

PROVIX IN YOUR OPERATIONS?

PROVIX.NET
Now I CAN SEE!

~~Systems for Mining Operations~~

BARRICK **Rio Tinto** **KINROSS** **Mosaic™**

KGHM **Agrium** **PotashCorp** **GLENCORE**

INTERNATIONAL **siffo** **UNDERGROUND MINING CONTRACTORS** **GOLDCORP** **NEWMONT.**

WESDOME **AMALGAMATED MINING SERVICES** **MOTION INDUSTRIES** **DIAVIK** DIAMOND MINES INC.

Brandt **Teck** **ALAMOS GOLD INC.** **SANDVIK**

Industrial Fabrication Inc. **newgold** **Compass Minerals** **SHAFT DRILLERS INTERNATIONAL**

Alpha Natural Resources **Lake Shore Gold Corp.** **VALE**

TOROMONT **CAT** **CATERPILLAR®** **Hewitt** **CAT** **JOYGLOBAL**

N.A. Degerstrom Inc. **CARMEUSE** **RAMBLER METALS & MINING PLC** **AuRico Gold**

Since 1904 **Cameco** **KIRKLAND LAKE GOLD INC.**

Cargill™ **SUMITEC** **Ukraine** **Marcotte** **MINING MACHINERY SERVICES INC.** **MOBILE PARTS INC.** **MINING & EQUIPMENT PARTS** **MILLER TECHNOLOGY** **Mobile equipment for safety and productivity**

YukonZinc CORP **DMC** **MINING SERVICES** **Fueled by Safety, Driven by Success** **MANROC** **MacLean Engineering** **Capstone MINING CORP**

Kiewit **LAFARGE** **Cementation** **WE BUILD MINES**

McDowell **tembec** **Rooted in tomorrow.** **ROCK** **CONSTRUCTION & MINING INC.** **Atlas Copco** **TAURUS DRILLING** **BTI**

RDH **MINING EQUIPMENT** **FOREMOST** **THE MINE SUPPLY CO.** **MARATHON DRILLING** **Procon** **Tracks & Wheels Equipment Brokers Inc.**

PROVIX IN YOUR REGION?

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Camera & Video Systems for municipal vehicles and equipment, sewer inspection and process monitoring



PROVIX IN YOUR OPERATION?

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Safety and Remote Video Systems for Aggregate Operations.



Camera Systems, Lighting & Alarms

SYSTEMS FOR MUNICIPAL EQUIPMENT

PROVIX is Vision Enhancement

PROVIX enhances vision through the deployment of technologically advanced camera systems. Camera systems that have many variations available: Heated, Waterproof, 60° view, on screen distance markers, lens shutter, infrared, night vision etc.

We supply a variety of safety and video systems such as :

- Rear-View Camera systems
- Self-adjusting Reversing alarms
- Roadwatch- Road temperature Monitoring system
- Warning Lights/ Light bars
- Remote Controlled Spot Lights
- Portable Work Lights
- Confined Space Communication System
- Sewer Inspection Camera System
- Incident Recording Systems
- GPS tracking Systems



Heavy Equipment Camera System

PART NUMBER:SHV-70M3AV-HT



WITH DISTANCE GRID LINES

7" TFT- LCD color monitor with digital screen

Product: 7" TFT- LCD color monitor digital screen

Audio output: 1W.

Loudspeaker: one 15x24mm round loudspeaker.

Power supply: Automobile storage battery (10-32V).

Power consumption: about 6W .

Outer dimension: 1946.6mm (W) x 128mm (H) x 39.3mm (T)

Dot pitch: 0.192 (H) x 0.1805 (V).

Resolution: 800x3 (RGB) x 480.

Contrast: 500:1.

Brightness: 400 cd/ m².

Viewing angle: U: 50° / D: 60°, R/L: 70° /70°

Operating temperature: -20°C—+70°C, RH90%.

Storage temperature: -30°C—+80°C, RH90%

15 G-force rated shock resistant for the monitor



INTERNAL HEATER

1/3" COLOR CCD SENSOR SPECIFICATIONS

With Audio and IR

Image Device: SHARP

TV System: PAL/NTSC

Effective Pixels: 512x582 pixels / 512x492 pixels

Scanning System:2:1 Interlace

Resolution: 420TV lines

Minimum Illumination: 0 Lux/F1.2 with IR

Microphone: Included

Video Output: 1.0vp-p, 750hm

S/N Ratio: Better than 48dB

Current Consumption: Max. 300mA

Operating Temperature: -30°C-70°C, RH95% MAX

Storage Temperature: -40°C-80°C, RH95% MAX

Lens: f=3.6mm / 2.8mm F=2.0

Lens Angle 120°

15G-force rated shock resistant for the camera



Waterproof Heavy Duty Camera System



CAMERA SPECIFICATIONS

1/3" SHARP COLOR CCD SENSOR

Image Device: SHARP

TV System: NTSC

Effective Pixels: 512 x 492 pixels

Resolution: 420TV lines

Minimum Illumination: 0 Lux/F1.2 with IR

Microphone: Yes

Video Output: 1.0vp-p, 75Ohm

AGC: Auto

S/N Ratio: Better than 48dB

White Balance: Auto

Electronic Shutter: 1/60(NTSC) ~ 1/10,000 Seconds

Current Consumption: Max. 300mA

Power Supply: DC12V

Operating Temperature: -20°C~70°C , RH95 MAX

Lens: f=2.8mm F = 2.0 or 110° Field of View

Lens Angle: 110

Waterproof Shuttle Buggy Camera System



- Blind side Cameras allow operator to be aware of equipment positioning and location of adjacent personnel.

-Waterproof Quad monitor allows for display of multiple camera views simultaneously for optimal situational awareness

-Camera views of the hopper, feeder and asphalt dispersion ensure accurate material transfer, while ensuring safer operations.

Skid Steer Camera System



Instant improvements in:

- Enhanced Vision
- Mobile Safety
- Increased Productivity

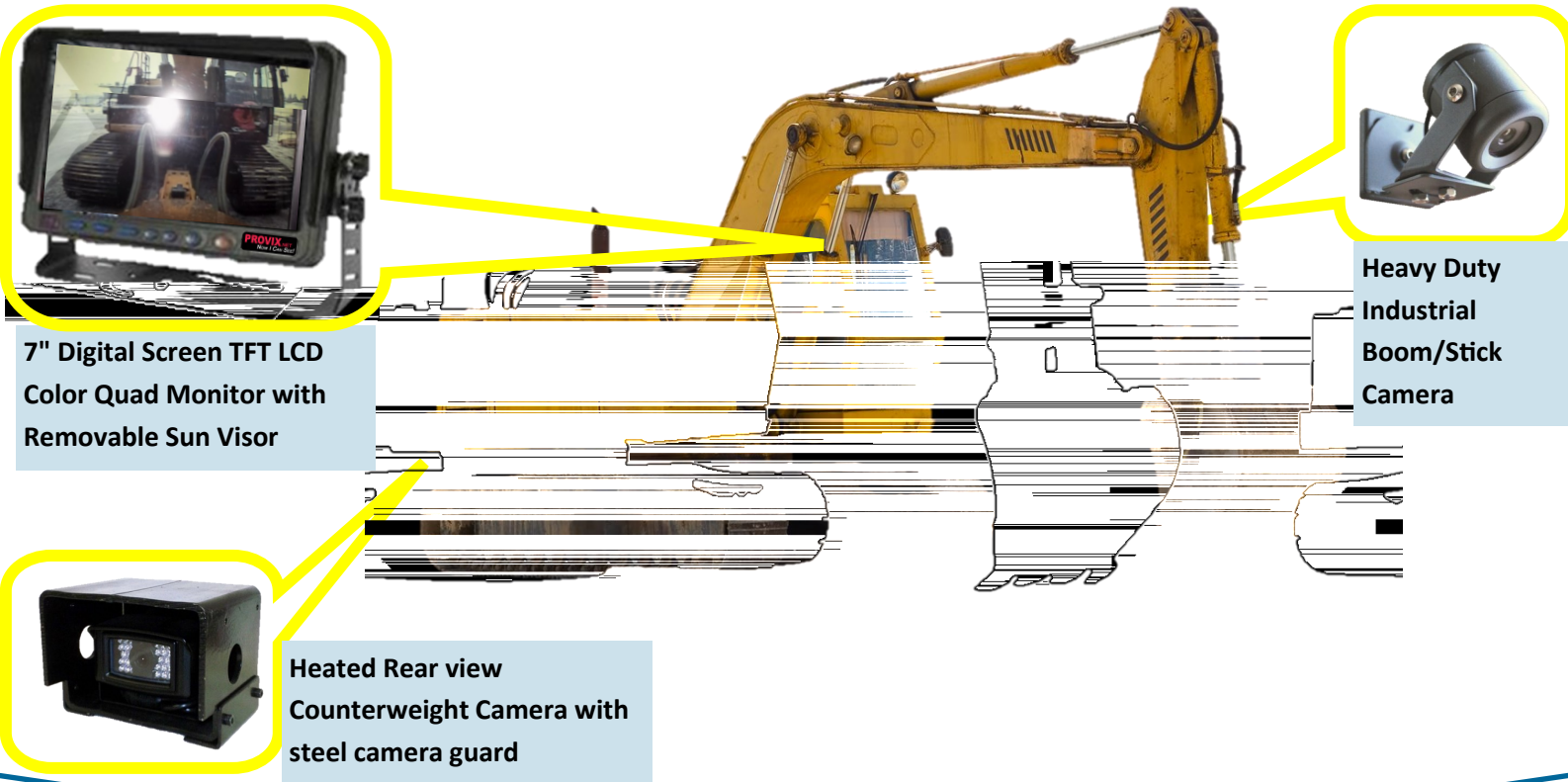


7" Digital Screen
TFT LCD Color
Monitor with
Removable Sun
Visor

Heated Rear view
Counterweight
Camera with steel
camera guard



Excavator Camera System



7" Digital Screen TFT LCD
Color Quad Monitor with
Removable Sun Visor

Heavy Duty
Industrial
Boom/Stick
Camera

Heated Rear view
Counterweight Camera with
steel camera guard

- System is designed to eliminate blind spots, increase safety and improve productivity for the excavator operator.
- Reversing camera to enhance operators view of swing area
- Boom camera to view the operation of the excavator attachment; boring, ripping, crushing, cutting, lifting, etc.

Optional: Vibration mount

Excavator Camera System



7" Digital Screen TFT
LCD Color Quad
Monitor with
Removable Sun Visor

Boom Camera with
Photo-Chromatic Lens
gives your camera it's
own set of sunglasses



Heated Rear view
Counterweight Camera
with steel camera guard

- PROVIX provides camera systems for multi-purpose excavators, backhoes and other construction equipment.
- PROVIX supplies top quality, industry leading camera systems for a variety of equipment in the industry.
- PROVIX Insures Instant improvements in enhanced vision, mobile safety and increased productivity.
- Cameras Are applicable for any application.

Waterproof Compactor Camera System



Up to 4 Cameras!

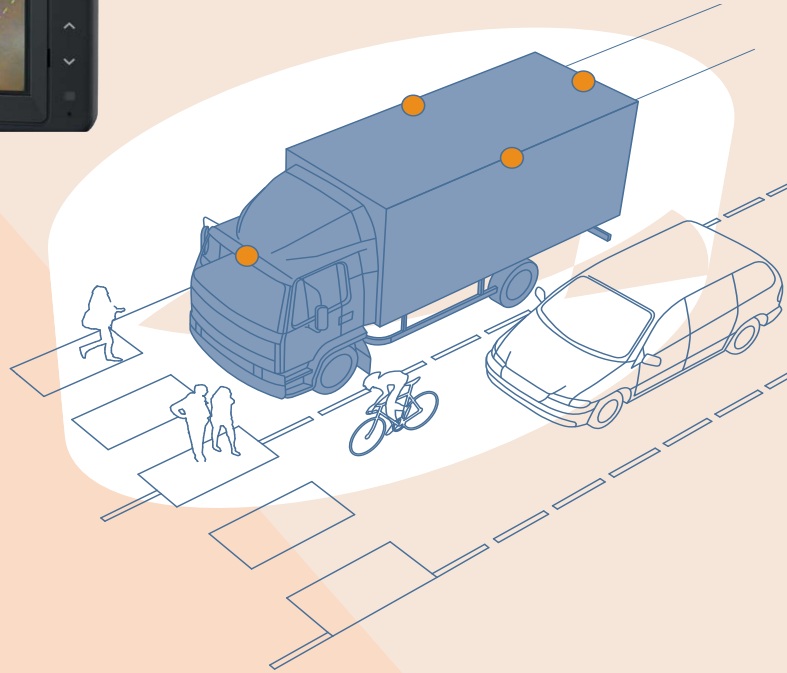
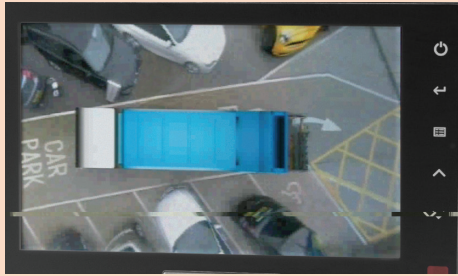


- Enables a 360° view around vehicle
- Minimises potential for equipment damage and increases safety and productivity around the public
- Wide angle cameras are positioned to provide a full field of view on all sides
- Monitor automatically displays camera view corresponding to the direction of travel, eliminating requirement for manual input from operator.



Aerial View Camera System

4 Cameras, 1 Page, 0 Blind Spots



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Street Sweeper Camera System

Shutter keeps lens clean when not in use



Monitor Specifications:

LCD size: 7.0 inch (178 mm)

Brightness: 400cd/M²

Contrast Ratio: 500:1

Dimensions: 185 x 124 x 48 mm

Dimensions: 7 x 5 x 1 inch

Viewing Angle: Up/45°, Dwn/65°, R/65°, L/65°

Power Consumption: 12W (12V/1A)

Temperature Range: -25° C to 70° C

24/12 Volt Power Regulator Built-In

Supports 3 Camera Inputs

Shutter Camera Specifications:

View Angle: 120°

Image Sensor: OV7949 1/3" Color

Resolution: 420 Lines

Shutter (Lens cover): 1/60s~12uSec

Temperature Range: -25° C to 70° C

Illumination: 0.1 Lux F:2.0

Power (LED on): 12 VDC, 450 mA

Built-in Microphone

Water-tight Cables 20 meter (66 ft)

12 "IR" Infrared lamps

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Equipment Camera System



System Includes:

- One Reversing Camera with steel camera guard
- Rugged, heated camera shown on a waterproof/dustproof monitor when vehicle is put into reverse.



Heated Camera



Waterproof Monitor

Additional Options

Wireless Loading Chute Camera

Part # RMG-HS7131TX9-120

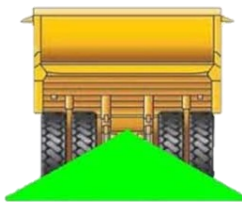
- Wireless camera transmits real time video to the monitor in the truck as well as to control room operator of the loading station.



Camera Wash System

Part # PRX-EWASH-086

- Uses washer fluid for year round operation
- Easy to install
- 12 Volt High Pressure Pump
- 1 Gallon Reservoir with Mounting hardware
- Momentary Rocker Switch



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Haul Truck Dual Camera System

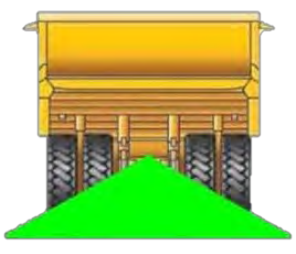
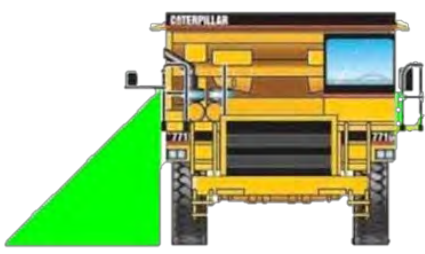


blind

Waterproof Monitor



Two Heated Cameras in Steel Guards



Eliminates Blind Spots Behind and Beside Haul Trucks

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“FORKVIEW” WIRELESS CAMERA SYSTEM

Wireless Mast Cam:

- Allows Operator to see in front of the forks and eliminate load damage
- Powered by interchangeable 3AH Li-Ion battery packs [runs for an 8 hour shift]

Optional :

- Rear View Cam:
- Allows Operator to reverse safely and more efficiently
- Camera guards
- Waterproof monitor
- Broadband backup alarms

Wireless “ForkView” Camera w/ Battery PACK



7 Inch Monitor Display



Wireless Mast Cam





Feller Buncher GPS Harvest Tracking Camera System

PRX-FOHV-10GPS90WP



(Waterproof GPS Camera Monitor with 10" Display , High Endurance Camera, Cables, Camera Guard)
Mn d gd b l d dnbn dc m dc fc dd b l d f c g n c ad dcdc nm n gd
a nbgd l g n c ndb g d b l d enl e n f a nbgd cda



Key Features:

GARMIN® GPS:

- ⇒ Features a worldwide base map with high-quality satellite-enhanced images
 - * Ability to record waypoints on Canadian topographical maps
- ⇒ Draws maps quickly, simple interface makes navigating easy
- ⇒ Waterproof 10" Monitor: view high-resolution video/graphics
 - * High-resolution satellite images and aerial photographs help you orient yourself in unfamiliar areas
- ⇒ Removable SD card for recording tracks & transferring mapping data to a compatible Garmin® GPS— installed in skidder
- ⇒ Can connect live video feed with the video input/output options
- ⇒ By connecting to the Garmin® Marine Network, sonar & radar can be added

CAMERA:

- ⇒ Solid billeted aluminum camera body; anodized camera body resists corrosion
- ⇒ Automatic IR night vision gives 45'+ of viewing in complete darkness
- ⇒ Standard lens features 92 degree field of view (3.6MM) Optional lenses available include: 4.3MM, 6MM, 12MM or 16MM
- ⇒ Waterproof to 300' depth: Triple O-ring sealed
- ⇒ Lab certified to 100G shock & vibration
- ⇒ Photo chromatic lens gives camera it's own set of sunglasses
- ⇒ Triple hardened glass lens resist scratch, scuffing & static buildup
- ⇒ System includes one camera— additional cameras can be added as required.
- ⇒ 3 Year Warranty on Camera



View your load level from the operator cab

For Monitoring Grizzlies, Loading Chutes, Crushers, Rockbreakers and more!



Wall Monitor and Protective Enclosure: Enables the truck operator to see the loading process.



In Cab Dust/Waterproof Monitor

OR

Additional Options

- The loading zone is monitored by a wireless camera that transmits real time video to a wall monitor OR to an in cab monitor.
- This allows the driver to see the fill level in the dump box.
- The loading station operator can monitor the loading process and the position of the next truck in line.
- Loader operators can check breaker status or load level
- Control tower can verify load level and conveyor or chute status
- Enables the operator to control the throat gate and lip functions of the chute to safely load trucks, trams, ore cars or conveyors

Rugged Camera System

*Add up to four cameras



IP/Network Viewable

*Enables the process to be viewed within the control room and/or the network



Mining Automation: Using PROVIX IP Cameras for Remote Heavy Equipment and Process Monitoring

PROVIX rugged machine mounted IP cameras transmit Real Time video to equipment operators for automated operations.

PROVIX IP cameras have low video latency allowing for real time remote viewing and operation.

Provix IP Camera Systems:

- Combine multiple IP cameras for safe efficient automated production
- Directed video can be viewed and accessed on the internal network, in the safe operator station, or from corporate headquarters
- Wireless radio transmitters are ruggedly designed to resist the various effects of harsh industrial environments
- Advanced wireless radio technology allows for reduced bandwidth consumption and built in stability
- High resolution cameras assist in identification, monitoring and enhanced production efficiency
- Variety of viewing options allows for permanent setup of monitors in a control room or in a safe operating station using a monitor in a protective case with battery pack
- Allow one operator to operate more than one piece of equipment safely and efficiently
- **ONVIF compliant**



Four PROVIX IP cameras on one of three loaders being run on teleremote by one operator at Fort Knox- Kinross Gold Alaska.



Operator is able to monitor each camera view, independently, on one of four large screens, allowing for safe efficient production. Actual photos from PROVIX IP cameras at Kinross

OPTIONAL:

-Camwash

-Camera Guards



D M I D DEM



BROADBAND WHITE SOUND BACK-UP ALARMS



MAKING THEM IDEAL FOR TRUCKS, BUSES, COACHES, FORKLIFTS, AIRPORT VEHICLES,

CONSTRUCTION & MINING MACHINERY, AS WELL AS WORKING IN AREAS WHERE THE AMBIENT NOISE LEVEL MAY VARY SIGNIFICANTLY.



77-97db



87-107db *

**PROVIDES GREATER SAFETY & LESS NOISE
NUISANCE THAN ANY OTHER ALARM!**

KEY BENEFITS:

- 'Smart' self-adjusting sound level
- Ambient noise is monitored once every second
- Automatically adjusts the alarm volume 5-10dB above the sampled noise level
- Sound is instantly locatable so you can tell which vehicle is reversing
- Focuses warning sound in the danger zone behind the vehicle, so it doesn't annoy site neighbors or other people
- Unlike conventional alarms, the 'shh... shh...' sound of broadband sound (white sound) is easy on the ear and dissipates fast outside the danger area
- Tough, Durable, Waterproof (IP68)
- Conforms to SAE J994 environmental standards
- Solid state, spark-free electronics
- Epoxy sealed for protection against vibration, dust and moisture

This is particularly important for vehicles

maneuvering in close proximity to each

other or going from a noisy environment, such as a factory floor, to a quieter external

location, such as a work yard, ensuring the warning is always heard.



<u>SPECIFICATION:</u>	<u>97:</u>	<u>107:</u>
POWER INPUT	12-24Vdc	12-24Vdc
POWER CONSUMPTION	0.5	1.0
SOUND LEVEL (DB(A)@1M)	77-97	87-107
SOUNDER UNIT	Speaker	Speaker
FREQUENCY	Multi	Multi
DIMENSIONS (IN.)	5 x 2.5 x 3.6	7 x 3.7 x 3.1

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Provix Broadband Alarms– The Benefits

SAFETY – Much Greater Safety

- **Their sound is locatable**
The location of a broadband sound source is instantly and unambiguously recognisable and reveals immediately which vehicle or machine is backing-up. Narrowband sound is liable to give false directional clues due to reflection off surfaces such as buildings, quarry faces etc. sometimes with fatal results
- **Sound is localised within hazard area**
Familiarity with unneeded warning alarms heard *outside* the hazard area breeds general contempt for them – very dangerous when real need is.
- **Audible through Ear Defenders**
The lower frequencies of their broad frequency spectrum penetrate ear defenders more readily than the higher frequencies of narrowband alarms
- **End to intentional disconnects**
Operators and site workers, driven mad by old narrowband alarms, are very happy to work with broadband and appreciate its safety value

ENVIRONMENT – End To Noise Complaints

- **Rapid Sound Dissipation**
Broadband sound dissipates much faster than narrowband. This results in its warning sound being confined to the hazard area.
- **Less Irritating**
Psychoacoustically, broadband sound is tolerable whereas pulsed narrowband sound disturbs and irritate workers and householders far from the hazard area.
- **Less decibels**
Broadband sound is *equally audible at lower Sound Pressure Levels* than narrowband.

HEALTH – Reduce Hearing Damage & “Startle”

- **Reduced risk of Hearing Damage**
Lower sound-pressure levels spread across a broad frequency-band diminish the hearing-damage hazard of high narrowband frequencies (the stiletto heel effect)
- **Heart risk due to “startle”**
Sudden burst of loud narrowband sound nearby can cause severe heart stress due to the “startle” factor

NOISE - The 21ST Century Pollutant

”Calling noise a nuisance is like calling smog an inconvenience”,

Dr William H. Stewart, former Surgeon General of USA

“Noise is any loud, discordant or disagreeable sound or sounds”

Webster’s New Woropld Dictionary

Broadband back-up alarms are “noiseless” – their sound is neither loud, discordant nor disagreeable. Traditional, old narrowband alarms are intrinsically unsafe, noisy, irritating, disagreeable, injurious to health, cause stress and are frequently sabotaged. They are now obsolete.

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R-1000 Remote Control System

Provix R-1000 radio remote control systems are engineered and manufactured in close co-operation with our worldwide based customers. These radio remote control systems are engineered to ensure safe and efficient remote operations. Our systems have been designed based on the most advanced technology and components.

R-1000

Digital functions up to 64 and analog functions up to 19
Uses two Li-ion batteries with smart discharge and hot swap
which is essential for battery optimization and continuous operation
Perfect use for applications with many interconnected processes with
guarantee of non-interrupted operation
Suitable for harsh environment mining and maritime conditions
High mechanical and chemical resistance due to the specific moulded housin

TYPICAL APPLICATIONS

LHD Equipment, Blockholers, Jumbo's, Long Hole Drills, Rockbreakers, Shotcrete Sprayers
Off Shore: Oil Skimmers, Drilling Rigs, Catwalks, Raiser Chutes, Roughnecks, BOP, ROV
systems, Pipe Handlers, A-frames
General Industry: Forestry slashers, Dozers, Excavators, Recovery vehicles, Concrete pumps,
Conveyance, Fire fighting systems, fueling systems
Railway: Surface locomotives, Underground locomotives

FUNCTIONS

The R-1000 can be fitted with analog or digital joysticks, pushbuttons, toggle switches
and rotary switches to meet the exact customer requirement
Safety features with E-stop, tilt switch, PTO deadman, on/off switch, horn, start warning
Operator terminal layouts are configured according to the application and customer requirements
Optional: LEDs and displays for feedback information
Optional: Shoulder Harness or CAT 500Hz throttle available upon request

R-1000 PRODUCT OVERVIEW

TECHNICAL CHARACTERISTICS & OPTIONS

Operating Terminal R-1000

- Operations 100% under control with unique signal encoding preventing any unintended handling
- Activity check on start up to guarantee safe operations
- Stop relay activation in only 50 msec
- Digital and analog feedback
- Redundant radio solution
- License free frequency with low power outputs; European ISM band width 458.5250 MHz - 459.1750 MHz (other frequencies available on request)
- PLC functionality for interlocking, sequencing and timing functions programmed directly without additional hardware

Base Unit/Receiver Unit R-1000

- The R-1000 base unit is very flexible as it can have multiple digital and analogue inputs and outputs
- Easy use with direct connections to most available fieldbus systems: ProfiBus, ModBus RTU, CANopen, J1939, Device Net, Modbus Plus, Modbus TCP, ControlNet, Ethernet IP, HostLink
- Back up solution with cable connection for programming and control
 - Twin battery connection (Hot Swap) for continuous operation

TECHNICAL DATA R-1000

GENERAL	DATA
Digital Functions:	Up to 64
Analogue Functions:	Up to 19
LED:	Red, Green, Yellow
Display:	Graphical or Character Display (optional)
Battery:	Rechargeable 7.2 V 1700 mAh Li-ion
Battery Charger:	12-24 VDC, 110-230 VAC
Operating Time:	Typical 20 hours, depending on configuration & temperature
Dimensions:	330 x 220 x 200 mm (12,99 x 8,66 x 7,87 inch)
Weight:	1.5 kg - 3.5 kg (depending on configuration)
IP:	Ip65 standard, IP66/67 optional
Temperature:	-25 to +50 Celsius, -13 to 122 Fahrenheit
Operating Distance:	Approx 200 m line of sight
Frequency:	458.5250 MHz - 459.1750 MHz (other frequencies available on request)

R-1000 MC-IRX LITE

Supply Voltage Receiver

- 12 / 24 VDC

Receiver Size:

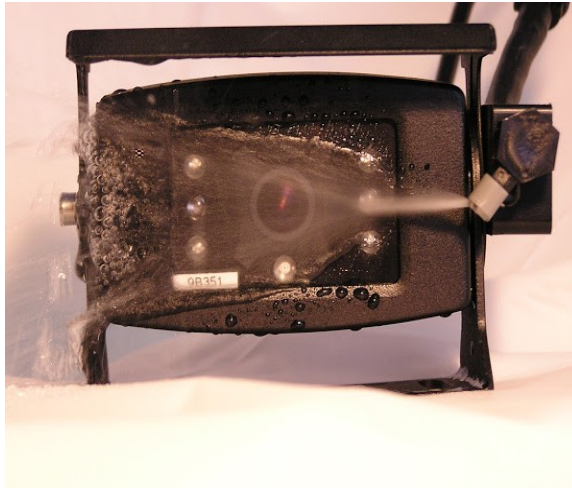
- IRX: 255 x 180 x 115 mm
- 10 x 7.1 x 4.5 in

Components:

- Safe Zone Base Unit to be mounted internally in customer's explosion proof enclosure.
- Standard I/O connections
- Base Unit to be supplied 12/24 VDC
- 20 Solid State Relay Outputs
- Proportional Control Module
- Duplicated Monitored Emergency Stop
- Pre-wired Connector to meet the needs of the machine
- BNC Magnet Mount Helical Antenna
- 12 onboard programs to accommodate various types of machines (joystick orientation, service brake type, engine type)

PROVIX CAMERA-WASH SYSTEM

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Cleans the Camera lens of Dirt, Ice, Dust and Snow with the push of a button!

KEEP CAMERA LENS CLEAR TO ENHANCE MOBILE SAFETY

- USES WASHER FLUID FOR YEAR ROUND OPERATION.
- 12 VOLT HIGH PRESSURE PUMP
- 1 GALLON RESERVOIR WITH MOUNTING HARDWARE
- MOMENTARY ROCKER SWITCH
- 30 FOOT ELECTRIC HARNESS AND FLUID TUBING KIT. CUSTOM LENGTHS AVAILABLE.
- EASY TO INSTALL
- COMES AS A KIT WITH 30' HARNESS OR CUSTOM LENGTHS ARE AVAILABLE
- OPTIONAL NEMA BOX FOR EASE OF MOUNTING
- ADD UP TO FOUR OPTIONAL NOZZLES PER KIT
- ADD AN OPTIONAL TIMER FOR AUTOMATIC CLEANING.
- ADD A STAINLESS STEEL BOX FOR MOUNTING ON THE SIDE OF OR UNDER SIDE OF PLOW/DUMP TRUCKS.
- CUSTOM KITS AVAILABLE

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Provix Accessories

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Ram Mount



Quick Disconnect



Camera Guard



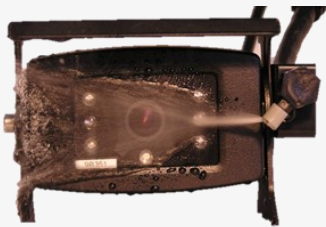
Pedestal Mount



Monitor Rock Guard



Camera Wash



“ ”

Remote Viewing Station



Provix Remote Control System



Wireless Option

