



By **Introducing** the Intrinsically Safe EX-SM14, Bcom is setting the standard for working smart, reducing exposure to staff and increasing operational excellence in Zone 1 hazardous areas. The ATEX, IECEx and CSA certified smartphone, as part of the BCom Mobile Smart Worker concept, provides the enabling technology to change the way of working into a more efficient and safer reality.



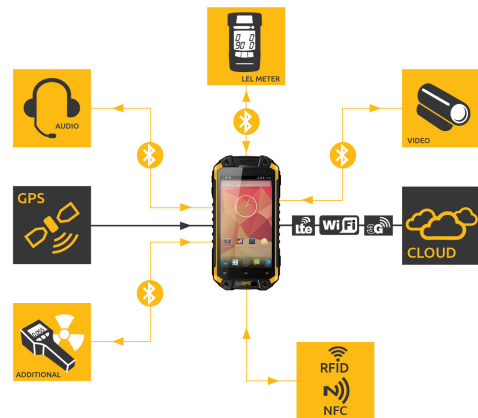
Working Smart is the term used for those who utilize their mobile equipment to increase operational excellence. In the world of process optimization this means:

the reduction of time that does not add value for the customer, such as waiting, transportation from one location to the other and wasting material.

Those who work smart are constantly focused on the task at hand. To accomplish this high level of efficiency one needs access to information when the information is needed, regardless of the current location. Previously such operational efficiency was not possible in zones with an explosion risk, because a regular smartphone or laptop is in fact an ignition source due to its electrical circuits.

BCom solved this problem with the launch of the EX-SM14 smartphone. The EX-SM14 is the *technology enabler* in BCom's Mobile Smart Worker concept.

The **Mobile Smart Worker** concept enables the integration of Bluetooth and Wi-Fi enabled devices to the intrinsically safe smartphone. The result is an ever-expanding set of features that aid to working smart.



Today's feature set already contains a Lower Explosion Limit (LEL) meter, external video camera, Cloud storage and connected apps, NFC and RFID readers, Radiation detection, GPS localization and a headset with push to talk function.

These peripherals have their own distinct value in typical Oil & Gas upstream, midstream and downstream processes and can replace existing stand-alone systems, thereby optimizing cost of ownership, integration and safety.

BCom Sentinel, powered by LiveCast is one of the key elements in the Mobile Smart Worker concept. This system connects the field-worker in the hazardous area to the engineers in the office. Purposely built for the Rough Pro range of products it brings unrivaled performance when it comes to HD full-duplex 720p video streaming. With 30 frames per second of true HD video, field-workers can be supported remotely in every details of their job. The benefits of **remote support** are obvious. Travel expenses and hours of exposure to risk are greatly reduced.





Working in hazardous areas does not go without risk. Toxic gases, explosive atmospheres, height and harsh weather conditions are common risks to the health of the field

workers. Today's measures include the buddy system as well as measurement equipment to detect hazardous situations. BCom Sentinel replaces many of these safeguards by a fully automatic and reliable combination of technologies. The system itself provides a feature called *connection state*. With connection state it becomes clear if communication is possible. The system distinguishes between various causes of connection issues ensuring complete awareness of the situation. Low battery warnings prevent unexpected loss of connection, while bandwidth warnings predict a near loss of connection due to the reception at the current location, which is reflected in real-time on a map. The combination of *connection state* and *location awareness* allows for a series of cost saving advantages, such as efficient routing of maintenance personnel and emergency crews, personnel accounting and save mustering.

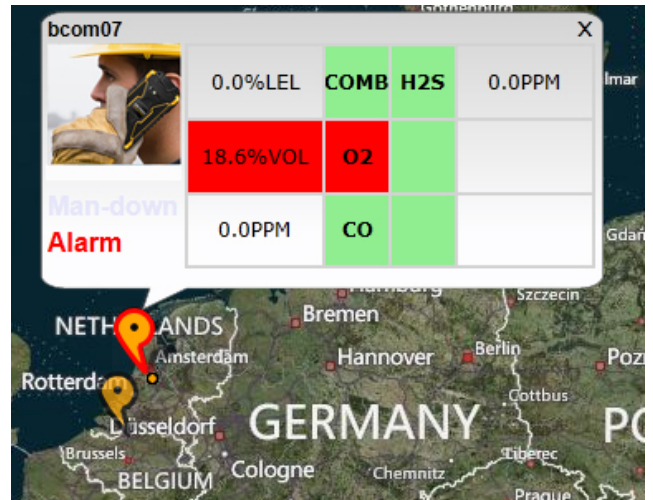
BCom Sentinel supports the addition of peripherals, such as the MSA

portable gas detectors.



As a result of the integration between the gas detector and the Rough Pro smartphone, all measurements are available to the BCom Sentinel system. Where the gas detector used to be a local safety device, it has become a local measurement tool that provides objective facts on active hazards, both local and worldwide. No longer is the alert limited to those within reach of its alarm speaker and flashing lights. Supervisors working from the safety of the head-office can respond to the hazard within half a second, thereby increasing the chance to save lives. Emergency response crews scramble properly prepared to handle the incident quickly and decisively, while the supervisor prevents other field-workers from walking into the hazardous zone.

To support those in need of help, BCom Sentinel automatically establishes a full-duplex video stream between the supervisor and the field-worker. The supervisor has instant access to all information required to assess the situation: life HD video, audio, sensor data (temperature, gas readings, lower explosion limit, radiation levels) and the current location. Such a detailed and immediate assessment is not possible with the buddy system, especially not in emergency situations when human perception is a risk on its own.



Lone workers

are safe guarded by the integrated man down detection algorithms. Free fall, impact and non-movement are automatically detected and signaled to the user by an audio alarm. As with all man down systems, a pre-alarm sounds prior to reporting the incident in. With BCom Sentinel, 'reporting in' means the establishment of the full-duplex video stream including location and sensory data to assess the situation in the best possible way. Emergency response starts within 0,5 seconds, faster than one can call for help.

Work Instructions

can be sent via text message. To ensure that the worker is aware of the incoming transmission, text-to-speech technology is utilized to read the message out loud. The communication in both text and speech ensures a timely response to the instruction, as well a proper understanding of the message because text is less prone to communication issues caused by accents, mumbling, translations issues or background noise.

BCom Sentinel provides an **API** to allow for the integration of additional peripherals. Examples are heart rate monitors, blood pressure monitors and external video cameras.

Radiation Detection

will be available shortly through a third party Intrinsically Safe radiation probe. Used to measure the radiation in pipes the device communicates the readings back to the via Bluetooth. The dedicated software application displays the current





reading and is capable of building a database of measurements for later analyses. Integrated into the Mobile Smart Worker concept there is no longer the need for a separate system.

With Azetti's **Push To Talk** the smartphone is effectively transformed into a two-way radio with global reach. With a press of the dedicated PTT button instant communication is established with a single recipient, or a group of recipients. Groups and users can be easily selected from an on screen list. Communication itself does not require the screen to be on. Simply press the button and the communication channel is opened. The Azetti PTT service is based on the internet protocol, thereby providing global reach with a high level of encryption. No dedicated infrastructure is required. Customers can choose between hosted or enterprise installations based on their management and security needs. To simplify the transition from traditional two-way radio communication to Push To Talk, an interface is available to relay messages across the different platforms. This solution is completely transparent to the user.

The workday becomes more effective. At the same time the accuracy of risk assessment is increased as risks can be assessed and entered in the system on site.

Another example is the LOCC application that enables the immediate registration of open and closed locks. Real-time updates allow for a more efficient and safer workday.

There are many other eVision application that integrate directly into existing work processes, which can now be



executed regardless the current location.



BCom Solutions partner eVision has developed various software applications to support a more efficient way of working in Oil & Gas industry.

Permit Vision is a great example. This application allows for the digital provisioning of a Permit To Work. The electronic permit is delivered on the mobile device thereby preventing lots of 'non value adding' kilometers of walking on the plant.

BCom is continuously adding functionality to the Mobile Smart Worker concept. Bluetooth or Wi-Fi devices are compatible by default. Peripherals, data streams and application can be integrated into BCom Sentinel upon request. Please contact us directly to discover the integration options for your systems.





Summary

- Intrinsically Safe Zone 1 EX-SM14, certified for ATEX, IECEx and CSA is the technology enabler in BCom's Mobile Smart Worker concept
- The Mobile Smart Worker concept enables the integration of Bluetooth enabled devices
- Gas detection with the MSA ALTAIR 5X multi-gas detector
- Radiation detection with the separate radiation scanner
- Man Down detection with BCom Sentinel
- HD 720p full duplex video streaming with BCom Sentinel
- Automatic incident reporting with BCom Sentinel
- Reduced emergency response time with BCom Sentinel
- Push To Talk with Azetti
- Permit To Work with Permit Vision from eVision
- Lock open Lock closed real-time maintenance data from eVision
- Ready to add your own systems.

Ben Braeckman, Managing Director: *"When I founded BCom back in 2013 I could only dream about the Mobile Smart Worker concept becoming a reality. Now, just over 12 months later, the concept has come alive. I am very proud that BCom and its partners have accomplished such an industry changing set of products in less than a year."*

"While our customers enjoy the benefits of working smart, we enjoy the process of designing the next innovation. To be continued..."

