RVI + FOSAR

Remote Visual Inspection,
Foreign Object Search & Retrieval
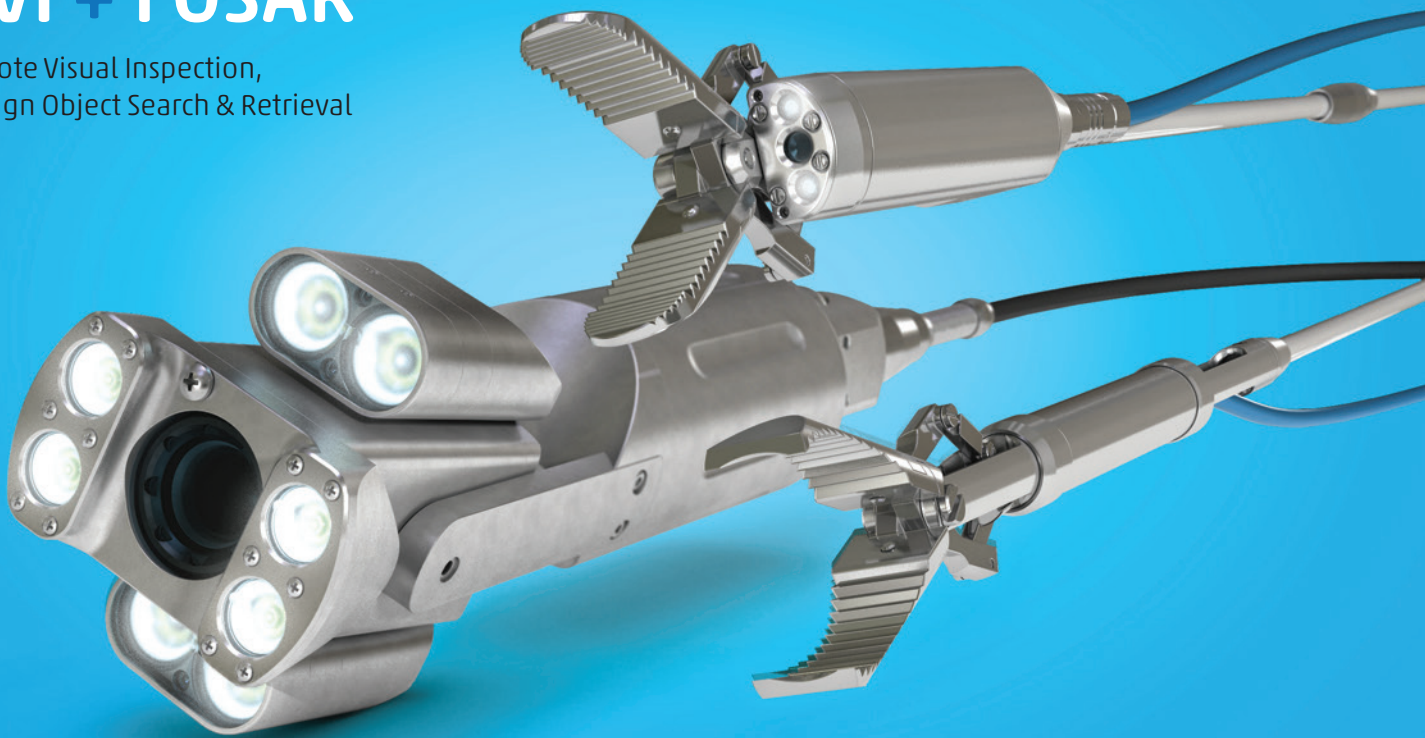
insight into your assets

What you don't know about your critical plant assets and infrastructure can develop into significant risks. Sensor Networks, Inc. delivers the visual inspection tools you need to see inside and inspect process and pressure components for cleanliness and mechanical damage; helping you assess condition and retrieve loose parts.

process

utilities

environmental

oil & gas

aerospace

nuclear
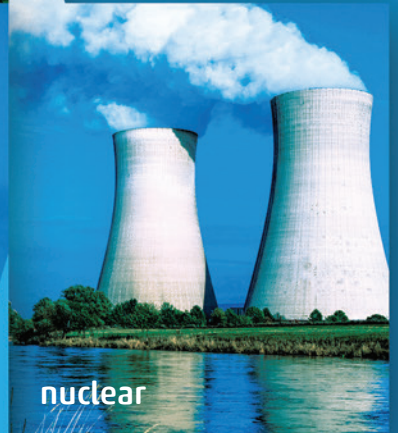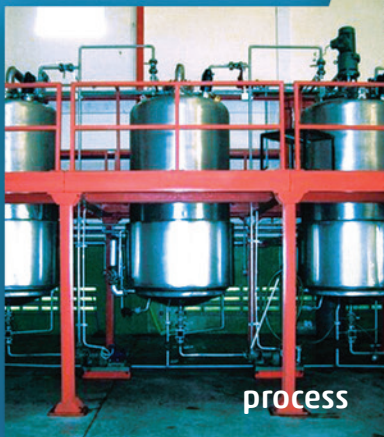
innovation

At Sensor Networks, we combine new technologies with novel approaches to monitoring asset integrity, giving you advanced tools to keep your systems operating safely, productively and efficiently.

expertise

Drawing on more than 90 years of combined experience in visual inspection across a range of industrial sectors, our team takes the guesswork out of applications engineering. Trust us to bring the best technologies and techniques to bear on your inspection challenges.
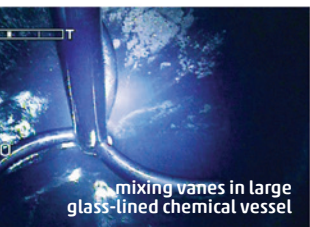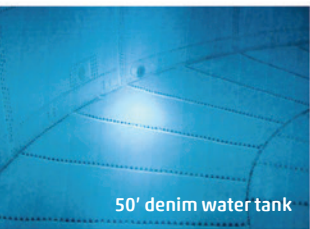
reliability

More than thirty Fortune 500 companies already rely on our technology and team to gain better insight on their critical infrastructure.

PTZx

PTZx includes everything you need to perform tank, vessel or large-area inspections of piping and facility infrastructure. Even with 100' of cable, cable reel, monitor and digital recorder, this system weighs under 30 lbs. (13.6 kg) and can be carried in one hand. The result of decades of RVI experience, PTZx is rugged, reliable, waterproof and easy-to-use.

resin bed vessel internals

50' denim water tank

vessel 12' dia. x 80' tall

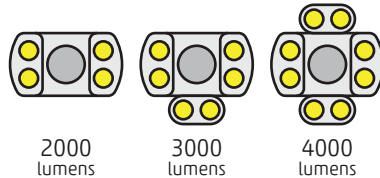mixing vanes in large glass-lined chemical vessel

variable-speed 360-deg continuous rotation

corrosion-resistant nickel-plated aluminum with stainless steel

submersible to 100'

integral & optional auxiliary LED lamps

2000 lumens

3000 lumens

4000 lumens

36x or 12x optical zoom

high-res camera with sensitivity control for reflective surfaces

variable-speed 270-deg tilt

integrated system

modular system

digital video recorder & monitor

- 5" TFT color LCD with sun shield
- Date/time stamp
- Uncompressed BMP image capture
- AVI video recording
- Integrated mic with on/off
- SDHC card storage up to 32GB

control unit

- 45m reel (extendable to 90m)
- Adjustable zoom lens
- Auto/manual focus
- Adjustable light intensity
- Adjustable video brightness
- Camera position memory
- Image control
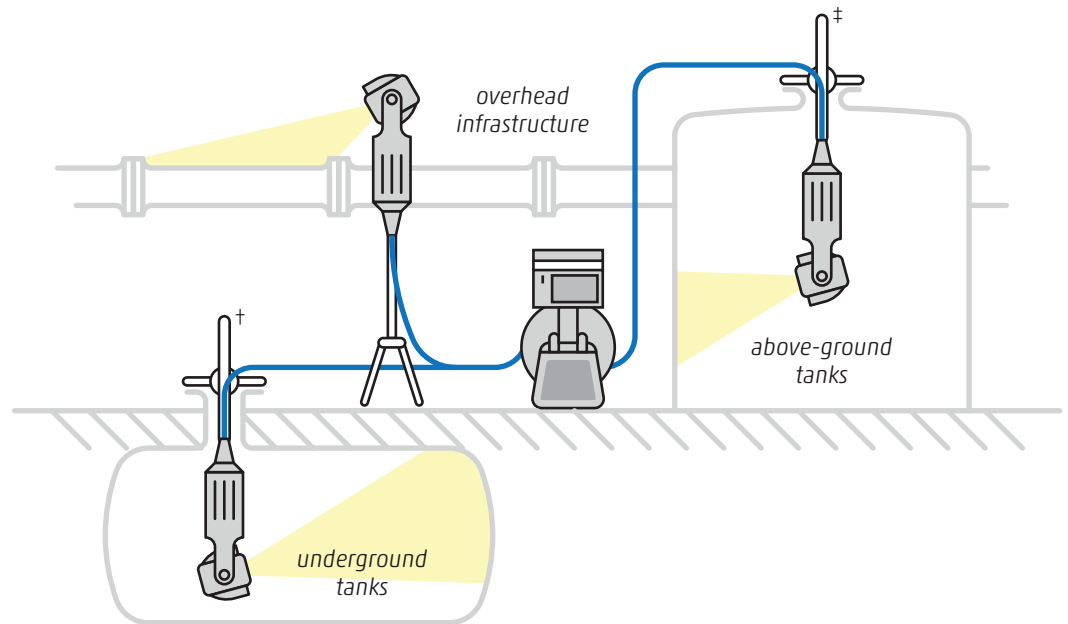
applications:

- **Nuclear Power:** Reactor pressure vessel and cooling pumps, steam generator channel head, nozzle welds, fuel pool, fuel assembly, spent fuel, IWE/IWL exams.

- **Fossil Power:** FAC & MIC inspections, baffle plates, HP steam headers, tank and vessels.

- **Refining & Petrochemical:** Tray-towers, refractory- and glass-lined vessels, tanks, pipe racks, heat exchanger internals, baffle plates

PTZx can be used for quick channel-head FOSAR inspection or tube sheet viewing.
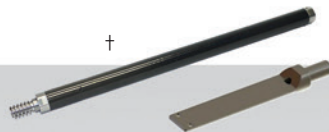
lowering pole

- carbon fiber tubing
- 6' (1.8m) length each
- connect two or more
- threaded stainless ends
- locking safety screw

pole camera adapter

- mounts to camera base with included screws
- threads onto pole
- stainless steel
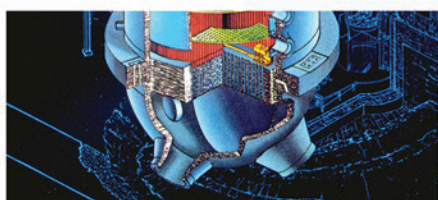
tank flange mount

- mounts to flanged openings 4-24" (DN150-DN600)
- clamps pole to stabilize camera at any angle
- aluminum construction

lifting hoist ring

- mounts to pole end
- attaches to safety lanyard
- lifts pole and PTZ camera using an overhead crane

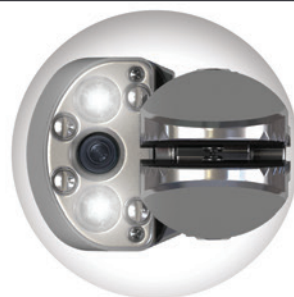# loose parts retrieval tooling

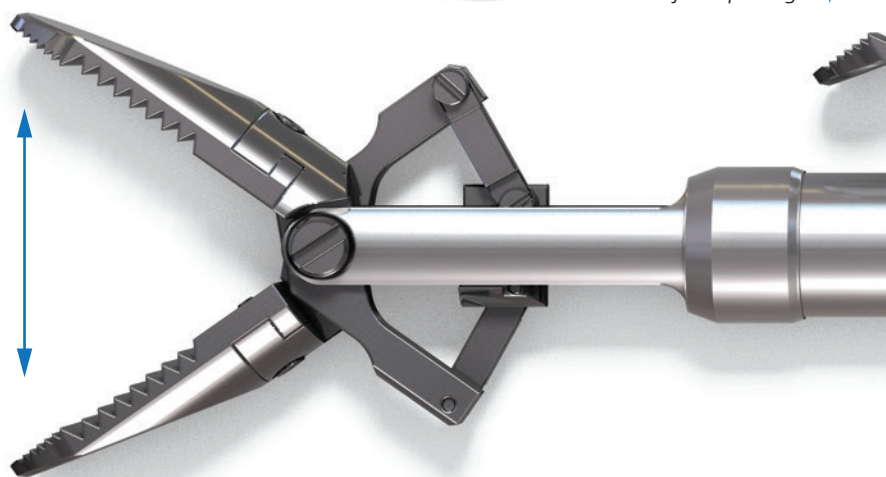fits through
1.5" (37mm) Ø access

3.2" (81mm)
max. jaw opening

fits through
1.0" (25mm) Ø access

3.2" (81mm)
max. jaw opening

jaws

left to right: serrated jaws, long
serrated jaws, curved serrated
jaws, fork & tine, needle nose, magnet,
snare, hook, sampling cups

delivery devices

adjustable elbow

rubber flex joint

spring flex joint

6" (152mm) extension
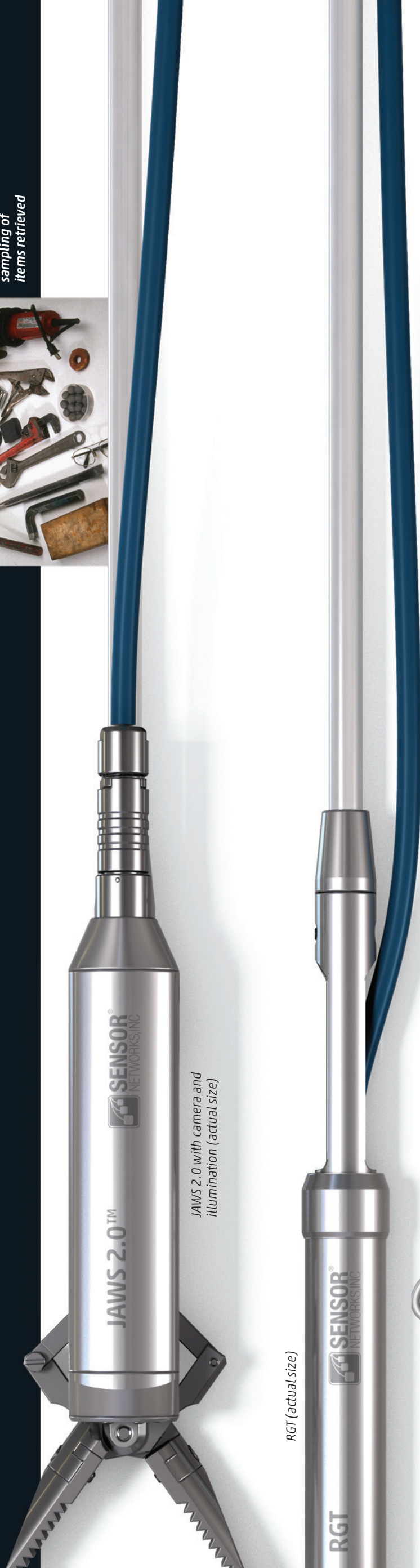
JAWS 2.0™

*JAWS 2.0 with camera and
illumination (actual size)*

RGT

RGT (actual size)

JAWS 2.0 controls

RGT controls

*JAWS 2.0 (left) and
RGT (right) through 1.5D
elbows in 4" and 6", respectively*

*lowering
ring*

*T-handle for
rotational control*

3/8" (9mm) diameter flex rod, 5' (1.5m) long

5/16" (8mm) diameter flex rod, 5' (1.5m) long

1/4" (6mm) diameter flex rod, 5' (1.5m) long

3/16" (5mm) diameter flex rod, 5' (1.5m) long

RGT

description	motorized retrieval tool

tool head

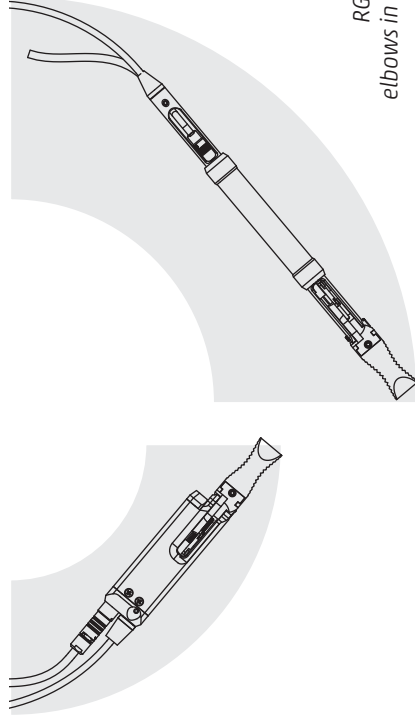| construction	stainless steel
diameter	0.82" (21 mm)
access required	1.0" (25 mm)
length	11.3" (287 mm)
push point connector	10 mm quick-disconnect
weight	0.7 lbs. (0.32 kg)
jaw opening	3.2" (81 mm)
jaw clamping force	25 lbs. at tip
end effectors (3)	curved serrated, flat serrated, fork and tine

cable

cable material	polyurethane
cable dia.	3/16" (4.5 mm)
cable length	50' (15 m) with extensions

power supply

type	Lithium Ion rechargeable
size	7.0×4.8×2.7"
weight	1 lb. (0.452 kg)
features	battery gage

° Tool comes standard with one serrated jaw.
Options include a curved serrated, fork & tine, needle-nose pliers, sampling cups, hooks and manual tool adapter.

JAWS 2.0 ultimate kit all contents
15½×25×8½", 19 lb (8.6kg)

JAWS 2.0 basic kit blue contents
14×22×8", 12 lb (5.5kg)

JAWS 2.0™

description	motorized retrieval tool with integral HD camera and LED lights

tool head

construction	aluminum, stainless steel
diameter	1.4" (34 mm)
access required	1.5" (38 mm)
length	7.1" (180 mm)
push point connector	10 mm quick-disconnect
weight	0.7 lbs. (0.31 kg)
jaw opening	3.2" (81 mm)
jaw clamping force	25 lbs. at tip
end effectors	see chart below°
Radiation Life Expectancy	30,000 Rad Avg. Total Dose

cable

cable material	TPE
cable dia.	1/4" (6 mm)
cable length	50' (15 m) with extensions

display/controller

type	12V NiMH
size	9.0×5.5×2.4"
weight	3.1 lbs. (1.4 kg)
features	HD color 5" display, HDMI video output, battery gage, grip strength indicator

camera

camera	1/3" color CMOS (1920×1080 pixels)
viewing angle	88° hor., 63° vert., 140° diag.
lighting	2 long-life LEDs, total 150 lumens

kits:

standard components: JAWS 2.0 HD grabber • JAWS 2.0 HD display/controller • AC adapter/charger • operator manual • 50' (15m) power/video cable • 50' (15m) power/video extension cable

jaws: fork and tine • flat serrated jaws • short serrated jaws • sampling cups • curved serrated jaws • tool adapter • needle-nose jaws

tools: qty. 2 (two) snares: sm, lg • qty. 2 (two) magnets: sm, lg (w/ case) • qty. 4 (four) hooks: sm, med, lg, xl

push poles: qty. 10 (ten): $5×3/16'\emptyset$ (1.5m×5mm$\emptyset$) • qty. 10 (ten): $5×1/4"\emptyset$ (1.5m×6mm$\emptyset$) • qty. 10 (ten): $5×5/16"\emptyset$ (1.5m×8mm$\emptyset$) • qty. 10 (ten): $5×3/8"\emptyset$ (1.5m×9mm$\emptyset$) • qty. 1 (one): $6"×5/16"\emptyset$ (150mm×8mm$\emptyset$) • qty. 1 (one): $12"×5/16"\emptyset$ (300mm×8mm$\emptyset$) • qty. 1 (one): $16"×3/16"\emptyset$ (405mm×5mm$\emptyset$) • qty. 1 (one): $16"×1/4"\emptyset$ (405mm×6mm$\emptyset$) • qty. 1 (one): $16"×5/16"\emptyset$ (405mm×8mm$\emptyset$) • qty. 1 (one): $16"×3/8"\emptyset$ (405mm×9mm$\emptyset$)

push pole accessories: quiver • tee handle • adjustable elbow • rubber flex joint • sping flex joint

misc.: hex keys, screws, hoist lifting ring

PTZx36

video

optical/digital zoom	36X / 12X
effective pixels	~380K
sensitivity	1.4 lux
HFOV (wide/tele)	58°/1.7°
brightness adjustment	±7 steps

lighting

integral LED lamps	2000 lumens
auxiliary LED lamps	1000 lumens × 2

construction

head weight	6 lb (2.7 kg)
pressure rating	44 psi / 100' (30 m) depth
cable length	up to 300' (90m)
material	nickel-plated aluminum, stainless steel
portability	single case, one-hand carry
system weight	29 lb (13.2 kg)

controls

pan/tilt	360° continuous / ±135°
image overlay	grid, reticle
image effects	flip, negative, freeze
home position	joystick button

monitor/DVR

LCD size	5.5" (140 mm)
media	SD card

18.9" (479mm)
4.3" / 109mm
4.8" 121mm
shown with optional auxiliary lamps
5.5" 140mm

PTZx12

video

optical/digital zoom	12X / 12X
effective pixels	~380K
sensitivity	0.9 lux
HFOV (wide/tele)	54°/4.6°
brightness adjustment	±7 steps

lighting

integral LED lamps	2000 lumens
auxiliary LED lamps	1000 lumens × 2

construction

head weight	6 lb (2.7 kg)
pressure rating	44 psi / 100' (30 m) depth
cable length	300' (90m)
material	nickel-plated aluminum, stainless steel
portability	single case, one-hand carry
system weight	29 lb (13.2 kg)

controls

pan/tilt	360° continuous / ±122°
image overlay	grid, reticle
image effects	flip, negative, freeze
home position	joystick button

monitor/DVR

LCD size	5.5" (140 mm)
media	SD card

17.8" / 452mm
3.5" / 89mm
4.5" 114mm
shown with optional auxiliary lamps
5.5" 140mm