


BOSCH

Invented for life

MIC Series 440 Explosion-Protected Camera



- ▶ **Explosion-protected unit certified to ATEX Directive 94/9/EC Exd IIC T6**
- ▶ **CSA and Inmetro certified**
- ▶ **Industry leading IP68 rating**
- ▶ **Integrated wiper**

The MIC Series 440 explosion-protected camera has been designed to offer an extremely reliable, robust, and high quality surveillance solution for potentially volatile security applications that demand the very best performance. Precision engineered to exacting standards, the range meets the requirements of ATEX Directive 94/9/EC Exd IIC T6 and CSA Class I, Division 1, Groups CD, Class II, Division 1, Groups EFG, T6 for safe use in explosive atmospheres such as those found in oil, gas, chemical processing sites, and petrochemical refineries. Rated to an industry leading IP68, the specially designed camera housing is machined from solid aluminum. The MIC Series 440 camera ensures corrosion protection by using two different processes; first an Alocrom 1200 coating, then a robust polyester powder paint coating. Alocrom 1200 is a chromate conversion coating of aluminum, used in the aerospace and defense industries where a protective layer is required to improve corrosion resistance. Sealed with 'O'-rings, the MIC Series 440 camera can operate permanently submerged up to 1 meter (3.3 feet) underwater by virtue of its design and construction, suitable for installation in the harshest of environments. The optically-perfect flat viewing window and integrated wiper ensure razor sharp images are captured in even the most demanding conditions. This

allows the MIC Series 440 explosion-protected range to function perfectly in highly hazardous areas, such as offshore oil rigs.

The use of high-specification motors ensures reliable operation, while ground-breaking resolver technology provides pin-point accuracy and affords the user full 360° continuous rotation pan, and an unprecedented 320° tilt, control.

A choice of true day/night camera modules, offering up to 36x optical zoom (12x digital), coupled with flexible upright or inverted mounting capability, allows the perfect field of view to be achieved every time.

Functions

ATEX and CSA Certified

Meets the requirements of ATEX Directive 94/9/EC Exd IIC T6 and CSA Class I, Division 1, Groups CD, Class II, Division 1, Groups EFG, T6 for safe use in explosive atmospheres.

Rated to an industry leading IP68

Zero dust ingress and ability to withstand sustained periods of immersion under water, the MIC Series 440 explosion-protected range is perfectly suited for installation, in even the most unforgiving environments.

Integrated wiper

Regardless of the weather, the MIC Series 440 explosion-protected camera is able to capture the highest possible quality image year round, thanks to its integrated wiper.

Certifications and Approvals**Approvals**

Region	Certification
Europe	CE Sira Examination
ATEX certified	Directive 94/9/EC Exd IIC T6
CSA C/US	Class I, Division 1, Groups CD Class II, Division 1, Groups EFG Temperature Code T6
Electromagnetic Compatibility (EMC)	Complies with FCC part 15, ICES-003, and CE regulations, including EN50130-4, EN61000-3-2:2006, EN61000-3-3:1995, and EN55022:2006 inc AL:2007
Safety	Complies with CE regulations, UL, EN, and IEC standards 60950-1 & 22

Technical Specifications**Camera Module**

Image sensor	1/4-inch EXview CCD
Picture elements	380 K NTSC / 440 K PAL (WIDE)
Horizontal resolution	18x module: 470 TVL NTSC/PAL typical 36x module: 470 TVL NTSC/PAL typical
Filter	Automatic mechanical IR cut filter
Focus system	Auto or manual
Iris	Auto or manual with slow shutter integration modes
Synchronization	Internal / External (V-Lock)
Recommended illumination	100 to 100,000 lx
Signal/Noise ratio	50 dB or more
Back Light Compensation (BLC)	On/Off
White balance	Automatic
Automatic Gain Control (AGC)	-3 to -28 dB, 2 dB steps
Aperture control	16 Steps

18x optical zoom module

Lens	F=4.1 mm (WIDE) to 73.8 mm (TELE), F1.4 to F3.0
Zoom	18x optical (12x digital)
Angle of view	48° (WIDE end) to 2.8° (TELE end)
Minimum illumination	0.7 lux (F1.4, 1/60s NTSC, 1/50s PAL), 0.11 lux (F1.4, 1/4s NTSC, 1/3s PAL), 0.01 lux or less (F1.4, 1/4s NTSC, 1/3s PAL, ICR ON)
Shutter speed	1/1 to 1/10,000s (22 steps) NTSC, PAL

36x optical zoom module

Lens	F=3.4 mm (WIDE) to 122.4 mm (TELE), F1.6 to F4.5
Zoom	36x optical (12x digital)
Angle of view	57.8° (WIDE end) to 1.7° (TELE end)
Minimum illumination	1.4 lux (1/60 s NTSC, 1/50 s PAL, typical) 0.1 lux (1/4 s NTSC, 1/3 s PAL, typical) ICR-ON mode: 0.01 lux (1/4 s NTSC, 1/3 s PAL)
Shutter speed	1/4 to 1/10,000s (20 steps) NTSC, 1/3 to 1/10,000s (20 steps) PAL

Operational

Auto flip	Yes
Manual flip	Yes
Presets	64 telemetry presets utilizing resolver technology (using FV protocol, 10 camera set-up presets to allow ANPR, color correction, etc.)*
Preset tours	6 tours each with up to 32 presets
Sector titles	Yes (64 sectors) 20 characters per title
Preset titles	20 character caption for each of the 64 presets
Home position	Yes (preset 1 or tour)

*Functions available when used with the Forward Vision Protocol, other protocols may vary.

Communication and Protocols

Communication	RS485 / RS422
Control protocol	Bosch, Forward Vision, Pelco, American Dynamics, and VCL protocol variants available. Bi-phase control requires Biphase to RS485 converter (MIC-BP4) to be installed in the power supply (available separately).

Connectivity

Video	Co-axial via composite cable
Telemetry	Twisted pair. Simplex, half and full duplex operation via composite cable
Power	Via composite cable

Alarms

Alarm inputs	1 tamper input (additional inputs possible with optional alarm card in PSU)
Alarm communication	Tamper switch (ground connection)

Mechanical

Drive unit	Integral pan/tilt motor drive
Pan angle	360° continuous rotation
Pan speed	Up to 90° per second (variable)
Tilt angle	320°
Tilt speed	0.2° to 90° per second (variable)
Speed control	Closed-loop electronics
Preset accuracy	Better than 0.08°
Proportional P/T to zoom	Yes

Physical

Construction material	Machined aluminum
Viewing window	Tempered flat glass
Standard colors	Black (RAL9005), White (RAL9003)
Standard finish	Alochrom 1200 surface treatment with powder coat paint.
Dimensions (W x H x D)	286 x 523.6 x 189 mm (11.26 x 20.61 x 7.44 in.) (including deep conduit adapter)
Weight	15.5 Kg (34.17 lb) (including 4-in. PCD base and supplied deep conduit adapter)

Environmental

Operational temperature	-20 °C to +60 °C (-4 °F to 160 °F)
Weatherproofing	IP68

Electrical

Input voltage	18VAC
Power consumption	25.2 W max

Note: MIC Series power supplies and accessories are not ATEX compliant. These should be located outside the hazardous area or provided with ATEX-compliant enclosures and cable conduit or cable glands.

Ordering Information

MIC440AXBUA14618N MIC 18x Optical zoom, Explosion-Protected, black, upright, AD Protocol, wiper fitted, NTSC	MIC440AXBUA14618N
MIC440AXBUA14618P MIC 18x Optical zoom, Explosion-Protected, black, upright, AD Protocol, wiper fitted, PAL	MIC440AXBUA14618P
MIC440AXBUA14636N MIC 36x Optical zoom, Explosion-Protected, black, upright, AD Protocol, wiper fitted, NTSC	MIC440AXBUA14636N
MIC440AXBUA14636P MIC 36x Optical zoom, Explosion-Protected, black, upright, AD Protocol, wiper fitted, PAL	MIC440AXBUA14636P
MIC440AXBUD14618N MIC440 ATEX MIC 18x Optical zoom, Explosion-Protected, black, upright, Pelco Protocol, wiper fitted, NTSC	MIC440AXBUD14618N
MIC440AXBUD14618P MIC440 ATEX MIC 18x Optical zoom, Explosion-Protected, black, upright, Pelco Protocol, wiper fitted, PAL	MIC440AXBUD14618P
MIC440AXBUD14636N MIC440 ATEX MIC 36x Optical zoom, Explosion-Protected, black, upright, Pelco Protocol, wiper fitted, NTSC	MIC440AXBUD14636N
MIC440AXBUD14636P MIC440 ATEX MIC 36x Optical zoom, Explosion-Protected, black, upright, Pelco Protocol, wiper fitted, PAL	MIC440AXBUD14636P
MIC440AXBUL14618N MIC 18x Optical zoom, Explosion-Protected, black, upright, VCL Protocol, wiper fitted, NTSC	MIC440AXBUL14618N
MIC440AXBUL14618P MIC 18x Optical zoom, Explosion-Protected, black, upright, VCL Protocol, wiper fitted, PAL	MIC440AXBUL14618P
MIC440AXBUL14636N MIC 36x Optical zoom, Explosion-Protected, black, upright, VCL Protocol, wiper fitted, NTSC	MIC440AXBUL14636N
MIC440AXBUL14636P MIC 36x Optical zoom, Explosion-Protected, black, upright, VCL Protocol, wiper fitted, PAL	MIC440AXBUL14636P
MIC440AXBUP14618N MIC440 ATEX MIC 18x Optical zoom, Explosion-Protected, black, upright, Bosch Protocol, wiper fitted, NTSC	MIC440AXBUP14618N
MIC440AXBUP14618P MIC440 ATEX MIC 18x Optical zoom, Explosion-Protected, black, upright, Bosch Protocol, wiper fitted, PAL	MIC440AXBUP14618P

Ordering Information

MIC440AXBUP14636N MIC440 ATEX MIC 36x Optical zoom, Explosion-Protected, black, upright, Bosch Protocol, wiper fitted, NTSC	MIC440AXBUP14636N
MIC440AXBUP14636P MIC440 ATEX MIC 36x Optical zoom, Explosion-Protected, black, upright, Bosch Protocol, wiper fitted, PAL	MIC440AXBUP14636P
MIC440AXBWU14618N MIC440 ATEX MIC 18x Optical zoom, Explosion-Protected, black, upright, FV Protocol, wiper fitted, NTSC	MIC440AXBWU14618N
MIC440AXBWU14618P MIC440 ATEX MIC 18x Optical zoom, Explosion-Protected, black, upright, FV Protocol, wiper fitted, PAL	MIC440AXBWU14618P
MIC440AXBWU14636N MIC440 ATEX MIC 36x Optical zoom, Explosion-Protected, black, upright, FV Protocol, wiper fitted, NTSC	MIC440AXBWU14636N
MIC440AXBWU14636P MIC440 ATEX MIC 36x Optical zoom, Explosion-Protected, black, upright, FV Protocol, wiper fitted, PAL	MIC440AXBWU14636P
MIC440AXWUA14618N MIC 18x Optical zoom, Explosion-Protected, white, upright, AD Protocol, wiper fitted, NTSC	MIC440AXWUA14618N
MIC440AXWUA14618P MIC 18x Optical zoom, Explosion-Protected, white, upright, AD Protocol, wiper fitted, PAL	MIC440AXWUA14618P
MIC440AXWUA14636N MIC 36x Optical zoom, Explosion-Protected, white, upright, AD Protocol, wiper fitted, NTSC	MIC440AXWUA14636N
MIC440AXWUA14636P MIC 36x Optical zoom, Explosion-Protected, white, upright, AD Protocol, wiper fitted, PAL	MIC440AXWUA14636P
MIC440AXWUD14618N MIC 18x Optical zoom, Explosion-Protected, white, upright, Pelco Protocol, wiper fitted, NTSC	MIC440AXWUD14618N
MIC440AXWUD14618P MIC 18x Optical zoom, Explosion-Protected, white, upright, Pelco Protocol, wiper fitted, PAL	MIC440AXWUD14618P
MIC440AXWUD14636N MIC 36x Optical zoom, Explosion-Protected, white, upright, Pelco Protocol, wiper fitted, NTSC	MIC440AXWUD14636N
MIC440AXWUD14636P MIC 36x Optical zoom, Explosion-Protected, white, upright, Pelco Protocol, wiper fitted, PAL	MIC440AXWUD14636P
MIC440AXWUL14618N MIC 18x Optical zoom, Explosion-Protected, white, upright, VCL Protocol, wiper fitted, NTSC	MIC440AXWUL14618N

Ordering Information

MIC440AXWUL14618P MIC 18x Optical zoom, Explosion-Protected, white, upright, VCL Protocol, wiper fitted, PAL	MIC440AXWUL14618P
MIC440AXWUL14636N MIC 36x Optical zoom, Explosion-Protected, white, upright, VCL Protocol, wiper fitted, NTSC	MIC440AXWUL14636N
MIC440AXWUL14636P MIC 36x Optical zoom, Explosion-Protected, white, upright, VCL Protocol, wiper fitted, PAL	MIC440AXWUL14636P
MIC440AXWUP14618N MIC 18x Optical zoom, Explosion-Protected, white, upright, Bosch Protocol, wiper fitted, NTSC	MIC440AXWUP14618N
MIC440AXWUP14618P MIC 18x Optical zoom, Explosion-Protected, white, upright, Bosch Protocol, wiper fitted, PAL	MIC440AXWUP14618P
MIC440AXWUP14636N MIC 36x Optical zoom, Explosion-Protected, white, upright, Bosch Protocol, wiper fitted, NTSC	MIC440AXWUP14636N
MIC440AXWUP14636P MIC 36x Optical zoom, Explosion-Protected, white, upright, Bosch Protocol, wiper fitted, PAL	MIC440AXWUP14636P
MIC440AXWUW14618N MIC 18x Optical zoom, Explosion-Protected, white, upright, FV Protocol, wiper fitted, NTSC	MIC440AXWUW14618N
MIC440AXWUW14618P MIC 18x Optical zoom, Explosion-Protected, white, upright, FV Protocol, wiper fitted, PAL	MIC440AXWUW14618P
MIC440AXWUW14636N MIC 36x Optical zoom, Explosion-Protected, white, upright, FV Protocol, wiper fitted, NTSC	MIC440AXWUW14636N
MIC440AXWUW14636P MIC 36x Optical zoom, Explosion-Protected, white, upright, FV Protocol, wiper fitted, PAL	MIC440AXWUW14636P
Accessories	
MIC-24PSU-UL 24 VAC Camera Power Supply 24 VAC, 50/60 Hz power supply for MIC Series cameras	MIC-24PSU-UL
MIC-115PSU-UL 115 VAC Camera Power Supply 115 VAC, 60 Hz power supply for MIC Series cameras	MIC-115PSU-UL
MIC-240PSU-UL 240 VAC Camera Power Supply 240 VAC, 50 Hz power supply for MIC Series cameras	MIC-240PSU-UL

Ordering Information

MIC-BP4 Bi-phase Converter Bi-Phase converter for non-IR versions of MIC series power supply units	MIC-BP4
MIC-SPR Spreader Plate Aluminum spreader plate suitable for brick-work surface mounting – black leatherette finish RAL9005	MIC-SPR
MIC-SPR-W Spreader Plate Aluminum spreader plate suitable for brick-work surface mounting – white leatherette finish RAL9003	MIC-SPR-W
MIC-CMB-B Corner Mount Bracket Corner mount bracket – black leatherette finish RAL9005	MIC-CMB-B
MIC-CMB-W Corner Mount Bracket Corner mount bracket - white leatherette finish RAL9003	MIC-CMB-W
MIC-PMB Pole Mount Bracket Pole mount bracket (includes 2 x 455 mm banding ties for pole diameters 75 to 145 mm)	MIC-PMB
MIC-WMB-B Wall Mount Bracket Wall mount bracket - black leatherette finish RAL9005	MIC-WMB-B
MIC-WMB-W Wall Mount Bracket Wall mount bracket - white leatherette finish RAL9003	MIC-WMB-W
MIC-ALM Alarm and Washer Pump Drive Card 8 Input alarm and washer pump drive card for PSU (Not for IR PSU)	MIC-ALM
MIC-WKT Washer Kit Washer kit for non infrared MIC models (includes washer pump drive card, washer nozzle and mounting brackets for wall and 4 in. PCD base)	MIC-WKT
HAC-WAS05-20 24 VAC Washer 24 VAC washer inst. 5M 25L	HAC-WAS05-20
UPA-2450-50 Power Supply 220 VAC, 50 Hz, 24 VAC, 50 VA Out	UPA-2450-50
UPA-2450-60 Power Supply 120 VAC, 60 Hz, 24 VAC, 50 VA Out	UPA-2450-60
MIC-2M-S 2 m Shielded Composite Cable Shielded Composite 2 m cable that provides power, telemetry and video connection from a MIC Series camera to a MIC Series power supply	MIC-2M-S
MIC-10M-S 10 m Shielded Composite Cable Shielded Composite 10 m cable that provides power, telemetry and video connection from a MIC Series camera to a MIC Series power supply	MIC-10M-S

Ordering Information

MIC-20M-S 20 m Shielded Composite Cable Shielded Composite 20 m cable that provides power, telemetry and video connection from a MIC Series camera to a MIC Series power supply	MIC-20M-S
MIC-25M-S 25 m Shielded Composite Cable Shielded Composite 25 m cable that provides power, telemetry and video connection from a MIC Series camera to a MIC Series power supply	MIC-25M-S

Americas:
Bosch Security Systems, Inc.
130 Perinton Parkway
Fairport, New York, 14450, USA
Phone: +1 800 289 0096
Fax: +1 585 223 9180
security.sales@us.bosch.com
www.boschsecurity.us

Europe, Middle East, Africa:
Bosch Security Systems B.V.
P.O. Box 80002
5600 JB Eindhoven, The Netherlands
Phone: + 31 40 2577 284
Fax: +31 40 2577 330
emea.securitysystems@bosch.com
www.boschsecurity.com

Asia-Pacific:
Robert Bosch (SEA) Pte Ltd, Security Systems
11 Bishan Street 21
Singapore 573943
Phone: +65 6258 5511
Fax: +65 6571 2698
apr.securitysystems@bosch.com
www.boschsecurity.com

Represented by