ToughEye-1700™ Specification Sheet

Version 2.6

The ToughEye-1700™ camera is equipped with ClearSight™ technology. The system requires nothing more than conventional electrical connections; its rugged, self-contained design eliminates the need for fluid tanks, hoses, compressors, and pumps.

ToughEye-1700™ provides industry leading, zero maintenance, self-cleaning operation, suitable for any industrial application where a clear view is critical to the success of the operation.

The ToughEye™ family of cameras excel at three things: **reliability, zero-maintenance operation** and **image clarity**.

ExcelSense can customize ToughEye-1700™ installations for almost any application. Please inquire with info@excelsensetechnologies.com.

SPECIFICATIONS

Interruption-Free View	View uninterrupted during cleaning
Resolution	Full HD (1920 x 1080) @ 30fps
Min Illumination	Color: 0.001 Lux @ (F1.2, AGC ON) B/W: 0.0001 Lux @ (F1.2, AGC ON)
Wide Dynamic Range	True WDR (>120dB)
FoV Options[1]	

Name	Hor. FoV	Ver. FoV
80°	80°	50°
90° Low-Distortion	90°	61°
100°	100°	67°
120° Low-Distortion	120°	84°

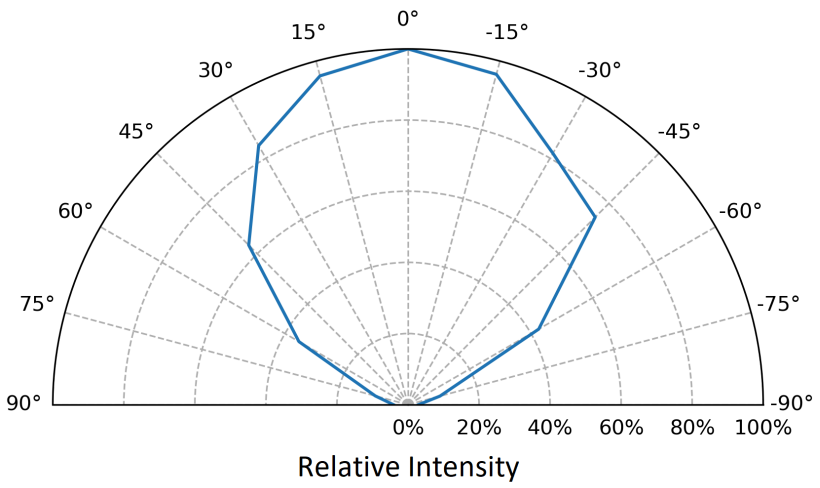
(Customization available)

Video (IP)	H.265 / H.264 / MJPEG
Video (Analog)	720x486 (NTSC), 720x576 (PAL)
Network	IPv4/IPv6, 802.1x, HTTP, HTTPS, TCP/IP, UDP/IP, RTSP, DHCP, NTP, RTCP/RTP, PPPoE, SMTP, DNS, UPnP, FTP, ARP, SNMP

[1] Low-distortion 90° and 120° options not available for LED-integrated model

ONVIF	Profile S, Profile G
Recording	Network recording, Continuous, Motion Local on-board recording option available - 128GB storage capacity
Dimensions	102mm dia x 178mm [4in dia x 7 in]
Weight	3.0kg [6.5lb] - 4.3kg [9.5lb] with Bracket and Sunshield
Clean Cycle	Configurable Timer Based, Electrical Trigger (up to 24 VDC)
Max Wattage	25W
Input Voltage	PoE+[2]: 42.5-57 VDC | DC: 18-32 VDC
Temperature Range	-40°C to 60°C (All Versions)
IP Rating	IP67/IP69[3]
Vibration	30G (at the Camera) [JIS-D-1601-1995]
Certifications	FCC, ICES-003, CE[4], IP67/IP69, JIS-D-1601-1995

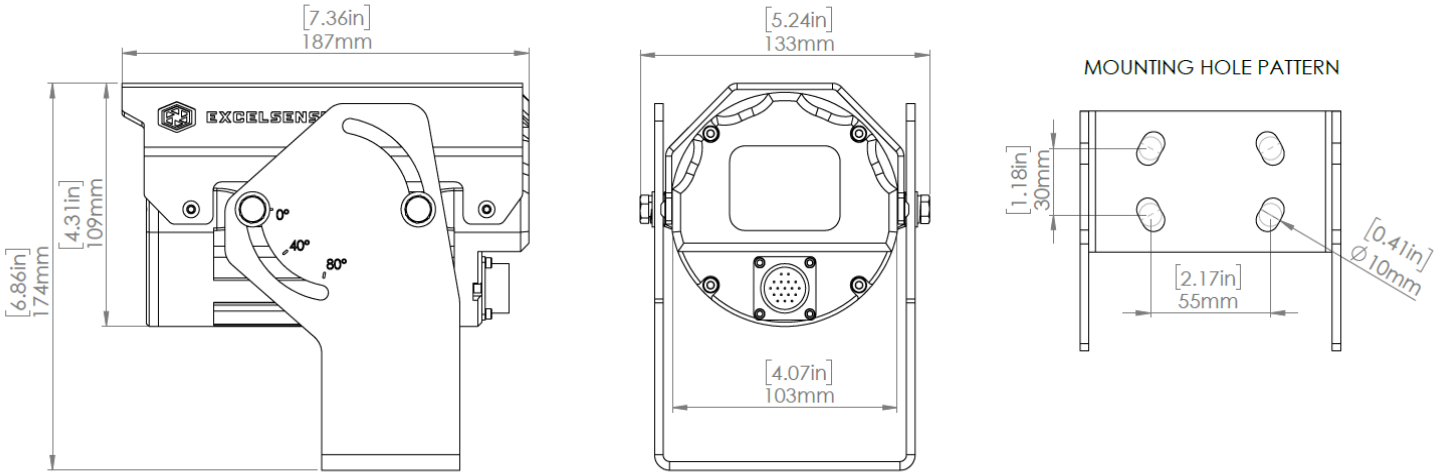
SPECIFICATIONS - INTEGRATED VISIBLE LIGHT VARIANT

Total Luminosity	1500 lumens (typical output at 20°C)
Max Lux	3800 lux (at distance of 30cm, typical output at 20°C)
Color Temperature	4000K
Polar Radiation Pattern	

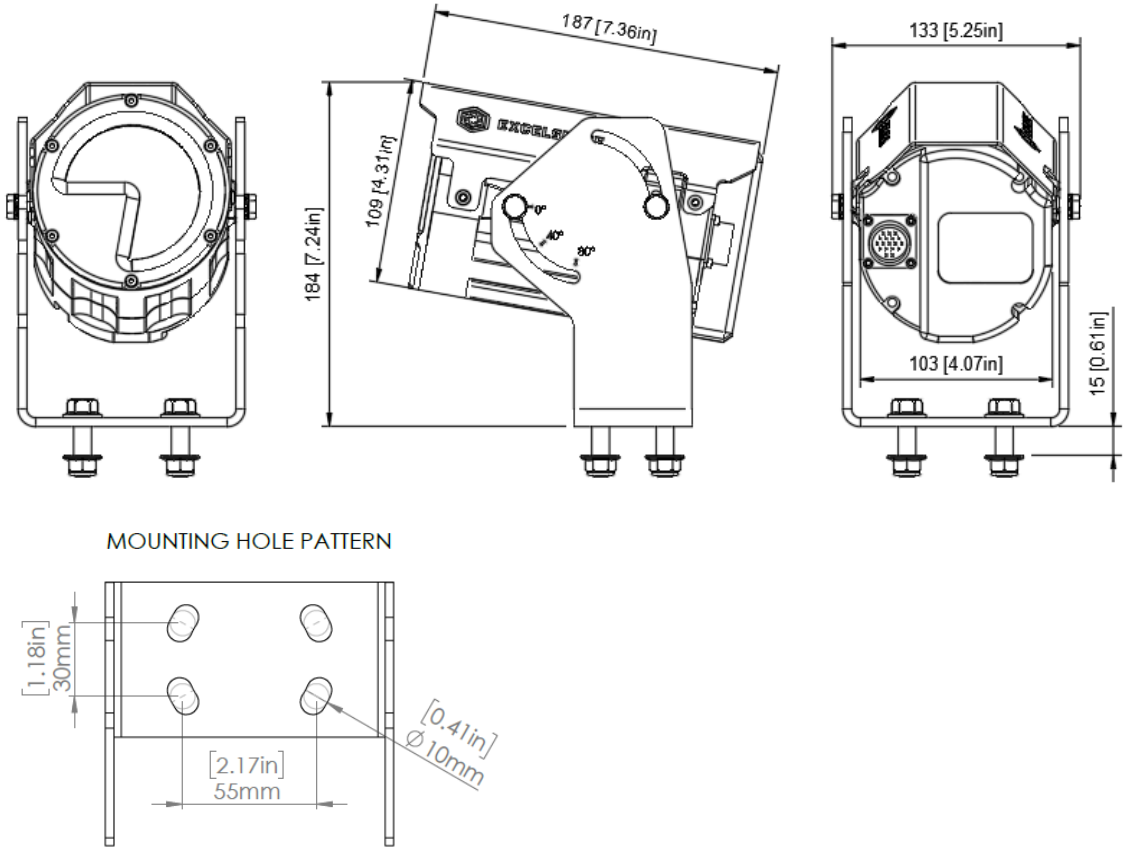
[2] Compatible with IEEE 802.3at compliant PSEs with Layer 1 power negotiation support
[3] Refer to Ingress Protection Test Report for details
[4] When powered with DC voltage as per the ToughEye-1700™ Electrical Specifications.

MECHANICAL DRAWING

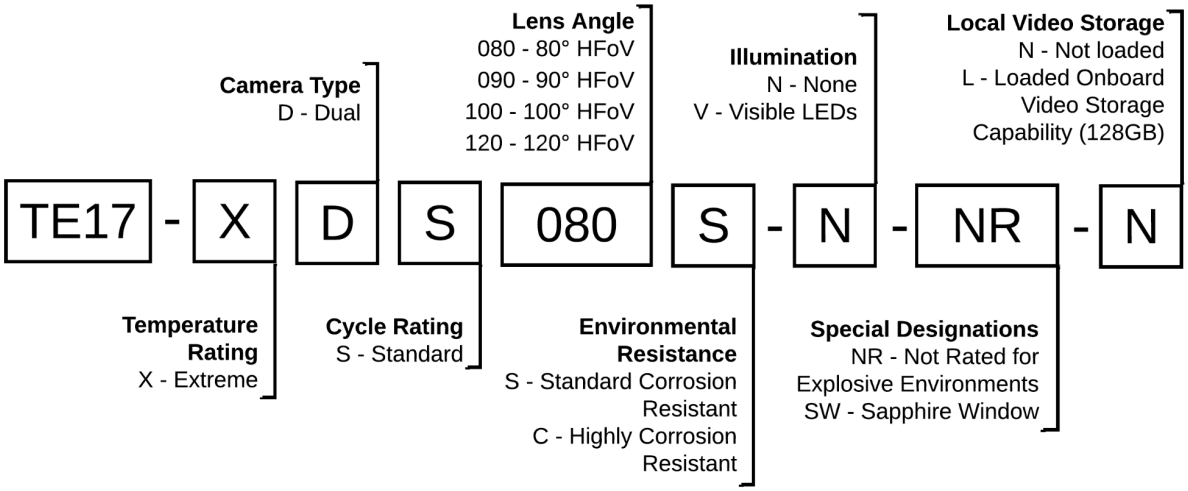
ToughEye-1700™ Dimensions



ToughEye-1700™ Wide-Angle Variant Dimensions



ORDERING OPTIONS



TE17 - ToughEye-1700™ camera

Temperature Rating
X - Extreme: -40ºC to 60ºC

Camera Type
D - Dual: IP / Analog Camera

Cycle Rating
S - Standard Cycle Rating 40,000 cycles

Lens Angle (customization available)
080 - Approx. 80° Horizontal FoV
090 - Approx. 90° Horizontal FoV (Low-Distortion)[5]
100 - Approx. 100° Horizontal FoV
120 - Approx. 120° Horizontal FoV (Low-Distortion)[6]

Environmental Resistance
S - Standard Corrosion Resistant
C - Highly Corrosion Resistant

Illumination
N - None
V - Visible LEDs

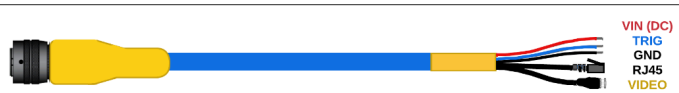
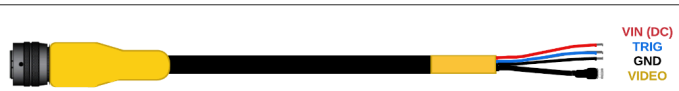
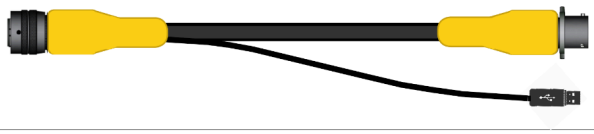
Special Designations
NR - Not Rated for Explosive Environments
SW - Sapphire Window

Local Video Storage
N - Not Loaded
L - Loaded Onboard Video Storage Capability (128GB)

[5] Low-distortion 90° lens option currently not available for the Visible LED integrated option
[6] Wide-angle variant of ToughEye-1700™, not available for the Visible LED integrated option

ACCESSORIES

CABLE LIST

Main Cable - IP **[MC17-SC-xxM-X-IP]**	Main cable can be used in all ToughEye-1700 installations. The analog cable includes a 75-ohm coaxial cable for CVBS transmission. The IP cable includes a shielded Cat-5e cable for 10/100 Base-T signal transmission. Available in: **10m, 20m, 30m, 40m** lengths	
Main Cable - Dual Output **[MC17-SC-xxM-X-DU]**		
Main Cable - Analog **[MC17-SC-xxM-X-AN]**		
Extension Cable - IP **[EC17-DC-xxM-X-IP]**	Extension cables can be used to increase the length of existing cables. Available in: **3m, 10m** lengths	
Extension Cable - Dual Output **[EC17-DC-xxM-X-DU]**		
Extension Cable - Analog **[EC17-DC-xxM-X-AN]**		
Extension Cable - Dual Output, 90deg TE17 connector overmold (downward) **[EC17R1-DC-xxM-X-DU]**		
Extension Cable - IP, 90deg TE17 connector overmold (downward) **[EC17R1-DC-xxM-X-IP]**		
Programming Adapter, IP Output **[PA-TE17-USB-A]**	Programming adapter is used to modify configurable device parameters, retrieve cleaning cycle data, and update internal microcontroller firmware. Suitable for inline connection to TE-1700	

RJ45 Adapter Cable **[AC17-RJ45-K]**	The RJ45 adapter kit provides a waterproof RJ-45 connection using the IP67 inline coupler, which accepts an RJ-45 plug. When connected to a IEEE802.3at compliant PSE (e.g. PoE+ injector or switch), it is the simplest way to power and operate the camera.	
RJ45 Adapter Cable, 90deg Downward Camera-side Overmold **[AC17R1-RJ45-K]**		
M12 X-coded Adapter Cable, with 90-deg M12 Overmold, Clocked SW **[AC17-M12XR2-xxM-IP]**	The M12 adapter cables enable TE1700 connection to a panel-mount X-coded M12 female receptacle. This cabling is compatible with the IP output of the camera.	
M12 X-coded Adapter Cable, with 90-deg M12 Overmold Clocked SW, and 90deg Downward Camera-side Overmold **[AC17R1-M12XR2-xxM-IP]**		
TE3100 to TE1700 Adapter Cable, Dual Output **[AC17-TE31]**	The TE31 to TE17 adapter cable is suitable for adapting the TE17 camera to a TE31-style cabling system. It enables full functionality to the TE17, including DC input, PoE+ input, IP and CVBS outputs, self-clean trigger, and RS-232 communication.	
Analog Video Adapter Cable, GX12 to BNC **[AC-GX12-BNC]**	The standard video connector to BNC plug adapter cable is suitable for adapting the Standard Analog Monitor Kit [AM-4C-7IN-MB-S] to 3rd-party video hardware (e.g. DVR) which accept a 75-Ohm BNC connection.	

TYPICAL INSTALLATIONS

Installation Best Practices

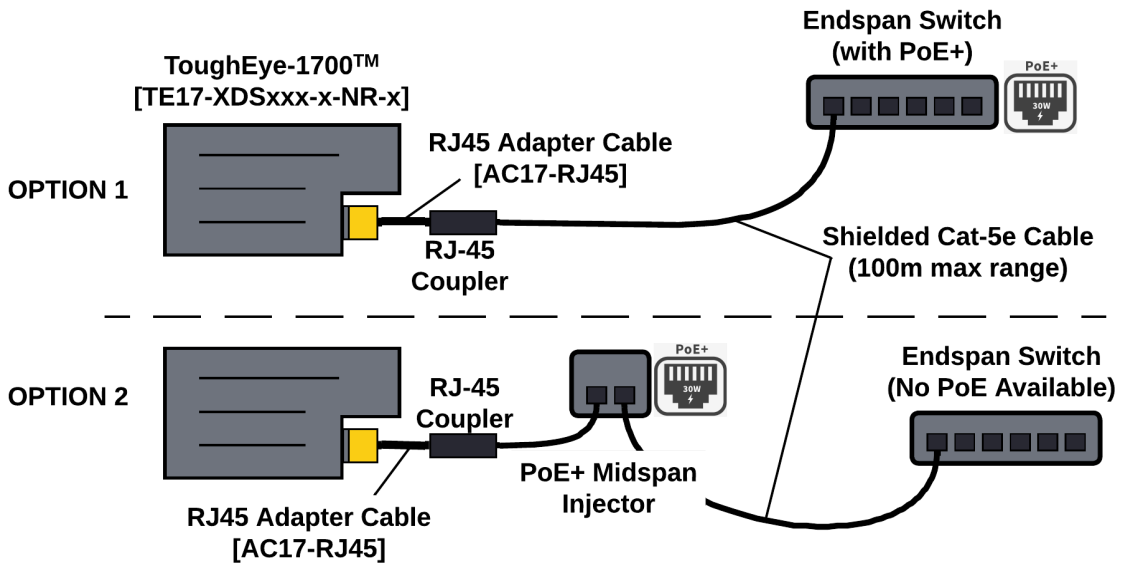
When installing the ToughEye-1700™, it is critical to follow the recommendations found in the Mechanical Installation Best Practices document, found here, to avoid premature failure of the camera.

Network Configuration

The installations shown below illustrate the two main methods of powering and connecting to the ToughEye-1700™: through PoE+ or 24VDC.

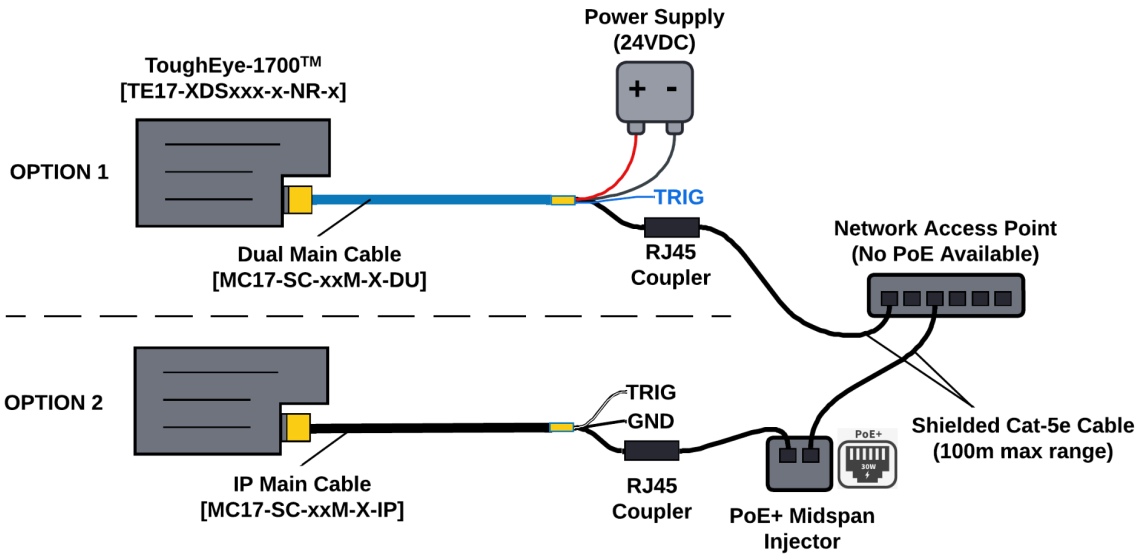
Power and Stream with PoE+

This configuration allows any Cat-5e cable to be used to power and communicate with the ToughEye-1700™ camera. No custom cabling is required to be routed, as the Cat-5e cable plugs into the custom short adapter cable for plug and play functionality. As seen in the diagram below, either a PoE+ compliant power sourcing equipment or a non-compliant switch with a PoE+ injector can be used to power the camera.



Power with PoE+ or DC Supply

This option is preferred when an extremely rugged cable is required. As seen below, the camera can be powered via a suitable 24V PSU or a suitable PoE+ source.



Analog Configuration

ExcelSense 7” Monitor Kits

ExcelSense has two offerings for analog monitor systems: the Standard Monitor series and the Extreme Monitor series.

Each monitor can be integrated into the ToughEye-1700™ analog camera system using the standard Boost Box, following the user guide found here.

Alternatively, for applications which do not require an IP67 or better junction interface, the ToughEye-1700™ can be integrated with either monitor as a simple plug-and-play solution using the main cable.

The standard monitor series kit documentation can be found here, and the extreme-series kit documentation is available here.