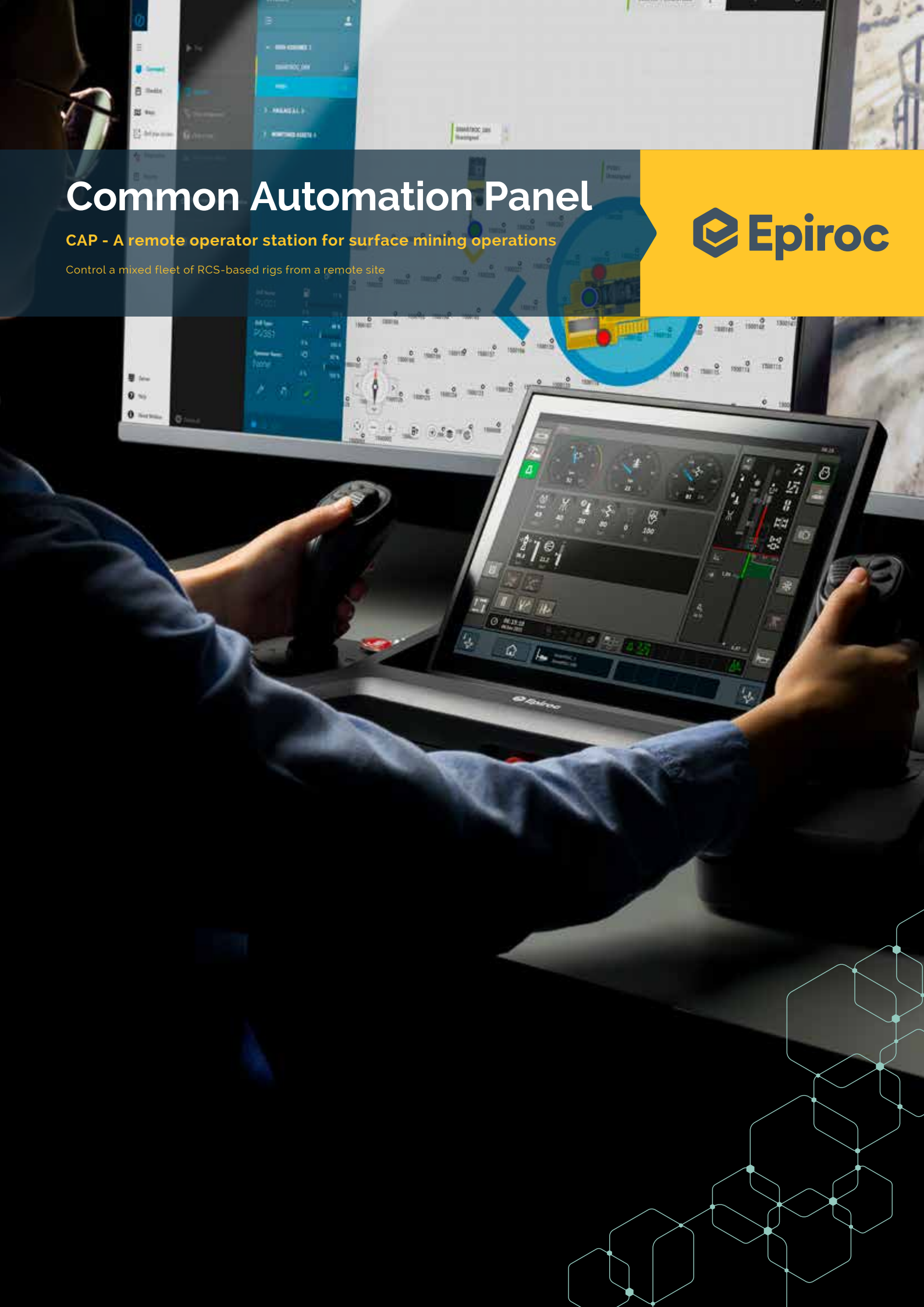


# Common Automation Panel

CAP - A remote operator station for surface mining operations

Control a mixed fleet of RCS-based rigs from a remote site



# One station — a whole world of opportunities.

The Common Automation Panel (CAP) is designed for teleremote and autonomous machines. Multiple RCS-based drill rigs can be operated from a remote location. CAP has the ability to switch between different machine types. For example, a remote operator can run multiple Pit Viper and SmartROC rigs — all from the same CAP station.

## + Main benefits

**Time-efficient.** An operator can sit in a remote location, together with other co-workers and run multiple rigs in a mixed RCS-based fleet. This saves travel time, increases interaction between operators and drastically reduces the effort required to change staff between shifts.

**Scalable.** This system is extremely expandable. As long as there is capacity in the system and the site infrastructure can cope, additional CAP stations and rigs can be added.

**Safe.** The best way to keep your operators safe is to keep them away from danger. With CAP, they can work from a pleasant control room situated well-away from the worksite and associated dust, noise and dangers.



CAP server rack

The server rack features an updated design and is a vital part of the CAP system. It has the capacity to be connected to multiple CAP stations and can handle a mix of RCS-based rigs.



Machine safety controller



CAP safety controller

Each server rack is fitted with a number of machine safety controllers and CAP safety controllers. They are essential parts of the control and safety system of remote drill rigs. These controllers enable the allocation and activation of emergency stops on remote machines.

Additionally, the CAP safety controller makes it possible to locate the server rack in a dedicated server room, further reducing the office footprint. The CAP safety node can be placed on a desk, up to 10 meters away from a CAP station. Each node can support up to 4 CAP stations.



CAP safety node



High-resolution touchscreen display presents the operator with all necessary information for each operational mode.

Two ergonomic joystick controls are fitted to the CAP which enable effective operation of both Pit Vipers and SmartROC rigs remotely.

Place CAP on an attractive desk fitted with extra displays and it will fit right in to any office environment.

The CAP system does not compromise on safety. An emergency stop release is fitted to each CAP station. On activation, all machines on the same safety node will be brought to a halt. Each CAP station is also equipped with a button to activate the fire-suppression system on the currently allocated remote machine.



Discover more about the Common Automation Panel (CAP)

**6<sup>th</sup> Sense**  
Smart. Safe. Seamless.

Common Automation Panel is a 6<sup>th</sup> Sense product.



Scan to read more about 6<sup>th</sup> Sense

6<sup>th</sup> Sense is the Epiroc way of optimizing your value chain through automation, system integration and information management.

# Join the digital revolution.

The Common Automation Panel (CAP) from Epiroc is designed to transform the way you run your business. CAP enables the remote operation of a mixed fleet of RCS-base rigs. It will transform control-room operations and the way operators are trained.



## + Mixed fleet control

With the Common Automation Panel (CAP), a mixed fleet of Pit Viper and SmartROC RCS-based rigs can be operated remotely. A separate operator station for each type of machine is no longer required. CAP saves you time, is space efficient and also very cost effective. CAP includes two multi-function joysticks. Remote rig functions have been logically mapped over to the CAP station to ensure a smooth and rapid transition for operators.



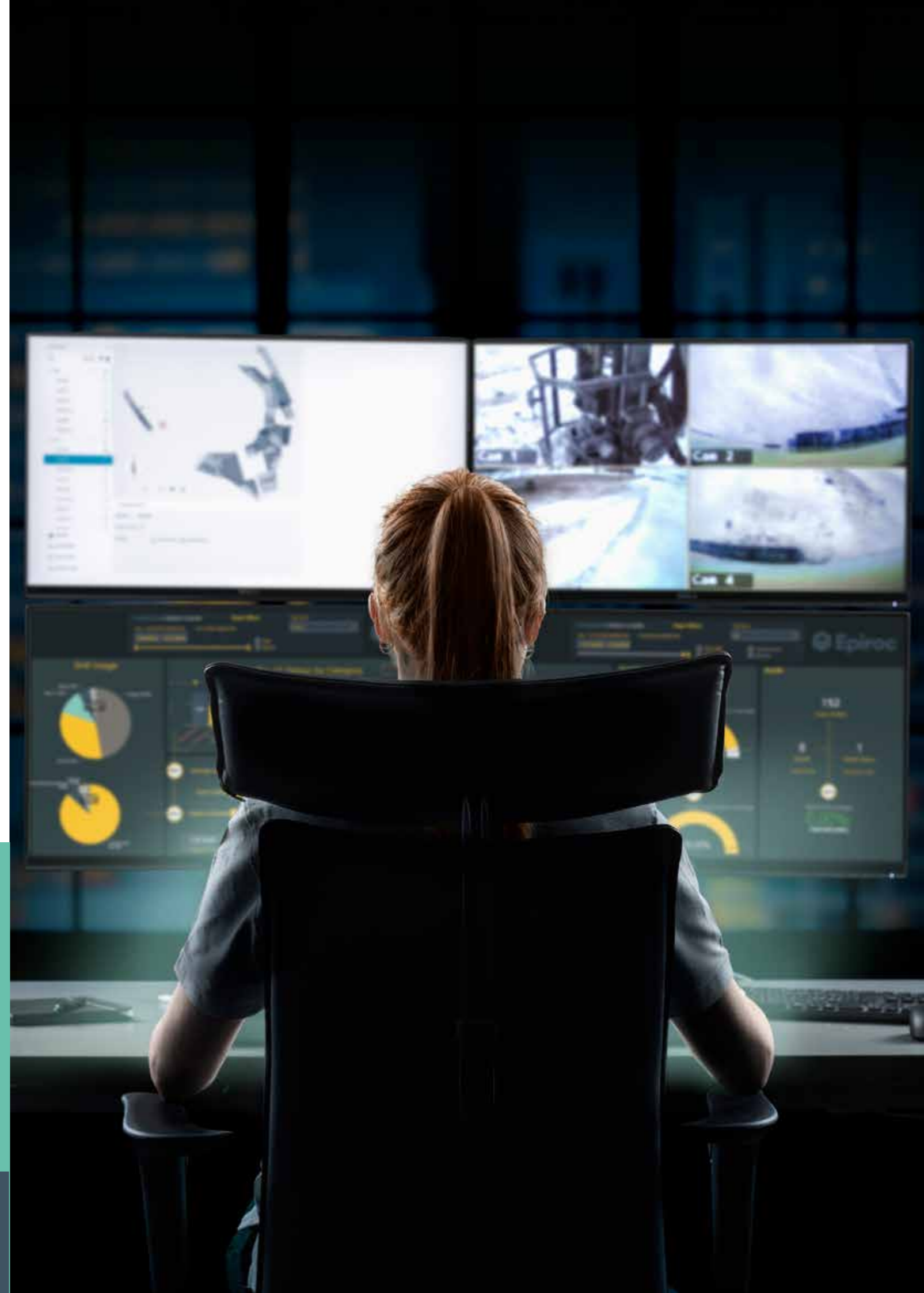
## + Scalable

Each CAP station is capable of controlling one rig at a time via its associated safety system mounted in the server rack. The operator can start a hole with a SmartROC D65. Once the D65 is running, the operator can swap control to a PitViper and tram the machine to a new hole and start drilling. Future enhancements and software updates are easy to install, ensuring that the system remains up-to-date. The system can be expanded to accommodate extra machines. Return on investment is rapid thanks to the many efficiencies this system can provide to your operation.

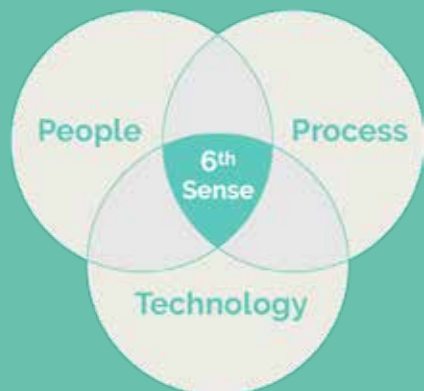


## + Time-efficient

Operators can sit together in a remote location. This makes it possible for them to assist each other directly during each shift and improve the flow of knowledge between co-workers. Less experienced operators can immediately benefit from the experience and knowledge gathered by long-term staff members sitting with them. This can be helpful with problem solving and when on-boarding new operators. Additionally, working in this manner reduces personnel transport costs and makes for rapid shift changes.



## Activate your 6<sup>th</sup> Sense



### Easier, safer and more efficient.

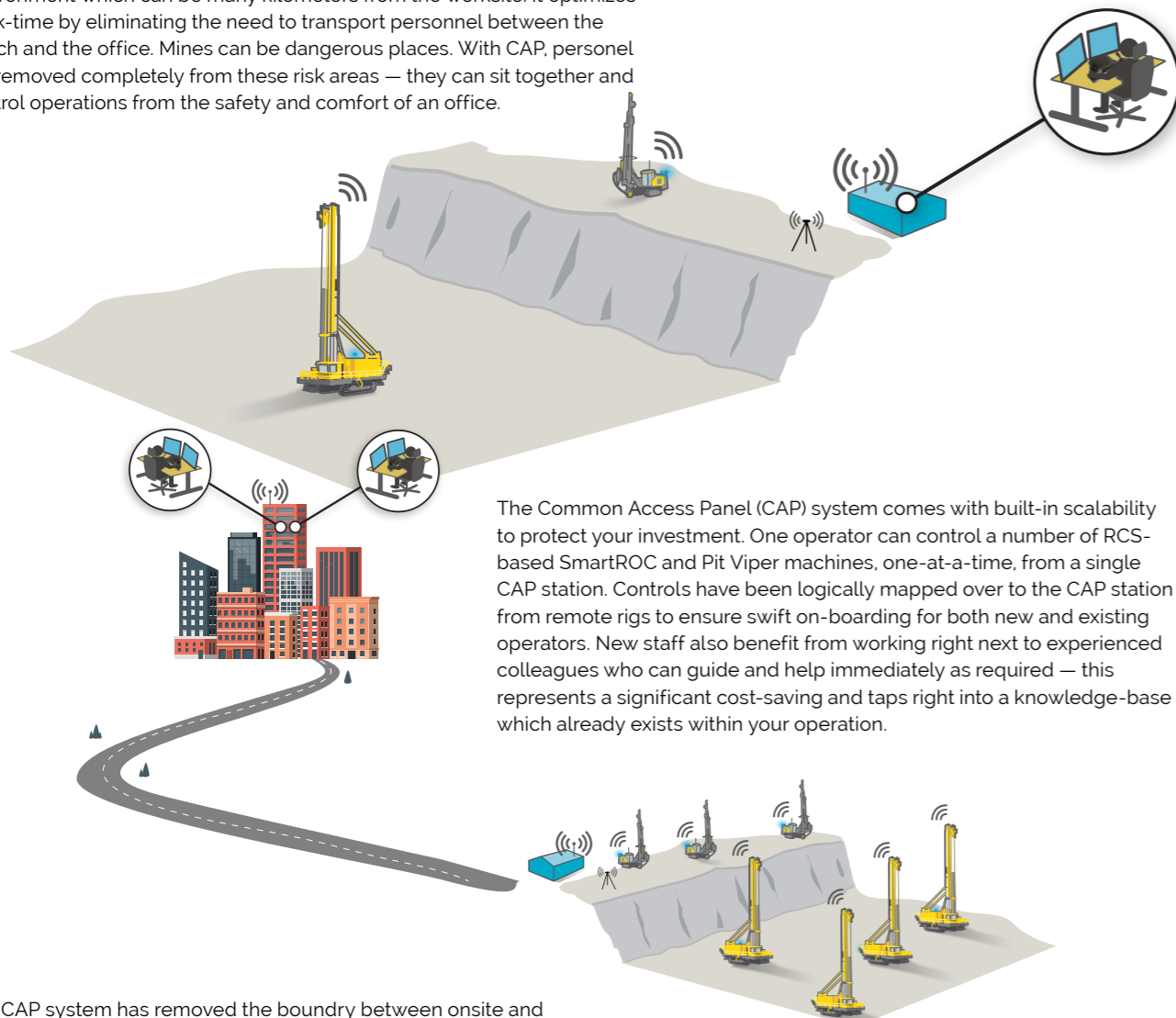
To deliver the best automation solutions, we have developed a systematic way of advising you on the selection and implementation of the right technology to improve your operation. We combine our extensive experience and knowledge within automation to ensure that you have the best tools. Together, we establish a transparent process to successfully transform your operations — our 6<sup>th</sup> sense.

**Working with a solid process and in close collaboration with partners is key to the successful transformation of any operation. The 6<sup>th</sup> Sense approach turns challenges into solutions.**

# Common Automation Panel — a key part of a modern control-room

Control multiple SmartROC and Pit Viper RCS-based machines from the same CAP station — all from the safety of a comfortable control-room.

The Common Automation Panel (CAP) enables the operator to run multiple, mixed rigs simultaneously without ever having to enter any hazard area. This system moves the operator's workspace from a bench to a control-room environment which can be many kilometers from the worksite. It optimizes work-time by eliminating the need to transport personnel between the bench and the office. Mines can be dangerous places. With CAP, personnel are removed completely from these risk areas — they can sit together and control operations from the safety and comfort of an office.



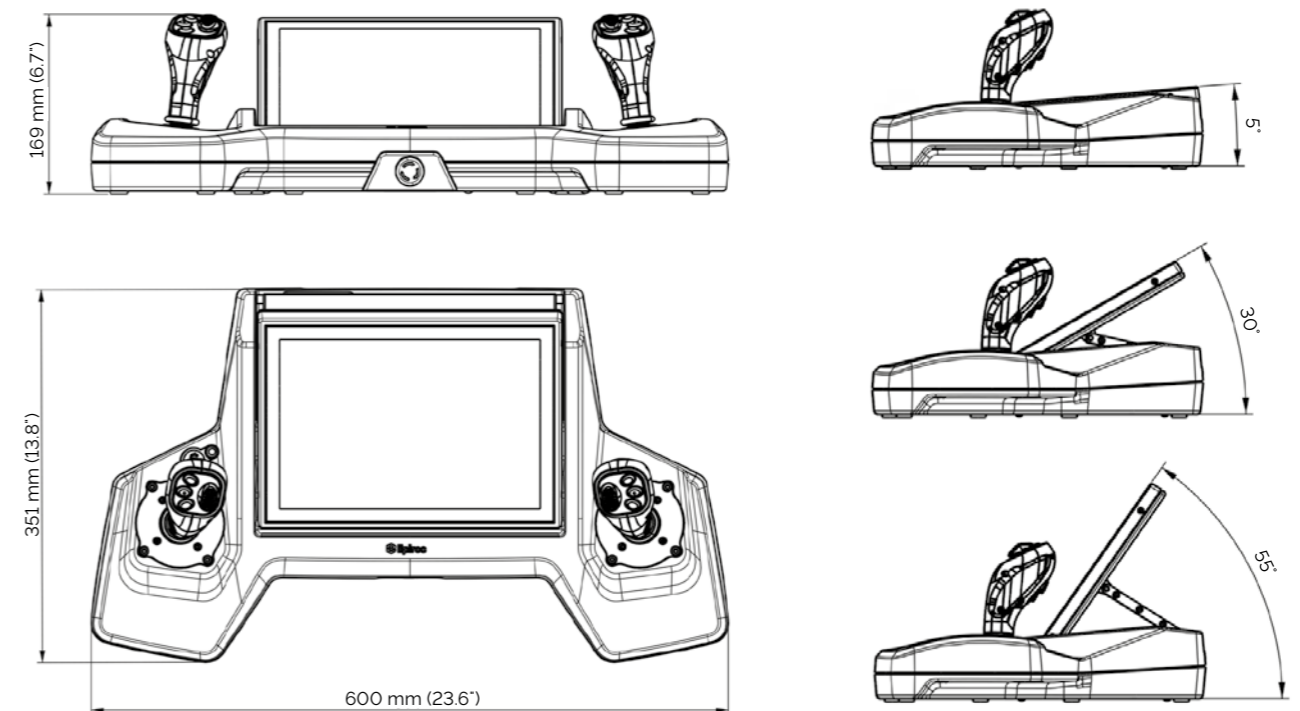
The Common Access Panel (CAP) system comes with built-in scalability to protect your investment. One operator can control a number of RCS-based SmartROC and Pit Viper machines, one-at-a-time, from a single CAP station. Controls have been logically mapped over to the CAP station from remote rigs to ensure swift on-boarding for both new and existing operators. New staff also benefit from working right next to experienced colleagues who can guide and help immediately as required — this represents a significant cost-saving and taps right into a knowledge-base which already exists within your operation.

The CAP system has removed the boundary between onsite and offsite operations. It will enable mining companies to take the next step towards the future of mining operations — drastically improving safety, efficiency and the lives of their operators.

Control-room based mining operations are the future. The Common Automation Panel is a scalable system which allows you to remotely operate a mixed fleet of Pit Viper and SmartROC rigs — all from the same unit.

## Common Automation Panel specifications

RCS compatibility	RC versions	RCS OS
Hardware	Processor	Based on the processor NXP iMX8M quad core
	RAM	4GB LPDDR4
	Flash	4GB eMMC
Interfaces	CAN	1 x CAN 2.0 A/B, ISO 11898, Maximum data rate of 1 Mbps
	USB	1 x USB 2.0 supporting HS/FS/LS
	Ethernet	10/100 Mbps
	HDMI	Type A
Power	Voltage	+15 V to +32 VDC
	Logic Current	1 A @ 24 VDC
Display	Size	12.1"
	Resolution	1024 x 768 pixel
	Interface	LVDS, 24-bit colour data (8-bit per colour)
	Luminance	≥ 400 cd/m2
	Viewing Angle	≥ ±80° in all directions
	Touch Panel	Can detect ≥ 2 simultaneous activations with object of diameter ≥ 5mm
Environment	IP class	IP54 - EN 60529
	Temperature	Operating: 0°C to +55°C, Storage: -30°C to +60°C
	Humidity	Minimum: 5% RH, Maximum: 95% RH condensing
	Vibration	Broadband noise, 0.15G RMS all axis in frequency range 0 Hz to 2000 Hz
	Resistance to substances	Resistant to substances like hydraulic oil, diesel fuel, etc
Dimensions	Width	600 mm (23.6')
	Length	351 mm (13.8')
	Height	169 mm (6.7')
	Weight	6 kg (13.2 lbs)



### Approvals

- EMC-directive 2014/30/EU1
- RoHS directive 2011/65/EU
- EN 61000-6-2
- EN 61000-6-3

### Pit Viper rig requirements

- Hole Navigation System (HNS)
- TeleRemote machine kit
- RCS 5

### Other components of the CAP system

- Server rack cabinet
- Machine Safety Controller (1 unit by default - upgradable to 22, in increments of 1)
- CAP Safety Controller (1 unit by default - 1 per 4 CAP stations)
- Uninterruptible power supply with internal AC-DC transformer.
- Type F electrical plug.

### SmartROC rig requirements

- Hole Navigation System (HNS)
- TeleRemote machine kit
- Wide body kit (recommended option)
- RCS 6

# United in performance. Inspired by innovation.

Performance unites us, innovation inspires us, and commitment drives us to keep moving forward. Count on Epiroc to deliver the solutions you need to succeed today and the technology to lead tomorrow.  
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