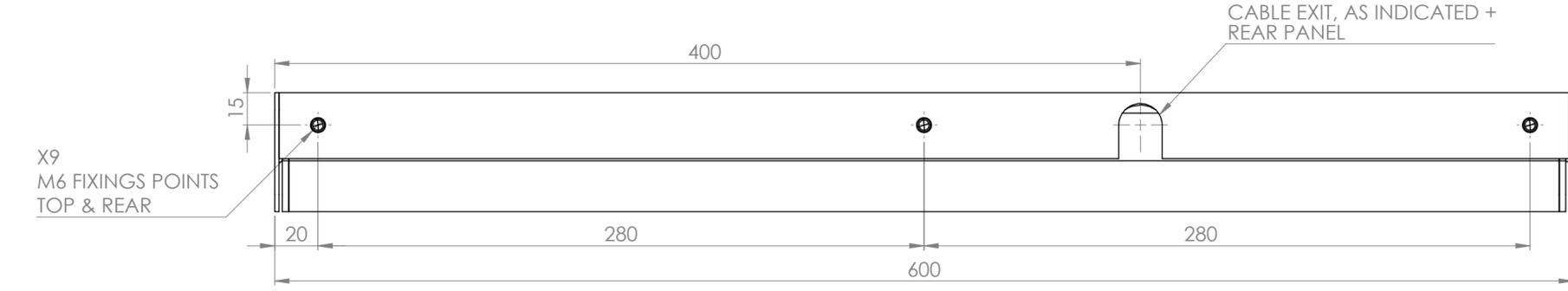
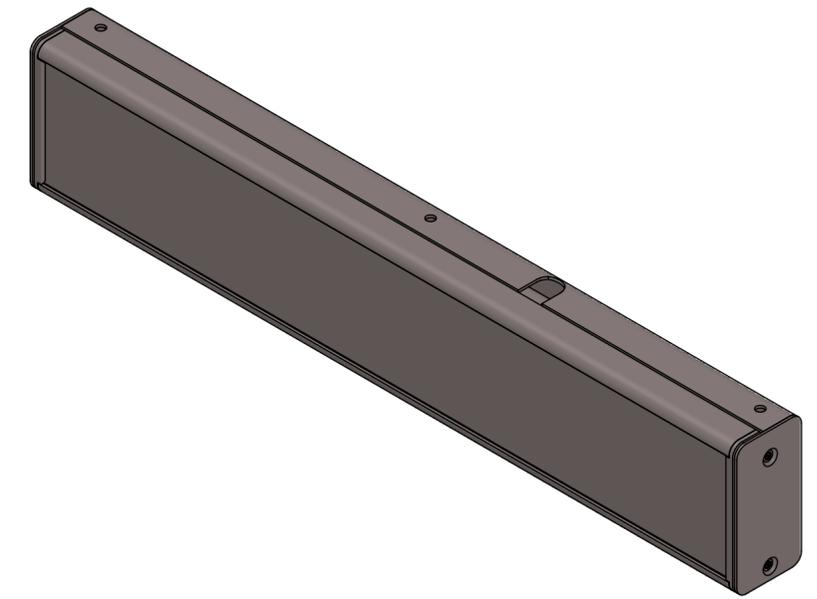
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1. DISPLAY FIXINGS NOT TO BE LONGER THAN 10mm.



REV	DATE	ECN No.	CR/SR/DR	REVISED BY	APPROVED BY	DESCRIPTION:
A	20/01/2022		WW003	M Marin	A Cowell	144X19 INTERNAL LED DISPLAY INSTALLATION DRAWING
						MATERIAL: N/A
						THICKNESS: N/A
						FINISH: PPC RAL 9011 (Graphite Black) Matte; 60-80 micron
DO NOT SCALE DRAWING DEBURR AND BREAK SHARP EDGES						DIM'S IN MM. TOLERANCES UNLESS OTHERWISE SPECIFIED: 0 +/- 0.5 .0 +/- 0.2 .00 +/- 0.1 Ø +0.2 / -0 < +/- 0.5°
HANOVER UNIT 24, CLIFFE INDUSTRIAL ESTATE, LEWES, E. SUSSEX, BN8 6JL, ENGLAND. TEL: 01273 477528						
DRAWING No.						L060
PRODUCT CODE / BK CODE:						L060XXX
SCALE	SHEET SIZE	SHEET	REV			
1:2	A2	1 / 1	A			

12 11 10 9 8 7 6 5 4 3 2 1


MECHANICAL DATA

Case dimensions (excluding brackets):	W600mm x H110mm x D55mm
Viewing area:	W570mm x H80mm
Case construction:	aluminium, matt black powder coated finish
Approximate weight:	2.5kg
Cable exit points (to be specified at time of order):	top off-centre, rear off-centre

DISPLAY DATA

Maximum character height (single line):	75mm
Maximum character height (double line):	35mm (one row spacing)
Text format:	static, paging or scrolling, 1 or 2 lines
Font options:	Hanover fonts as supplied with Helen programming software plus Windows™ fonts
Display technology:	high visibility LEDs (with integrated ambient light sensor)
Communication interfaces:	RS485 (standard), RS232, IBIS, J1708, Ethernet

LED SPECIFICATION

Lifetime:	approx. 100,000 hours dependent on temperature and current
Size and type:	3.2mm diameter LEDs arranged in a W8xH19 LED module
Dominant colour wavelength:	amber 590nm
Pitch:	horizontal 3.96mm / vertical 3.96mm
Viewing angles (horizontal and vertical):	120°

ELECTRICAL DATA

Operating voltage:	24Vdc nominal (18-32V)
Typical power consumption (33% on at 100% brightness):	10 watts (0.41A measured at 24V)
Maximum power consumption (all on at 100% brightness):	26 watts (1.08A measured at 24V)
Electrical protection:	anti-surge, reverse polarity
Display processor fuse rating:	5A quick blow

OPERATIONAL DATA

Temperature range (storage):	-20°C to +60°C (-20°C to +60°C)
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Hanover Displays internal LED signs meet United Nations Automotive EMC Directive ECE R10 as amended. Certificate No. E11 10R-059034.

Hanover Displays LED signs meet United Nations Automotive Burning Behaviour Directive ECE R118. Certificate No. E11 118R11-021140.

*XXX: communication interface

541092-2

TRM-410S/810S

4CH/8CH Mobile Network Video Recorder

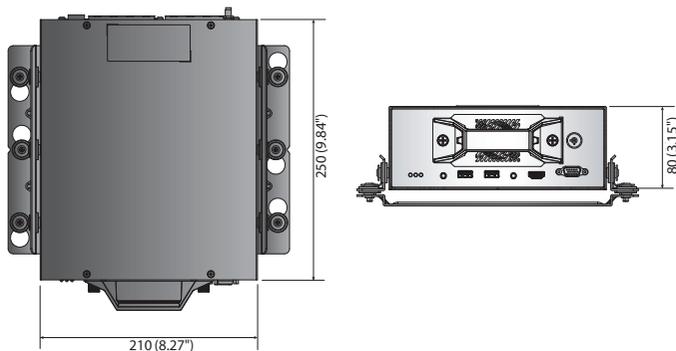


Key Features

- . Up to 4CH/8CH 8megapixel supported
- . Max. 50Mbps/80Mbps recording
- . 2 SATA (Front-swap)
 - Max. 2TB (HDD, Non-RAID mode)
 - Max. 4TB (SSD, Non-RAID mode)
- . RAID 1 support (TRM-810S)
- . Wisenet (SUNAPI) / ONVIF camera recording
- . H.265, H.265, MJPEG codec supported
- . WiseStream support

Dimensions

Unit : mm (inch)



Accessories



Control box



Wi-Fi / GPS antenna

		TRM-410S	TRM-810S
DISPLAY			
Network Camera	Inputs	Max. 4ch (4 PoE, RJ-45)	Max. 8ch (8 PoE, RJ-45)
	Resolution	CIF ~ 8MP	
	Protocols	Wisenet (SUNAPI), ONVIF	
Live	Local Display	HDMI / VGA	
	Multi-Channel Display	[Local Monitor] 1 / 2H / 2V / 3V / 4 / Auto sequence [Web] 1 / 4 / Auto sequence	[Local monitor] 1 / 2H / 2V / 3V / 4 / 6 / 8 / 9 / Auto sequence, [Web] 1 / 4 / 9 / Auto sequence
	Performance	[Local Monitor] 8MP (60fps), 5MP (90fps), 3MP (120fps), 2MP (120fps), 720p (120fps), D1 (120fps)	[Local Monitor] 8MP(60fps), 5MP(90fps), 3MP(120fps), 2MP(240fps), 720p(240fps), D1(240fps)
PERFORMANCE			
Operating System	Embedded	Linux	
Record	Compression	H.265, H.264, MJPEG, WiseStream (H.265, H.264)	
	Recording Bandwidth	Max. 50Mbps	Max. 80Mbps
	Resolution	CIF ~ 8MP	
	Type	Manual, Schedule (Continuous / Event), Event (Pre / Post), Emergency	
	Retention	Retention per channel (1~400 days)	
	Event Trigger	Alarm Input (6), Video Loss, Camera Event (Sensor, MD, Video Analytics, Defocus) G-Sensor (3 Axis)	
	Event Action	e-Mail, Alarm Out, Buzzer, Monitor Out	
Search & Play	Playback Bandwidth	32Mbps (4ch simultaneously)	32Mbps (8ch simultaneously)
	User	Max. 4 Users (Local 1, Remote 3)	
	Mode	Date & Time(Calendar) / Event Log list / Smart Search	
	Simultaneous Playback	Max. 4ch (Local Monitor, CMS)	Max. 8ch (Local Monitor, CMS)
	Resolution	CIF ~ 8MP	
	Fisheye Dewarping	Web / CMS	
	Playback Control	Fast / Slow Forward / Backward, Move one step Up / Down	
Storage	Built-In	0TB ~ 4TB	
	Internal HDD	2 SATA(Front-Swap) - Max. 2TB (HDD, Non-RAID Mode) - Max. 4TB (SSD, Non-RAID Mode)	
	RAID	N/A	RAID-1
Backup	File Backup	Exe (GUI), JPG/AVI (excluding GPS information)(Network)	
	Function	Multi channel (Up to 4ch) play, Date-time / Title / GPS display	Multi channel (Up to 8ch) play, Date-time / Title / GPS display
	Type	Auto (Wi-Fi), Manual (HDD/SSD)	
	Wifi Backup Performance	Max. 50Mbps	Max. 80Mbps
Sensor	I/O	6/4	
Audio	Input	4ch (Network)	8ch (Network)
	Compression	G.711, G.726, AAC (16/48KHz)	
	Audio Communication	2-Way	
NETWORK			
Interface	RJ-45 (Gigabit ethernet x1)		
Protocol	TCP/IP, UDP/IP, RTP (UDP), RTP (TCP), RTSP, NTP, HTTP, DHCP (Server, Client), PPPoE, SMTP, ICMP, IGMP, ARP, DNS, DDNS, uPnP, HTTPS, SNMP, ONVIF (Profile-S), SUNAPI (Server, Client)		
DDNS	Hanwha DDNS		
Transmission Bandwidth	Wired (LAN)	Max. 50Mbps	Max. 80Mbps
Max Remote Users	Search (3), Live Unicast (10), Multicast (20)		
IP Version	IPv4/v6		

		TRM-410S	TRM-810S
Security		IP address filtering, User access log, 802.1x, Encryption	
Wireless	WiFi	Internal (802.11 ac(5G)), 1T1R	
	3G / LTE	Support external 3G/LTE router (Ethernet)	
Language		English, French, German, Italian, Spanish, Russian, Turkish, Polish, Dutch, Swedish, Czech, Portuguese, Danish, Rumanian, Serbian, Croatian, Hungarian, Greek, Norwegian, Finnish, Korean, Chinese, Japanese, Thai	
OS		Windows 7, 8, 10, Mac OS X (10.8 or above)	
Web Browser		MS IE, Google Chrome, Mac Safari	
Viewer Software	Type	SSM Transportation, Webviewer	
	CMS Support	Support SDK/CGI(SUNAPI) for integration to 3'rd party VMS	
FUNCTIONS			
Camera Setup	Register	Auto, Manual	
	Setup Items	IP address, Profile add/edit, Bitrate, Compression, Camera MD setup Camera video setup (Simple focus, Brightness/Contrast, Flip/Mirror, Iris, WDR, D&N, SSNR, Shutter, SSSDR, DIS), Fisheye dewarping mode, Hallway view Setup, Camera webpage, Wisestream On/Off	
Camera Control Max. Framerate	PoE/PoE+ Power Control	Monitor PoE/PoE+ power consumption, On/Off control for each PoE/PoE+ camera, Remote reset for each PoE/PoE+ camera	
	Time Sync.	NVR time protocol for PoE/PoE+ camera (Time sync based on NVR time) GPS time sync	
PTZ	Control	Via GUI, Webviewer	
	Preset	300 Presets	
System Control		Mouse, Web	
INDICATOR/INTERFACE			
Front	Indicator	LED (Status indicator) : 3ea - Power 1, Alarm 1, Record 1	
	Power Switch	N/A	
	Audio	Out (1ea, Line)	
	HDMI / VGA	2ea (Support live monitor screen up to 9div. mode, Clone) HDMI : Up to 4K (3840 x 2160), VGA : Max. 1080p	
	USB	3ea (Front x2, Rear x1)	
	HDD Key Lock	1ea (Power switch)	
Connections	Ethernet	Viewer : 1ea (100Mbps, RJ-45) PoE Camera Input : 4ea (100Mbps, RJ-45)	Viewer : 1ea (1000Mbps, RJ-45) PoE Camera Input : 8ea (100Mbps, RJ-45)
	Control I/O	RJ-45 1ea (External Control Box) (1) Status LED (2) G-Sensor(3 Axis) (3) Emergency Recording button (4) Power Switch (5) Audio Out	
	Alarm	(1) In (6ea) (2) Out (4ea)	
	Serial	1 RS-232C (Reserved)	
	WiFi	1ea (RP-SMA, F)	
	GNSS	1ea (4pin Micro-Fit), Support GPS/Glonass	
	3G/LTE	N/A	
	Reset	Switch (1ea, PW clear)	
	Power Cord	6pin connector 1ea	
	SYSTEM		
Power Management	Shutdown Delay	Max. 72Hrs (User selectable)shutdown / Support CGI shutdown	
	Startup Delay	0 (Default) sec ~ 10 Min (User selectable)	
Log	Log List	Max. 20,000 (System log, Event log each)	
ENVIRONMENTAL			
Operating Temperature / Humidity		-25 to +55 °C(-13 to +131 °F) : HDD installed	
Humidity		20% ~ 85% RH	

TRM-410S
TRM-810S
ELECTRICAL

Power	9 ~ 36V DC Battery power detection & Low power limit setup	
Power Consumption	Max. 83W	Max. 122W
PoE Budget	Max. 32W	Max. 64W

MECHANICAL

Color / Material	Black / Steel	
Dimension (WxHxD)	210mm x 80mm x 250mm (8.27" x 3.15" x 9.84")	
Weight	Approx. 3.4Kg (7.5lb, without HDD)	

STANDARD APPROVAL

Certification	EN-50155, EN-50121-3, EN-61373	
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Control Box
INDICATOR/INTERFACE

Top	Indicator	LED (Status indicator) : 6ea - Power 1, Alarm 1, Record 1, GPS 1, RAID 1, HDD Error 1
	Emergency Button	1ea
Connections	Audio Out	1ea (RCA, Line)
	EXT. Switch	1ea (4pin Micro-Fit)
	Main I/O	1ea (DB9)

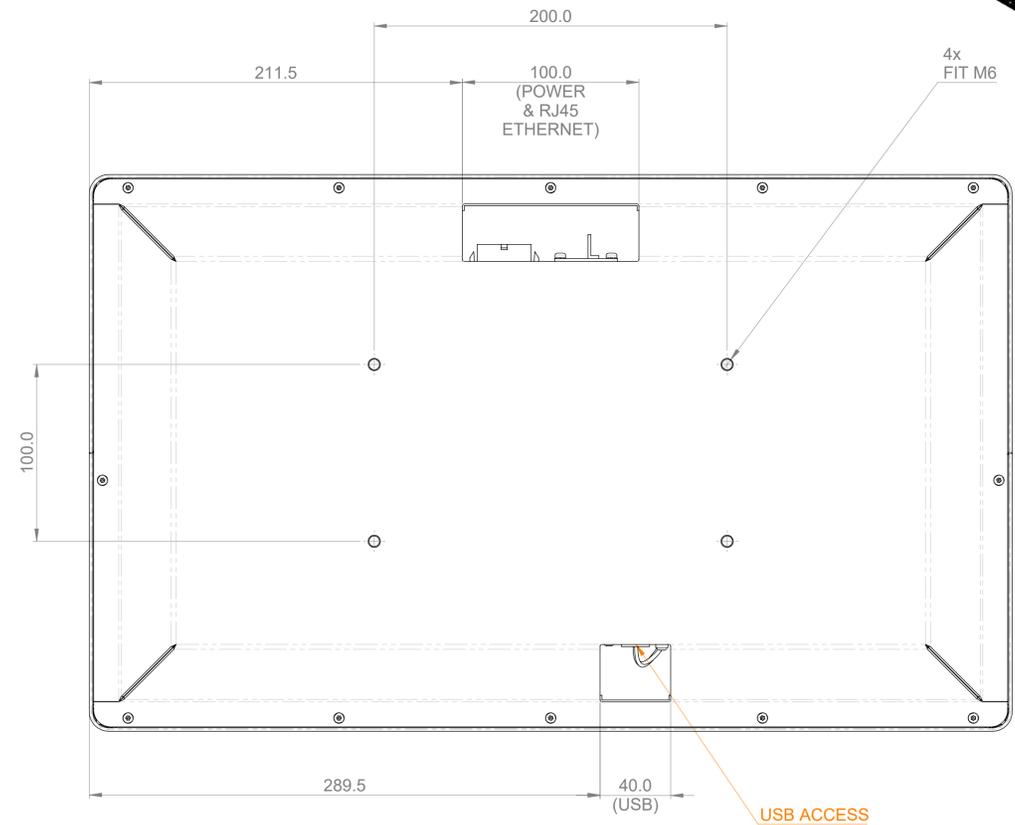
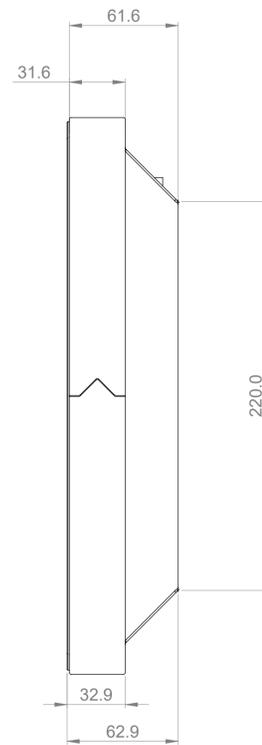
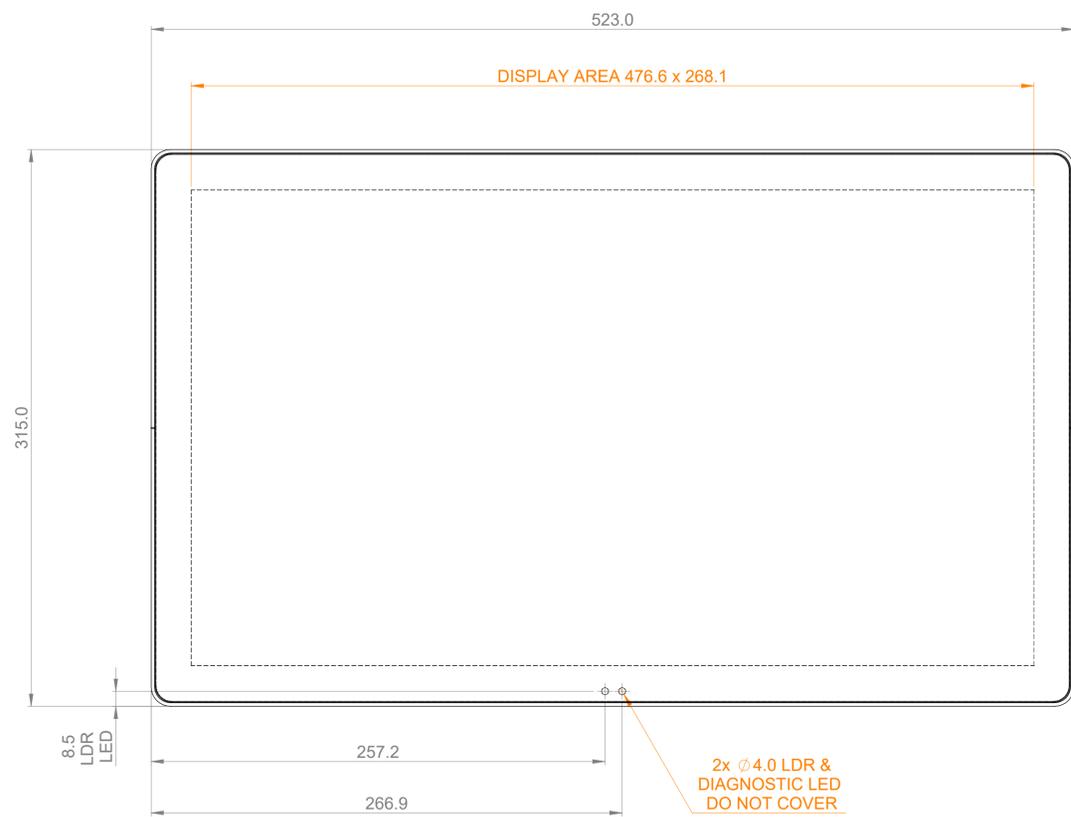
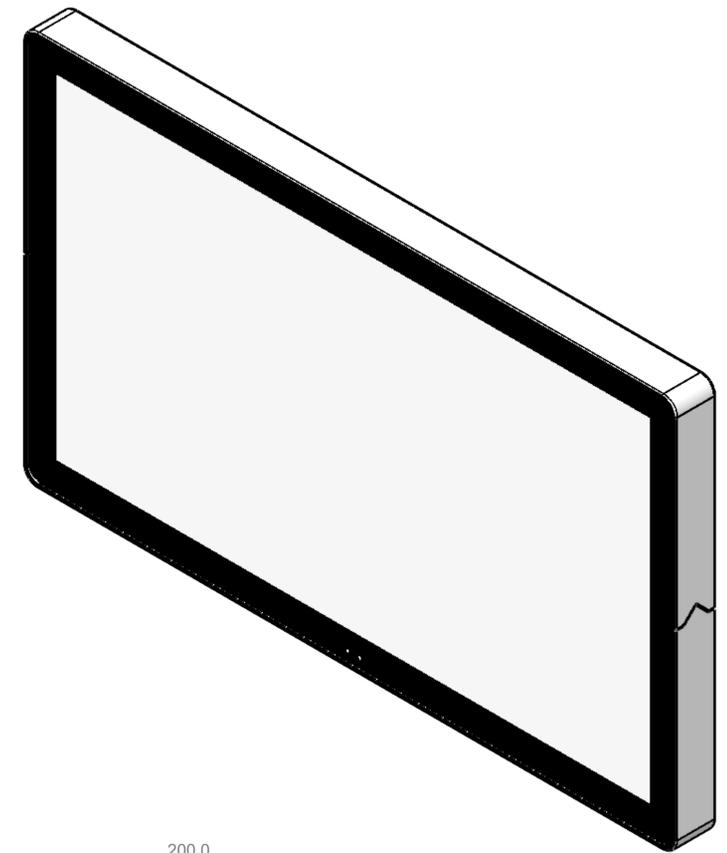
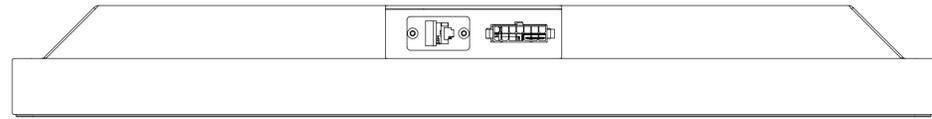
MECHANICAL

Color / Material	Black / Aluminium	
Dimension (WxHxD)	118 x 29.2 x 70mm (4.64" x 1.15" x 2.75")	
Weight	Approx. 0.2Kg (0.4lb)	

* The latest product information / specification can be found at hanwha-security.com

* Design and specifications are subject to change without notice.

* Wisenet is the proprietary brand of **Hanwha Techwin**.



- DO NOT OBSTRUCT USB CONNECTOR ACCESS. IF THIS IS NOT POSSIBLE, THEN PLEASE ENSURE A USB 3.0 EXTENSION CABLE IS FITTED AND ROUTED TO AN ACCESSIBLE LOCATION FOR THE USER
- DO NOT COVER LDR OR DIAGNOSTIC LED
- DISPLAY FIXINGS TO BE NO LONGER THAN 16mm

REV	DATE	ECN No.	CR/SR/DR	REVISED BY	APPROVED BY	DESCRIPTION
P1	09/04/2020	6546	DR0102	A Nicholls	A Nicholls	INSTALLATION DRAWING: 21.5" SMART TFT RJ45
P2	21/08/2020	6844	DR0102	M Morin	A Nicholls	
A	19/11/2020	6844	DR0102	A Nicholls		
B	07/01/2022		WW0003	H Wright		

MATERIAL:	
THICKNESS:	
FINISH:	

DO NOT SCALE DRAWING DEBURR AND BREAK SHARP EDGES	DIM'S IN MM. TOLERANCES UNLESS OTHERWISE SPECIFIED:	DRAWING No. 5433-03-01
	0 ±0.5 .0 ±0.2 .00 ±0.1 ∅ ±0.2 / -0 ∠ ±0.5°	PRODUCT CODE / BK CODE: TFT.SMA.215.001
UNIT 24, CLIFFE INDUSTRIAL ESTATE, LEWES, E. SUSSEX, ENGLAND, TEL: 01273 409200	THIRD ANGLE PROJECTION 	SCALE SHEET SIZE SHEET REV 1:2 A1 1/1 B

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	B	ADDED DISPLAY AREA, LED & LDR DIMENSIONS. UPDATED NOTES TO INCLUDE 2. AND 3.	07/01/2022	



KEY FEATURES

INTERFACE	RJ45
AUTOMATIC BRIGHTNESS COMPENSATION	Yes

MECHANICAL DATA

DIMENSIONS	W523mm x H315mm x D63mm
DISPLAY VIEWING AREA	W476.6mm x H268.1mm
CASE CONSTRUCTION	Aluminium, powder coated finish
WEIGHT	8kg
WINDOW	Anti-reflective thermally toughened 4mm glass

DISPLAY SPECIFICATION

TYPE	21.5" LED TFT (Thin Film Transistor) (single-sided)
RESOLUTION (ASPECT RATIO)	1920 x 1080 (16:9)
BRIGHTNESS	250 cd/m ²
CONTRAST RATIO	5000:1
VIEWING ANGLE	178° (horizontal and vertical)
LIFESPAN	30,000 hours (LED lifetime to 50% brightness)

SYSTEM DATA

PROCESSOR	Intel® Celeron® N3350 processor
ON-BOARD FLASH STORAGE	eMMC 32GB
RAM	DDR3L 2GB
OPERATING SYSTEM	Linux
DATA TRANSFER	USB port, Ethernet (10/100Mbps)

ELECTRICAL DATA

OPERATING VOLTAGE	24Vdc nominal (16-32Vdc)
TYPICAL POWER CONSUMPTION	<35 watts
ELECTRICAL PROTECTION	Reverse polarity protection
FUSE RATING (INTERNAL)	5A
POWER CONNECTOR	Minifit JR 14W

ENVIRONMENTAL DATA

TEMPERATURE RANGE (STORAGE)	-20°C to +70°C (-40°C to +85°C)
IP RATING	Designed to meet IP40
IK RATING	Designed to meet IK06
HUMIDITY RATING	95% RH non-condensing

Hanover Displays Smart TFT meets United Nations Automotive EMC Directive ECE R10 as amended. Certificate N° E11*10R06/00*11292*00.
 Hanover Displays Smart TFT meets United Nations Automotive Burning Behaviour Directive ECE R118. Certificate N° E1*118R03/01*0282*00.
 Details subject to change.

