

# Eaton – Hazardous Area Communication



*Powering Business Worldwide*



# Eaton – Hazardous Area Communication

Product Introduction

# Eaton's Hazardous Area Communications Group is:

a global technology partner for products, solutions and services engineered for the most harsh and hazardous environments



## Communications



Sonix PAGA

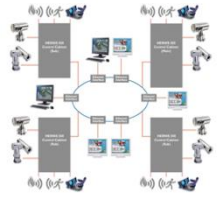


Integrated communications Systems



Waves Mass notification

## CCTV



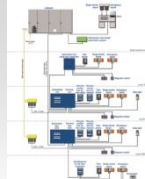
Systems



Camera stations



## Mining



Underground signaling systems

- HAC Is a part of Eaton's Crouse Hinds Division
- > 900 people, small HAC platform staff
- Global projects businesses in 3 verticals - Oil & Gas, Marine, Mining
- EX CCTV systems, EX CCTV camera stations, EX Signalling & Alarms, Integrated Multimedia Communications system, Mining Communications Systems
- 5 acquisitions in 2010,2011, 2012, 2015 built around MEDC growth strategy

## Telephones



Analogue & IP telephones

## Sounders



GRP, Aluminium and stainless steel audio devices

## Manual Call Points



Manual alarm call points & ESD devices

## Speakers



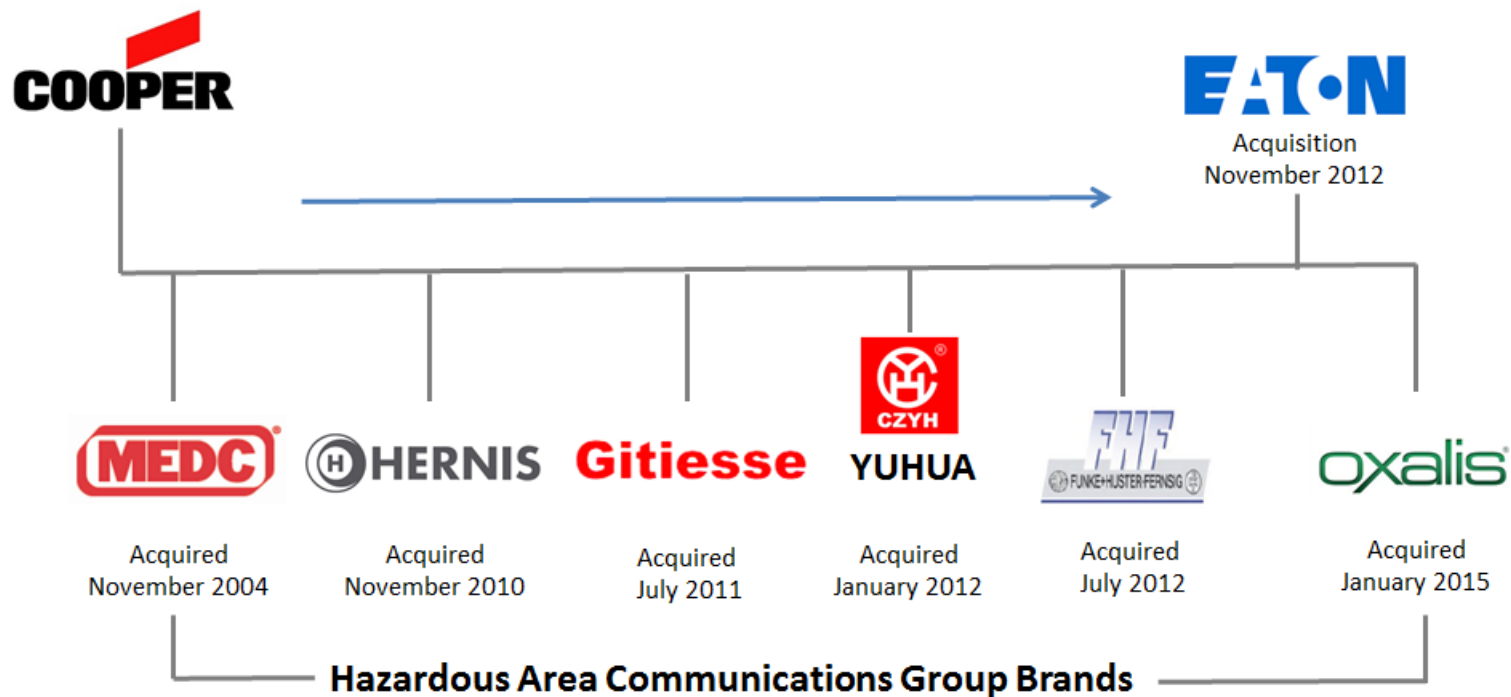
Horn speakers and ceiling speakers

## Visual Alarms



Beacons, status lamps and combination units

# Hazardous Area Communication – Our Journey



- Timeline of our acquisitions



# Hazardous Area Communication – Our Brands

## CCTV Systems



## Communications



## CCTV Camera Station



## Signals & Alarms



## Communications & CCTV Camera Station



## Telecommunication



# HAC Group Customers have many needs

Eaton's HAC Group offers our customers unrivalled options

## Systems



### individual standalone systems:

- Sonix PA/GA
- Hemis CCTV Systems.
- FHF mining coms systems.
- Talk Back / intercom system.
- Visual Alarm Devices.
- PABX for automatic telephones.
- SPT.

## Components



- Loud speakers.
- Telephones.
- Camera stations.
- Call points.
- Beacons.
- Sounders.
- Control panels.
- Lighting fixtures.
- Cable glands.
- etc

# Engineering Capabilities

Specialist team is highly qualified to provide all engineering aspects from concept to life time maintenance



## System Design

Fully trained engineers design every aspect of our solution in accordance with all relevant standards.

## Project Management

Each project is given a dedicated manager to ensure professional management of each phase.

## Factory Acceptance Test & Commissioning

All systems are subject to an FAT and our engineering services team provide commissioning & set up services.

## Technical Support

Our customer service team operates 24hrs a day for service and on-site technical support.



# Eaton MEDC Signals & Alarms



*Powering Business Worldwide*



# MEDC – Range of Products



Audio



Visual



Manual Call Point

# Customize Signaling Products



Status Lamp

Combination Units

# MEDC – New Audio Products, DB3B & DB4B



# DB3B Key Features

- **Tone stages.**
  - Increased to 3 stages for standard DC unit.
  - Improved control options;

## Tone activation and selection:

Voltage	Unit	Number of stages	Tone activation	Tone selection
DC	Standard	1	Apply power.	1 x DIP switch.
		2	Apply power / Reverse polarity.	2 x DIP switches.
			Common negative and switch between 2 positives.	2 x DIP switches.
			Common positive and switch between 2 negatives.	2 x DIP switches.
		3	Common negative and switch between 3 positives.	3 x DIP switches.
	Common positive and switch between 3 negatives.		3 x DIP switches.	
	Volt free activation (remote).	1 - 5	Volt free activation (remote switching).	1 x DIP switch for stage 1. Tones preselected for subsequent stages.
AC	Standard	1	Apply power.	1 x DIP switch
	Volt free activation (remote).	1 - 2	Volt free activation (remote switching).	1 x DIP switch for stage 1. Tones preselected for subsequent stage.



# DB3B Key Features

- **Increased SPL.**

- IIC Gas only.
- IIIC Gas & dust.

Maximum output dB @ 1400Hz:

Flare type	Short	Long
IIC Gas	122dB	125dB
IIIC Gas & Dust	116dB	119dB

- Above figures are @ 1m.
- IIC Gas = 115dB @ 10'.
- Original Unit long flare = 115dB.



# DB4B Data sheet

## DB4B Range - LOUDSPEAKERS - Up to 25 Watts

Crouse-Hinds  
by MEDC

### Ex d(e), Weatherproof

NEW PRODUCT



### Features

- Ex d / Ex de IEC/MIC 14/15/16
- ATEX certified.
- IECEx certified.
- Certified temperature -55°C to +70°C\*
- IP66 & IP67.
- Optional Ex e terminal chamber.
- 127dB @ 25W, 1m.\*
- BW, 15W & 25W versions.
- Power tappings, via integral transformer.
- Frequency response 350Hz - 8kHz.
- Ex enclosure - Glass reinforced polyester.
- Flare - High Impact thermoplastic polyester.
- Stainless steel mounting bracket and cover screws.
- Mounting bracket has ratchet facility as standard.
- Optional swivel bracket available.

\*Depending on version.

### Introduction

The DB4B is a new high power explosion proof loudspeaker which is suitable for use in harsh environmental conditions found onshore and offshore in the oil, gas and petrochemical industries.

The Ex enclosure is manufactured from GRP and the rugged thermoplastic flare provides a corrosion free product which is aesthetically pleasing. The unit is certified for use in a wide range of temperatures for -55°C to +70°C.

With the 25W unit producing 127dB @ 1m, the 15W unit 125dB @ 1m and the BW unit 123dB @ 1m this range of loudspeakers converts input power to sound efficiently. The sensitivity for the unit is 113dB @ 1m. The frequency response of the unit ensures that the delivery of critical voice messages are highly intelligible.

Options include DC blocking capacitors for monitored systems, reusable fuses for compliance with marine regulations and swivel bracket that gives the installer greater flexibility when positioning the unit. The short flare option is a worthy addition to the range offering a high SPL and wide dispersion angle in a compact unit.



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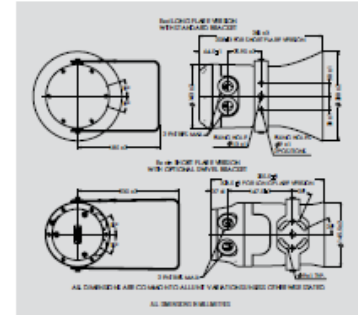
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Head Office (USA)  
2403 North Stem Houston Parkway (West),  
Suite 012, Houston, TX 77066, USA



### Certification and Specification

<b>ATEX Ex d(e):</b>	Cert. no. 16666710100220K Certified to EN6009-0, EN6009-1, Ex II 2 G, Ex d IIC T4/T5/T6 Gb.					
<b>ATEX Ex d(e) &amp; Dust:</b>	Cert. no. 16666710100220K Certified to EN6009-0, EN6009-1, EN6009-3, Ex II 2 G, Ex d IIC T4/T5/T6 Gb, Ex IIc IIC 130°C/110°C/T80°C Db, PFG.					
<b>ATEX Ex de Cas:</b>	Cert. no. 16666710100220K Certified to EN6009-0, EN6009-1, EN6009-7, Ex II 2 G, Ex de IIC T4/T5/T6 Gb.					
<b>ATEX Ex de Cas &amp; Dust:</b>	Cert. no. 16666710100220K Certified to EN6009-0, EN6009-1, EN6009-7, Ex II 2 G, Ex de IIC T4/T5/T6 Gb, Ex IIc IIC 130°C/110°C/T80°C Db, PFG.					
<b>IECEx Ex d(e):</b>	Cert. no. IECEx BAS 13.0119X Certified to IEC6009-0, IEC6009-1, Ex d IIC T4/T5/T6 Gb.					
<b>IECEx Ex d(e) &amp; Dust:</b>	Cert. no. IECEx BAS 13.0119X Certified to IEC6009-0, IEC6009-1, IEC6009-3, Ex d IIC T4/T5/T6 Gb, Ex IIc IIC 130°C/110°C/T80°C Db, PFG.					
<b>IECEx Ex de Cas:</b>	Cert. no. IECEx BAS 13.0119X Certified to IEC6009-0, IEC6009-1, IEC6009-7, Ex de IIC T4/T5/T6 Gb.					
<b>IECEx Ex de Cas &amp; Dust:</b>	Cert. no. IECEx BAS 13.0119X Certified to IEC6009-0, IEC6009-1, IEC6009-3, Ex de IIC T4/T5/T6 Gb, Ex IIc IIC 130°C/110°C/T80°C Db, PFG.					
<b>Material:</b>	Ex enclosure - Flame retardant, UV stable, glass reinforced polyester. Flare - Flame retardant, high impact, UV stable, thermoplastic polyester. UV stability tested to ISO 4892 part 3. Fasteners - Stainless steel, flange and captive cover screws in 316 stainless steel.					
<b>Flare finish:</b>	Flare - natural black, natural red or painted as specified. Black short flare (patent black).					
<b>Mounting bracket:</b>	Flare - natural black, natural red or painted as specified. Black short flare (patent black).					
<b>Rated Power:</b>	BW, 15W or 25W (power ratings available, contact MEDC).					
<b>Frequency Range:</b>	Frequency response with matched facility, optional swivel bracket available.					
<b>Weight:</b>	Ex d - 3.5kg, Ex de - 3.8kg, based on long flare with transformer.					
<b>Ingress Protection:</b>	IP66 & IP67.					
<b>Earth Continuity:</b>	Optional for Ex de version. Not available on Ex d unit.					
<b>Options:</b>	Up to 2 x M20 or 1/2" NPT blanking plug available.					
<b>Terminals:</b>	Ex d - 8 x 2.5mm <sup>2</sup> , Ex de - 8 x 4mm <sup>2</sup>					
<b>Mounting arrangements:</b>	Swivel bracket with ratchet facility, optional swivel bracket available.					
<b>Labels:</b>	Optional duty and tag labels available.					
<b>Dispersion angle:</b>	Long flare (L68) 180° - 140°, 40° - 40° Short flare (L48) 90° - 240°, 40° - 50°					
<b>Driver Impedance:</b>	8Ω					
<b>SPL (1W/1m) (reference):</b>	113dB (IC long flare)					
<b>Maximum Output dB (1/3 octave average constant):</b>						
<b>Flare type</b>	Short	Long	Short	Long	Short	Long
<b>IC Gas</b>	113dB	125dB	123dB	125dB	124dB	127dB
<b>IIC Gas &amp; Dust</b>	114dB	117dB	117dB	119dB	119dB	121dB
<b>Certified Temperature:</b>						
<b>Protection Type</b>	Minimum Temp	Maximum Temp				
	All units	BW unit	15W unit	25W unit		
<b>Ex d</b>	-55°C	+70°C	+65°C	+55°C		
<b>Ex de</b>	-55°C					



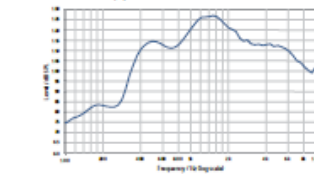
Transformer: Used by combining the rated power ratings below.

Tappings	BW	15W	25W
1-2	8.0	15.0	25.0
2-3	4.0	7.5	12.5
3-4	2.0	3.0	6.0
3-5	1.5	2.0	4.0
4-5	0.7	2.0	2.0
1-4	0.4	0.8	1.0

Transformer Tapping Options:



Frequency Response for IC long flare unit @ 25W, 1m with 1/3 octave averaging.  
Not data from NTT test equipment.



### Ordering Requirements

The following code is designed to help in selection of the correct unit. Build up the reference number by inserting the code for each component into the appropriate box.

Model	Certification	Ex Atmosphere	Wattage	Transformer	Labels	Options	Finish
DB4B							
<b>Certification Code</b>	<b>Ex Atmosphere Code</b>	<b>Wattage Code</b>	<b>Transformer Code</b>	<b>Labels Code</b>	<b>Options Code</b>	<b>Finish Code</b>	
ATEX d	N <sup>1</sup>	8 Watt	8	None	1 x M20	Natural Black	
ATEX d & Dust	CD	15 Watt	15	15W	2 x M20	Natural Red	
IECEx Ex d	N <sup>1</sup>	8 Watt	8	None	1 x 1/2" NPT	Yellow	
IECEx Ex d & Dust	CD	15 Watt	15	15W	2 x 1/2" NPT	Grey	
Weatherproof	W		25 <sup>2</sup>		2 x 1/2" NPT	Black	
					2 x 1/2" NPT	White	
					1 x 1/2" NPT	Blue	
					1 x 1/2" NPT	Green	
					1 x 1/2" NPT	Orange	
					1 x 1/2" NPT	Red	
					1 x 1/2" NPT	Black	

All specifications, dimensions, weights and tolerances are nominal (typical) and MEDC reserves the right to vary all data without prior notice. No liability is accepted for any consequence of use.



EDSIA 01/14

# DB4B Key Features

- Increased SPL.
  - IIC Gas only.
  - IIIC Gas & dust.



**Maximum Output dB (1/3 octave average smoothed):**

Flare type	8W unit		15W unit		25W unit	
	Short	Long	Short	Long	Short	Long
IIC Gas	119dB	123dB	122dB	125dB	124dB	127dB
IIIC Gas & Dust	114dB	117dB	117dB	119dB	119dB	121dB

- Short flare 8W has SPL = Original 25W long flare.
- IIIC Gas & dust 15W = Original 25W long flare.
- IIC Gas & dust 25W = 117dB @ 10' long flare.
- Data above is 1/3 Octave average smoothed.

# MEDC – New Signaling Products, LD15

**LD15 Range - HIGH INTENSITY LED BEACON**

**Crouse-Hinds**  
by MEDC

Exd, Weatherproof



**Features**

- Zone 1, 2, 21 & 22.
- Exd IIC T6/T5.
- ATEX Certified Ex II 2GD.
- IECEx Certified Gb, Db.
- IP66 & 67.
- -55°C to +70°C.
- Corrosion-free GFR.
- Optional stainless steel backstrap.
- Various lens colours.
- Optional cast aluminium or wire stainless steel guard.
- Up to 3 x M20 or 3 x M25 entries.
- 5 user selectable functions:
  - 60 fpm
  - 80 fpm
  - 120 fpm
  - Double Flash
  - Steady
- Remote and local function selection.

**Introduction**

These certified LED Beacons have been designed for use in potentially explosive atmospheres and harsh environmental conditions. The enclosures are suitable for use offshore or onshore where light weight combined with corrosion resistance is required.

The housings are manufactured completely from a UV stable glass reinforced polyester. Stainless steel screws and mounting bracket are available ensuring a totally corrosion free product.

The LD15 incorporates a low maintenance, innovative LED array, which has a life of up to 54,000 hours. The low current consumption design allows an energy efficient solution without compromising light output.

Units can be painted to customers specification and supplied with identification labels.

**ATEX IECEx**

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**MEDC**

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- High intensity LED array.
- Up to 128Cd, brightest LED in the market
- 5 user selectable functions.
- Remote initiation.
- Range of lens colours.
- ATEX & IECEx.
- IP66 & IP67.
- Available in VAC & VDC



# MEDC – New Enhanced Products, XB15

XB15 Range - 5, 10 & 15 Joules Xenon Beacons
Crouse-Hinds  
by EATON

---

Ex d, Weatherproof



**Features**

- Zone 1 and Zone 2 use
- Exd IIC, T4/T5/T6
- ATEX approved, Ex II 2GD
- ECEC Certified Gb, Db
- UL listed for USA and Canada:
  - Hazardous locations:
    - Class I, Div. 2, Groups A, B, C & D.
    - Class II, Div 2 Groups F & G.
    - Class I, Zone 1, AExd IIC T4/T5/T6.
  - Ordinary locations: Visual Signal Device
- Marine listed
- ULC Listed to Canadian Safety Standards
- CUTR certified
- Chinese (CCST) certified.
- Brazilian (Inmetro) certified.
- PGG & GP
- EN94-23 Certified
- SIL 1 Certified
- Certified temperature: -55°C to +70°C.
- 5, 10 & 15J versions available
- Pipe mount or direct mount enclosure
- Corrosion-free GFRP.
- Four wire and supervisory diode.
- Optional stainless steel backstrap.
- Various lens colours.
- Optional relay or telephone initiate.
- Optional cast or wire lens guard.
- Up to 3 x M20 or 3 x M25 entries.
- LED version available. (See data sheet for LD 15).
- Improved inrush current characteristics.
- Consistent extreme temperature start-up.

**Introduction**

These certified beacons have been designed for use in potentially explosive atmospheres and harsh environmental conditions. The enclosures are suitable for use offshore or on shore, where lightweight combined with corrosion resistance is required.

The housings are manufactured completely from a UV stable, glass reinforced polyester. Stainless steel screws and mounting bracket are available ensuring a totally corrosion-free product.

The model XB15 contains a supervisory diode and four wire lead connections for a lamp application.

Units can be painted to customer specification and supplied with identification labels.

As well as the standard worldwide certificates EN94-23 and SIL1 are both now available.

As well as the XB15 being certified from -55°C to +70°C, the new control circuit has been designed to consistently energise at -55°C.



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 Head Office (USA): 5415 North Sam Houston Parkway West, Suite 210, Houston, TX 77060, USA.

Sales Enq. UK: +44 (0)1623 444 445    Sales Enq. USA: +1 (713) 937-9772    E-Mail: MEDCSales@Eaton.com    Web: www.medc.com

- Up to 64% lower inrush current
- Brighter output
- Now added with 5J and 10J versions
- EN54-23 & SIL approvals
- Improved inrush current characteristics.
- Low temperature start-up capability

# Improved inrush current & effective candela

- Lower inrush current (15J version)

Voltage	Inrush for old version	Inrush for new version
24Vdc	3.6A	1.3A
48Vdc	8.4A	4A

- Higher effective candela

	15J old version	15J new version	10J	5J
Effective candela (cd)	330	382	280	107

# MEDC – New MCP, PH1



- MEDC pioneered the use of GRP in explosion protected electrical equipment
- Easy installation due to its lightweight GRP body which is totally corrosion resistant.
- MEDC pioneered the use of GRP in explosion protected electrical equipment
- The MCP has a key reset capability allowing the user to remain in control and to visually locate the exact call point activated within the hazardous area.
- Addressable module optional
- Other colour options available



# Eaton FHF Telecommunication, Signals & Alarms



*Powering Business Worldwide*

# Telephones & Peripherals

Weatherproof and Explosion-proof Telephones in **Analogue** and **Voice over IP (VoIP)** versions.

## Main specifications;

- Zone 1 and 21 or Zone 2 and 22, for Gas and Dust, up to IIC T5/T6.
- Housings in Glass-fibre Reinforced Polyester (GRP) or Impact Resistant Polycarbonate materials.
- Different housing colours.
- Ingress Protection – IP65 / IP66.
- Stainless steel Armoured or Spiral handset cords.
- Stainless steel keypads for ResistTel telephone series.
- LCD Display for programming and phone book functions.
- Wide operating temperature range. From -40°C to +60°C.
- Available also without keypad as Hot-Line Telephones.

## Telephone Accessories:



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made  
in  
Germany

# Signaling Devices – Sounders & Beacons



## Weatherproof and Explosion-proof Signaling Devices;

### Main specifications;

- Zone 1 and 21 or Zone 2 and 22, for Gas and Dust, up to IIC T5/T6.
- Housings in Aluminum, Glass-fibre Reinforced Polyester (GRP) or Impact Resistant Polycarbonate materials.
- Ingress Protection – IP65 / IP66.
- Strobe lights in Xenon or LED technology.
- Wide range of operating voltages, AC/DC.
- Wide operating temperature range.



# FBT – ICT Mining Solutions

- Solutions for complete systems include engineering services such as:  
Consulting, Project Planning & Development, Commissioning, Pre- & Post Sales Services
- Solutions:
  1. Shaft signaling
  2. Mine radio
  3. Gas monitoring
  4. Data communication
  6. Alarm telephone
  7. Loudspeaker System with Emergency Stop.





# Eaton Sonix PAGA System



*Powering Business Worldwide*



# Sonix Features

Sonix is a technologically advanced, cost effective PAGA system for the oil / gas and marine market.

- Utilizing optimum balance of digital and analogue technology.
- Highly efficient in terms of power usage and space utilization.
- Highly adaptive hard / software architecture for all applications.
- Designed for low in-life support and maintenance.
- Provided with comprehensive product type approvals & certifications.



# PA/GA Hardware Solutions

## PA/GA Architecture

- Stand alone (A)
- Duplicated (A+B)
- N+1
- Networked solutions
  - A
  - A+B
  - N+1
  - Safe Area, Eexd, Eexp

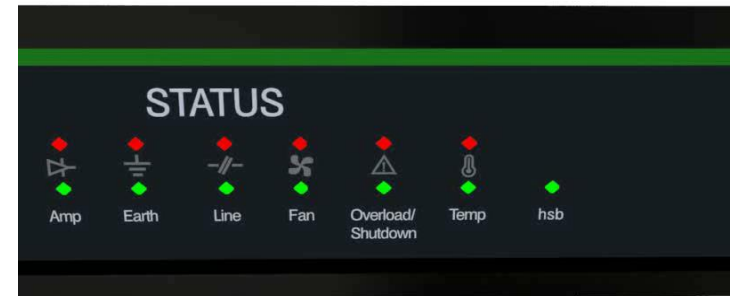
## Key Features

- Compact 1U modular design
- Simplified internal architecture  
CAT6A
- Flexible design upgrades
- Real time critical path monitoring
- Fully programmable configuration
- High efficiency 92%\*
- Low maintenance
- Analogue / digital architecture
- Copper / Fibre connectivity



# 350 Amplification

- 1u compact architecture.
- Self contained PSU, amplifier, txfr and thermal management.
- High precision output signals +/- 0.5 dB deviation.
- AC 350w
- Single or dual AC/DC supplies.
- Intelligent auto thermal management.
- >90% efficiency hybrid amplifier (Patent protected).
- Line or loop monitoring.
- Line deviation monitoring.
- Dual redundant data connectivity.
- Hot standby facility.
- Overload protection.
- Reduced hardware needed 5 in to 1.



# External Interface

SoniX is designed to allow a wide range of external interfaces to be made

- Fire and gas system
- DCS shut down system
- Ships whistle
- Entertainments systems
- Page Party / intercom
- PABX
- CCTV
- Peripheral telemetry
- UHF handheld radio



# Sonix Comparison

Main Features	Sonix	Other Manufacturers
Amplifier Size	1U	Typical 3U ~ 6U
Amplifier wattage	350W	Typical 250 ~ 325W
Amplifier Orientation	Horizontal	Vertical
Amplifier Class	Hybrid	A/B or D
Amplifier Efficiency	>90%	<60% ~ 80%
Line Regulation	+/- 0.5db	+/-1.5 – 3db
Watts per 1U	350 (+40%)	Typical 125 ~ 216 W
Min U Space	1	Typical 7 ~ 9
Amps per cage	N/A	Typical 4 ~ 8
Aggregate weight per Amplifier	4.15Kg (-28% - 40%)	Typical 6 ~ 7 Kg
Components needed per 8 amplifiers	8	Typical 12 ~ 16
Amplifiers per PSU	1	4

# Sonix Comparison

Comparison based on a fully duplicated FPSO 25KW ( 1000 x 25w speaker, SPL= 120db) PAGA system, excluding MDF, controllers and ancillary items within cabinet.

Main Features	Sonix	Other Manufacturers
Qty of Amplifier A&B @ 80% loading	88	Typical 96 ~ 126
Cabinet space per A&B (virtual)	44U	Typical >70U
Heat Generated under alarm Total	2.5Kw	Typical $\approx$ 10KW
Max power used at 230Vac Total	119a/h	Typical $\approx$ $\geq$ 152a/h
Mac power used at 48Vdc Total	572a/h	Typical $\approx$ $\geq$ 650a/h

# MEDC DB4B Speaker

## DB4B Range - LOUDSPEAKERS - Up to 25 Watts

Crouse-Hinds  
by M.C.M.

### Ex d(e), Weatherproof

NEW PRODUCT



### Features

- Ex d / Ex de IEC/EN 147/15/16
- ATEX certified.
- IECEx certified.
- Certified temperature -55°C to +70°C\*
- IP66 & IP67.
- Optional Ex e terminal chamber.
- 127dB at 25W, 1m.\*
- BW, 15W & 25W versions.
- Power tapping, via integral transformer.
- Frequency response 350Hz - 8kHz.
- Ex enclosure - Glass reinforced polyester.
- Flare - High Impact thermoplastic polyester.
- Stainless steel mounting bracket and cover screws.
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- Optional swivel bracket available.

\*Depending on version.

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Options include DC blocking capacitors for monitored systems, resettable fuses for compliance with marine regulations and swivel bracket that gives the installer greater flexibility when positioning the unit. The short flare option is a worthy addition to the range offering a high SPL and wide dispersion angle in a compact unit.



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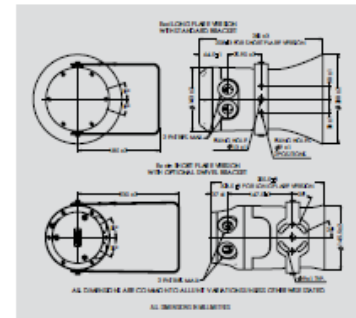
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<b>ATEX Ex d Gas:</b>	Cert. no. IAN0110100220K Certified to EN6009-0, EN6009-1, Ex II 2 G, Ex d IEC 147/15/16 Gb.					
<b>ATEX Ex d Gas &amp; Dust:</b>	Cert. no. IAN0110100220K Certified to EN6009-0, EN6009-1, EN6009-3, Ex II 2 GD, Ex d IEC 147/15/16 Gb, Ex d IEC 113/0POT 100POTBPC Db, PFD.					
<b>ATEX Ex de Gas:</b>	Cert. no. IAN0110100220K Certified to EN6009-0, EN6009-1, EN6009-7, Ex II 2 G, Ex de IEC 147/15/16 Gb.					
<b>ATEX Ex de Gas &amp; Dust:</b>	Cert. no. IAN0110100220K Certified to EN6009-0, EN6009-1, EN6009-7, EN6009-3, Ex II 2 GD, Ex de IEC 147/15/16 Gb, Ex de IEC 113/0POT 100POTBPC Db, PFD.					
<b>IECEx Ex d Gas:</b>	Cert. no. IECEx BAS 13.01.12X Certified to IEC6009-0, IEC6009-1, Ex d IEC 147/15/16 Gb.					
<b>IECEx Ex d Gas &amp; Dust:</b>	Cert. no. IECEx BAS 13.01.12X Certified to IEC6009-0, IEC6009-1, IEC6009-3, Ex d IEC 147/15/16 Gb, Ex de IEC 113/0POT 100POTBPC Db, PFD.					
<b>IECEx Ex de Gas:</b>	Cert. no. IECEx BAS 13.01.14K Certified to IEC6009-0, IEC6009-1, IEC6009-7, Ex de IEC 147/15/16 Gb.					
<b>IECEx Ex de Gas &amp; Dust:</b>	Cert. no. IECEx BAS 13.01.14K Certified to IEC6009-0, IEC6009-1, IEC6009-7, IEC6009-3, Ex de IEC 147/15/16 Gb, Ex de IEC 113/0POT 100POTBPC Db, PFD.					
<b>Material:</b>	Ex enclosure - Flame retardant, UV stable, glass reinforced polyester. Flare - Flame retardant, high impact, UV stable, thermoplastic polyester. UV stability tested to ISO 4892 part 3. Fasteners - Stainless steel and captive cover screws in 316 stainless steel.					
<b>Flare finish:</b>	Flare - natural black, natural red or painted as specified. Black short flare (patent black).					
<b>Mounting:</b>	Ex d - 8 x 2 Screws* Ex de - 8 x 4 Screws*					
<b>Mounting arrangements:</b>	Standard bracket with ratchet facility, optional swivel bracket available. Labels: optional duty and tag labels available.					
<b>Dispersion angle:</b>	Long flare (4.68) 180° - 140°, 40° - 40° Short flare (4.68) 90° - 240°, 40° - 50°					
<b>Driver Impedance:</b>	8Ω					
<b>SPL 1W/1m (Calculation):</b>	113dB (IC long flare)					
<b>Maximum Output dB (1/3 octave average constant):</b>						
<b>Flare type</b>	Short	Long	Short	Long	Short	Long
<b>IEC Gas</b>	113dB	125dB	123dB	125dB	124dB	127dB
<b>IEC Gas &amp; Dust</b>	114dB	117dB	117dB	119dB	119dB	121dB
<b>Certified Temperature:</b>						
<b>Protection Type</b>	Minimum Temp	Maximum Temp				
	All units	BW unit	15W unit	25W unit		
<b>Ex d</b>	-55°C	+70°C		+65°C		+55°C
<b>Ex de</b>	-55°C					



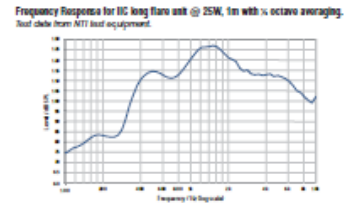
**Transformer:**  
Used by combining the rated power ratings below.

Tappings	BW	15W	25W
1-2	8.0	15.0	25.0
2-3	4.0	7.5	12.5
3-4	2.0	3.0	6.0
1-3	1.5	2.8	4.8
2-4	0.7	2.8	2.8
1-4	0.4	0.8	1.0

**Transformer Tapping Options:**

1 Long loop out (4 x 2)  
2, 3, 4  
power tap change, 3 terminals.

1 Long loop out (2 x 2)  
2, 3, 4  
8 dbm, 4 terminals.



### Ordering Requirements

The following code is designed to help in selection of the correct unit. Build up the reference number by inserting the code for each component into the appropriate box.

Model	Certification	Ex Atmosphere	Wattage	Transformer	Labels	Enteric	Options	Flare
DB4B								
<b>Certification Code</b>	ATEX Ex d ATEX Ex d & Dust ATEX Ex de IECEx Ex d IECEx Ex de Wastoprot W	<b>Ex Atmosphere Code</b> N* IC IC Gas IC Gas & Dust	<b>Wattage Code</b> 8 Watt 15 Watt 25 Watt	<b>Transformer Code</b> N 8Ω 15Ω 25Ω	<b>Labels Code</b> N D T	<b>Enteric Code</b> N 1 x M20 2 x M20 1 x 10NPT 2 x 1/2 NPT 2 x 1/2 NPT 1 x 1/2 NPT	<b>Options Code</b> N Capacitor Resistor Earth case Earth case	<b>Flare Code</b> N Natural Black Natural Red Yellow Cyan Blue Special
		* See Ex d, IECEx Ex d for Ex Atmosphere	* See Ex d, IECEx Ex d for wattage		* Specify when 1 x only		* Please specify 1 Short flare patent black	

All specifications, dimensions, weights and tolerances are nominal (typical) and MEDC reserves the right to vary all data without prior notice. No liability is accepted for any consequence of use.



EDSIA 01/14

# DB4B Features

- Increased SPL.
  - IIC Gas only.
  - IIIC Gas & dust.



Maximum Output dB (1/3 octave average smoothed):

Flare type	8W unit		15W unit		25W unit	
	Short	Long	Short	Long	Short	Long
IIC Gas	119dB	123dB	122dB	125dB	124dB	127dB
IIIC Gas & Dust	114dB	117dB	117dB	119dB	119dB	121dB

- Short flare 8W has SPL = Original 25W long flare.
- IIIC Gas & dust 15W = Original 25W long flare.
- IIC Gas & dust 25W = 117dB @ 10' long flare.
- Data above is 1/3 Octave average smoothed.



# Sonix Comparison

Now utilising the DB4B advanced technology

Comparison based on a fully duplicated FPSO 25KW ( 1000 x 25w speaker, SPL= 120dB) PAGA system, excluding MDF, controllers and ancillary items within cabinet.

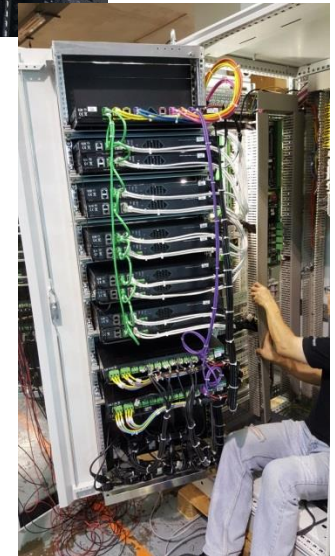
25KW system changed to 8KW system based on same SPL of 120 dB

Main Features	Sonix	Sonix & DB4B
Qty of Amplifier A&B @ 80% loading	88	<b>28</b>
Cabinet space per A&B (virtual)	44U	<b>14U</b>
Heat Generated under alarm Total	2.5KW	<b>787W</b>
Max power used at 230Vac Total	119a/h	<b>38a/h</b>
Mac power used at 48Vdc Total	572a/h	<b>183a/h</b>

# Sonix USP's



# Sonix Past Projects



# Projects Reference

End User	Project Title	Eaton Reference	Equipment Supplied	Location	Year
COSCO Nantong	Hull N380 Shipyard	Not Applicable	ATEX Field Equipment	Offshore China	2014
CNOOC	China CNOOC	OX0277	Sonix PAGA System (A)	China	2014
HPCL Mangalore	Hassan LPG Pipeline Project Phase 1	OX0401	Sonix PAGA System (Networked)	Onshore India	2014
HPCL Mangalore	Hassan LPG Pipeline Project Phase 2	OX0403	Sonix PAGA System (Networked)	Onshore India	2014
CNOOC	YueDong LNG Project	OX0561	Sonix PAGA System (Networked)	Onshore China	2015
Manora WPP,TAP Petroleum,Technip	Manora WPP Development Project	OX0573	Sonix PAGA System (A)	Offshore Thailand	2014
Grupo Engevix	Engevix Ecovix	OX0214	Sonix PAGA System (A)	Offshore Brazil	2015
Petrobras,Technip	P76	OX0686	ATEX Field Equipment	Offshore Brazil	2015
Shell Brunei Petroleum	Scot PA System Upgrade	208052812	Sonix PAGA System (N+1)	Onshore Brunei	2015
Petronas	Sea Base Phase 1	OX0697	Sonix PAGA System (A&B)	Offshore Malaysia	2015
MSC Passenger Vessel	MSC Rhapsody	OX0732	Sonix PAGA System (N+1)	Offshore Italy	2015
BW Offshore	Noviy Port ALT	OX0747	Sonix PAGA System (A)	Offshore Russia	2015
Value Vantage International Limited	Hull S6034 PAGA System	208052545	Sonix PAGA System (A&B)	China	2015
Shell Gabon Petroleum	Shell Toucan FD	OX0785	Sonix PAGA System (N+1)	Onshore Gabon	2015
Shell Gabon Petroleum	Shell Toucan Expansion	OX0787	Sonix PAGA System (N+1)	Onshore Gabon	2016
Petrovietnam Marine Shipyard	Tam Dao 05 Jack-up Rig	207693437	Sonix PAGA System (A&B)	Offshore Vietnam	2016
Sonatrach	GR5 PAGA System	208050825	Sonix PAGA System (A&B)	Onshore Algeria	2016
OMV	A 10751 Nawara TLC	208221270	N+1/ PageParty,SPADS	Onshore Tunisia	2015?
Golar LNG Ltd	Golar FLNG	208346732	A + B Shared Design Hernis / Gitiessse, PBx - TU Location	Offshore Singapore	2016



# Eaton Oxalis CCTV Product Line



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# Oxalis CCTV Product Line

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- ISO 9001 / 14001 / 18001 quality systems
- Proven Longevity over 15 years of harsh environments
- Certified for O&G in all key regions
- Full manufacturing now moved to Eaton MEDC, UK
- Offer the widest range of CCTV products available with options for analogue, hybrid, HD-IP, thermal and dual imaging solutions

# Product Styles & Categories

## Explosion Protected CCTV (Ex d / UL)

Certification based on ATEX

II 2 G Ex d op pr IIC T4 Gb

II 2 D Ex tb IIIC T135°C Db IP6X

IECEX, cLCus CSA Class 1 Div 1, INMETRO, GOST-R (TR-CU), CCOE, CNEX,  
CSA approvals, UL

T4 with optional T5 & T6 ratings

All IP66/67 ingress protection for PTZ, IP66/67/68 for fixed housings

Temperature ranges from -60°C to +70°C

## Safe Area CCTV

Marine & Industrial (Safe Area) Options, Same design criteria, Same model range

But....

No flame paths, Reduced manufacturing time, No Ex certification



# Product Styles XF, XP, XT, XC



## Fixed Camera Station

- 3 sizes: 26, 40 and 60cm, Wash and wipe option, 24VAC Standard, optional transformers and PoE, Integral telemetry receiver, Internal or external usage, Pole or wall mounting brackets

- All technologies available: analogue, IP-Hybrid, HD-IP, thermal and dual imaging

UL specific dual entry version



## Integrated PTZ Camera Station

- 3 sizes: 26, 40 and 60cm, All technologies available, Supply Voltage: 24, 110 or 230VAC, Base section to allow fixed cable entry, UL specific dual entry version, Continuous rotation: 45°/sec, 0.1° accuracy

ATEX single entry version

## PTZ with Integral IR Illuminator

- Integrated Pan & Tilt, based on XP range, UL specific dual entry model, Analogue, IP-Hybrid or HD-IP technology, Second housing for illuminator, IR range approx. 175m at 12° dependent on ambient conditions and object reflectivity, Single power source, Low energy consumption, Continuous rotation: 45°/sec, 0.1° accuracy



## Lower Cost PTZ

- Pan & Tilt with trailing cables, Size options: 26 or 40cm, 350° rotation: 0.1° accuracy, 24 VAC, Analogue or HD-IP Options, Lower cost, Lighter, more compact design



# Analogue, IP, Thermal Cameras & Encoders



Sony FCBEX1020P Block cameras, 36X Zoom, Fixed or PTZ camera stations

Samsung SCB2373 Block cameras, 37X Zoom, Fixed or PTZ camera stations



Samsung SCB-2000 Box cameras, 5-50mm VF lenses, Used in fixed housings only

Truen B230 CLX, 30X Optical zoom, 1080p 60fps 2MP



Axis Q1765 Special, Custom designed with Axis for extreme environments 18X Optical zoom. 1080p 2MP

Samsung SNZ 6320, 32X Optical zoom, 1080p 60fps, 2MP, WDR, Analytics



Axis Q7401 "Bare Bone" encoder (PCB version), Camera Housing mounted within 400 & 600 Lengths, Used with analogue camera modules (Hybrid)



- Lens options from 19 to 50mm in Dual Imager and Small Germanium window
- Lens options of 50 to 100mm for large Germanium window
- 324, 336 and 640 resolution options – standard 8.3Hz (PAL) – optional 25Hz
- Dual Imaging options – 36X D/N block + Flir Tau (<50mm) – switching by standard Pelco commands
- Ex and safe area options
- No wiper on Ex models: protective grill fitted over germanium
- ETO builds using Flir A310

# Accessories



## XWP10 Ex Washer Tank



- Pressurising handle
- Ex em(b) or Ex d solenoid valve
- 10m hose as standard
- 316L St. Steel Cover

Hazardous area washer tanks model XWP10  
 10 litre pressurised cylinder – 20m head height  
 Certified to ATEX **Ex em** (encapsulation) for Zones 1 and 2 (gas) and 21 and 22 (dust) as standard  
 24VAC switched from camera telemetry. No separate site supply.

## Safe Area (SW) Washer Tanks

Safe Area Washer Tanks:  
 5, 10 or 25 litre options  
 Submerged pump  
 IP55 or 66 enclosure  
 6m head height limitation  
 Activated from camera telemetry or independent



## Transmission Options



Comnet Fibre Media Converters, Multimode or Singlemode, Standard 1 fibre, Base mounted for P&T allows continuous rotation



Digital Barrier Analogue Fibre Converters, Multimode or Singlemode, Standard 1 fibre, Base mounted for P&T allows continuous rotation



Various Custom Solutions, Multi fibre options, Twisted pair or Coax, Camera housing mounted

Only option for mounting XP / XT models, 316L stainless steel, 8 x fixing points, or welded to structures

## Camera Mounting Options

Fixed Camera Wall Mount Brackets (320 or 500mm)



Pole Top Swivel Mount



Pole Clamp



Column Spacers:  
 Fixed and Small PTZ Models



# Eaton HERNIS CCTV System Solutions



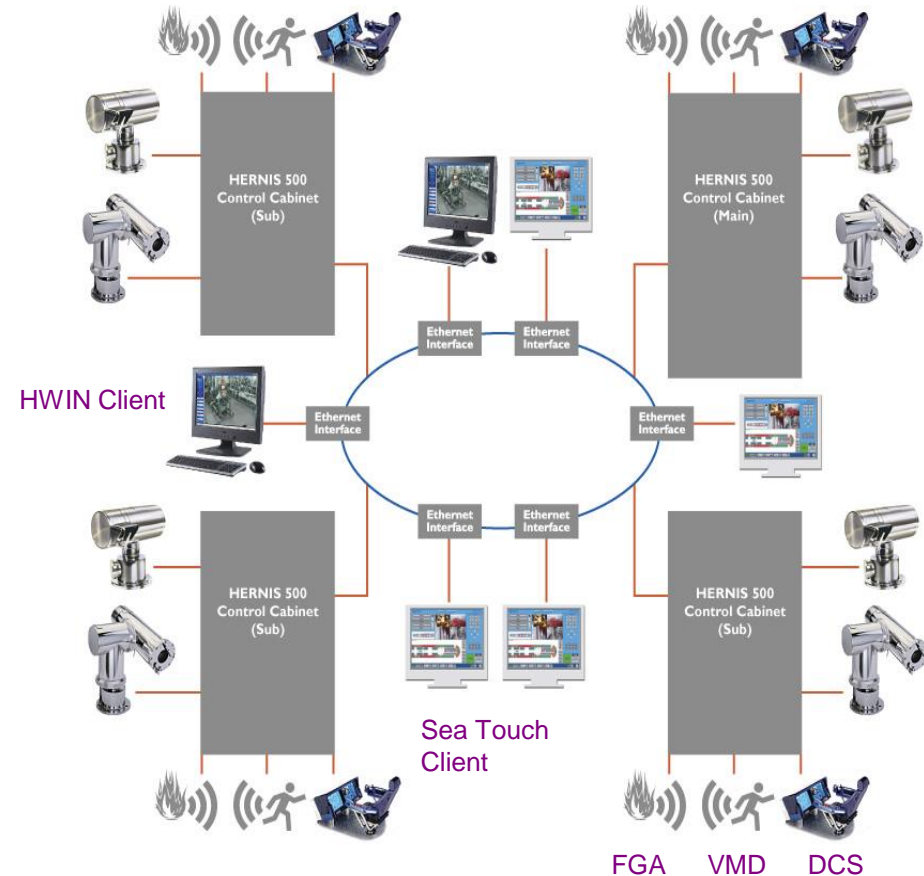
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# HERNIS CCTV Systems

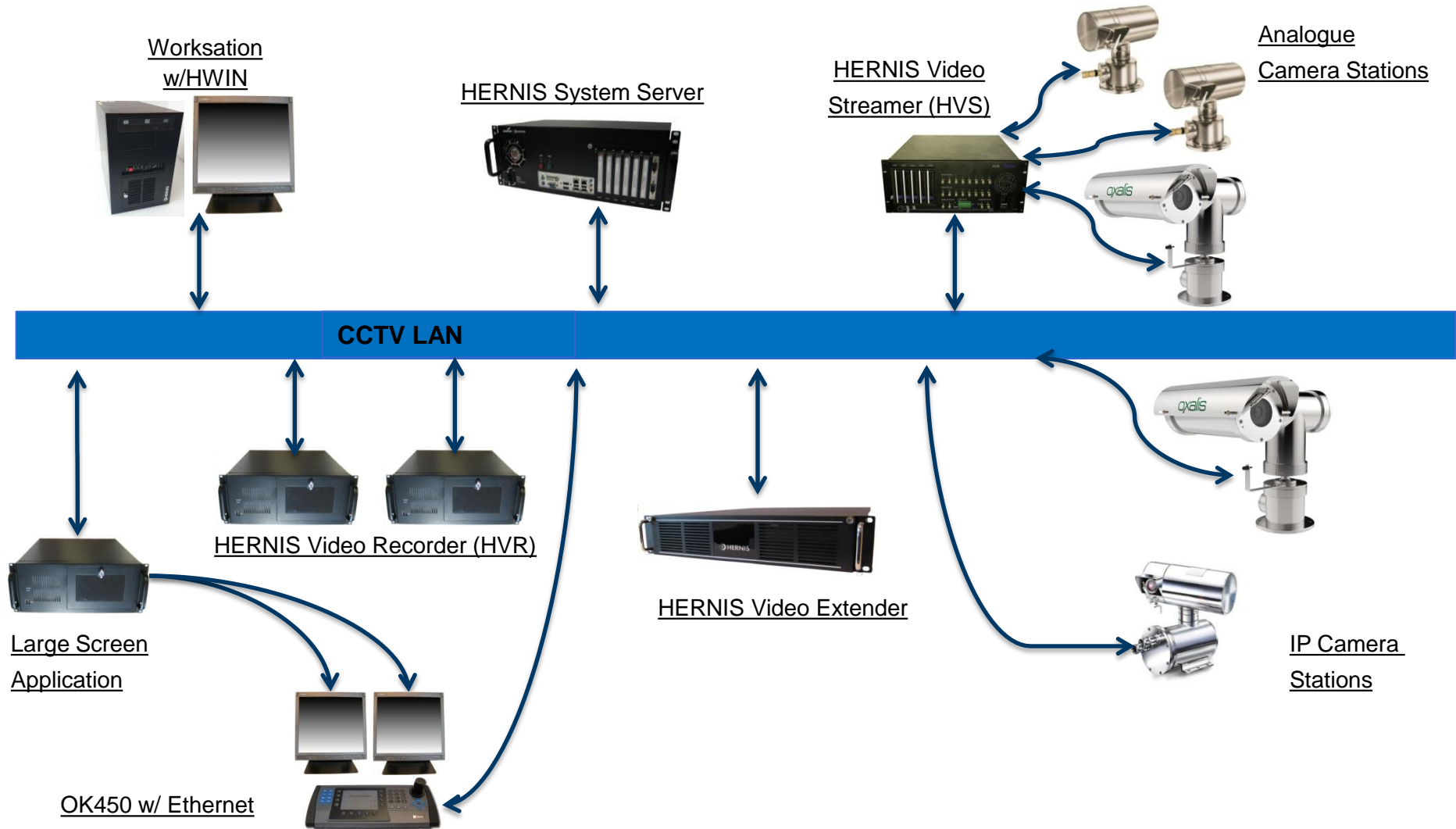
## Technical Base and Innovation

- Harsh & Hazardous CCTV Systems
- Number 1 in the offshore market
- Fully integrated bespoke solutions
- Open for interfacing/integration
- After sales and system upgrades
- Commissioning and service

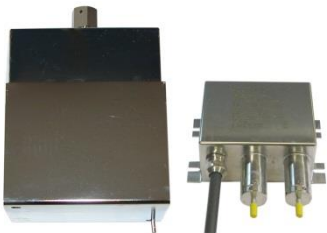
## Products / Technologies



# HERNIS Flex System

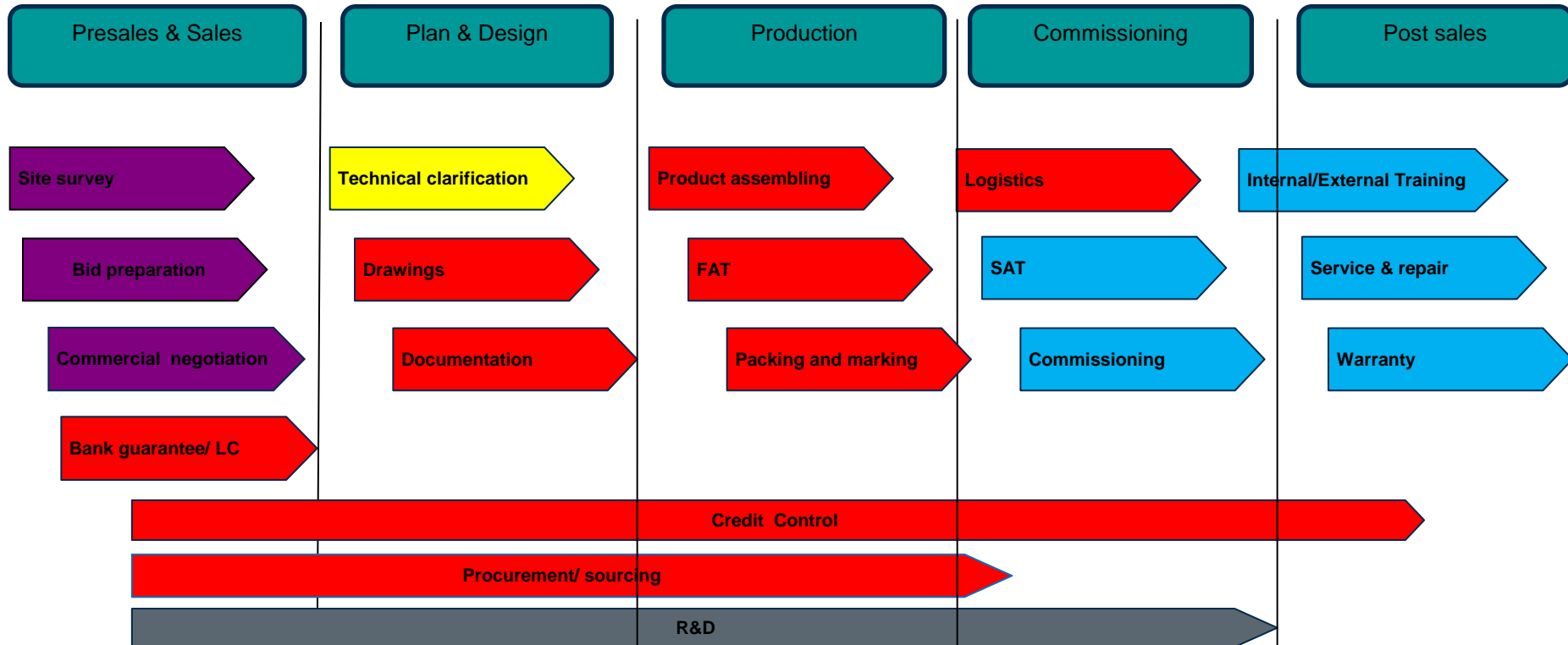


# HERNIS Cameras – Unique Features



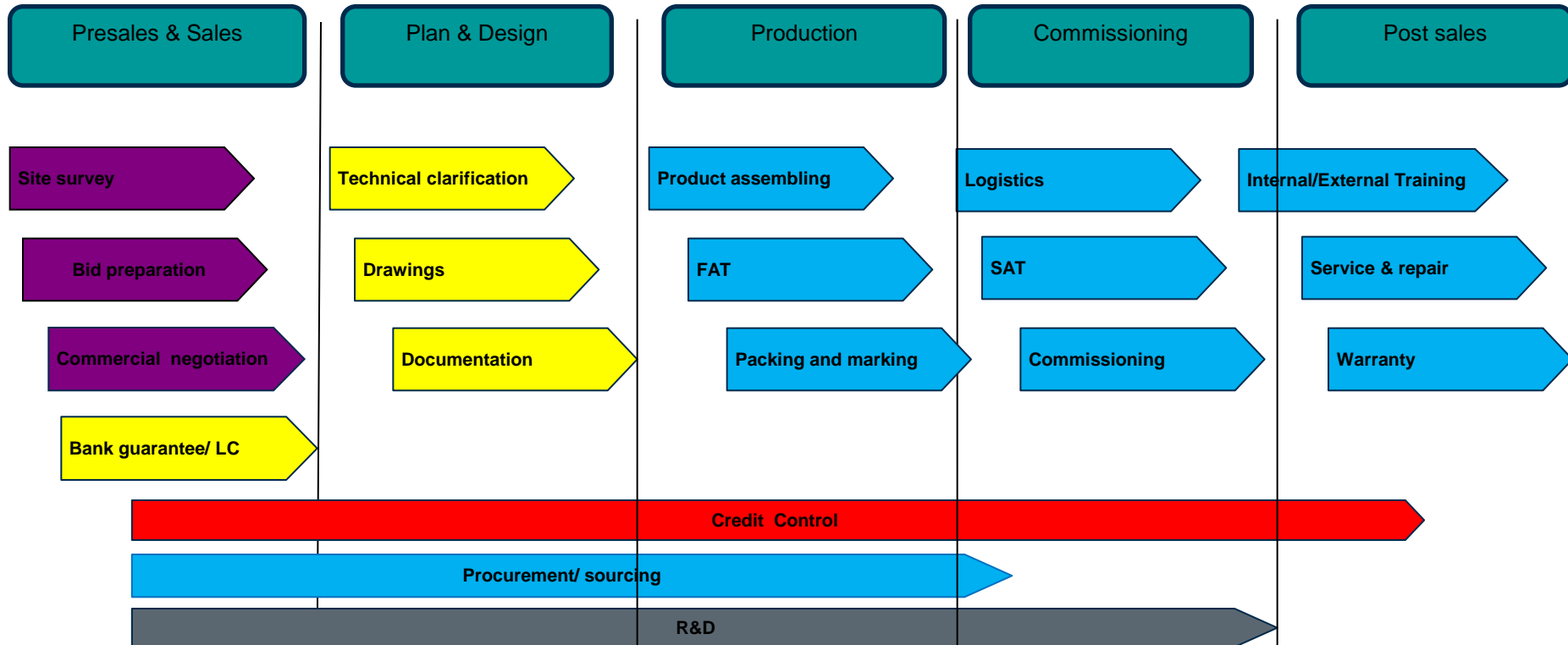
- **Power Supply Options**
- **30VAC, 115/230VAC, 24VDC (PTZ too), PoE**
- **Composite/Analog or TCP/IP Direct or over FO by an integrated JB or a separate EXD JB**
- **Smallest ATEX/IECEX Camera with wipe and wash**
- **Exmd Electric Water Pump**

# Pre 2012 HERNIS Project Workflow for APAC Customer



- ➔ Activities carried out by HERNIS Asia
- ➔ Activities carried out either by HERNIS Asia or HERNIS Norway
- ➔ Activities carried out by HERNIS Norway

# After 2012 HERNIS Project Workflow for APAC Customer



- ➔ Activities carried out by HERNIS Asia
- ➔ Activities carried out either by HERNIS Asia or HERNIS Norway
- ➔ Activities carried out by HERNIS Norway



# Hazardous Area Communications



## Hazardous Area Communications



Since 1975, the Oil and Gas industry has relied on MEDC's highly respected Signalling and Alarms.



HERNIS is a world leading brand for high quality, durable and low maintenance Closed Circuit Television Systems.



Gitiessse is the creator of IMCOS™, Integrated Multimedia Communication System. Each system is tailor made for your requirements.



FHF have over 100 years of experience in Telecommunications and Signalling, with innovation at the centre of the business.

For more information or our catalogue, please email: [marketing.medc@cooperindustries.com](mailto:marketing.medc@cooperindustries.com) or visit: [www.cooperhac.com](http://www.cooperhac.com)



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