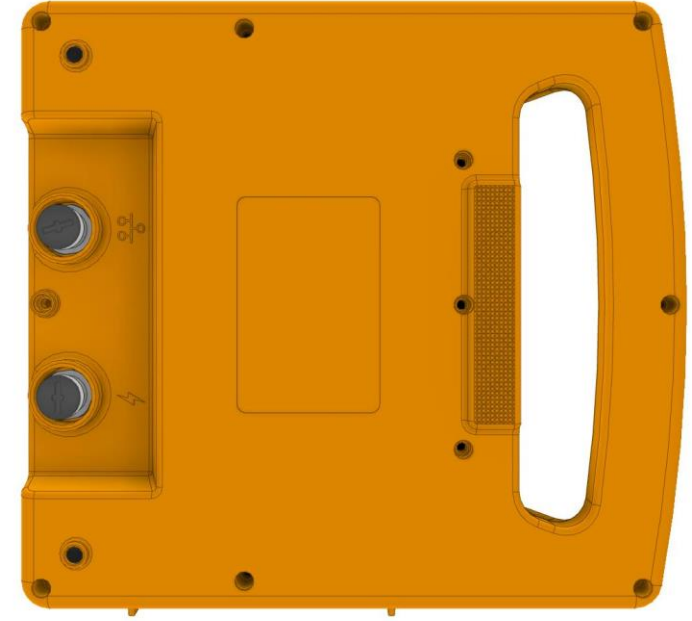
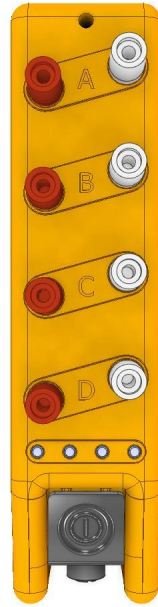




Technical Overview of the second generation
InSite Construction (ISC) Data Acquisition System
Based on the BOREAN platform.



Part I - Product overview

Overview



The image depicts the ISC Hub attached to the ISC Node.

TRADE NAME

InSite Construction Hub

INTERNAL DEFINITION

CARRION HV01/MKF-12

DESCRIPTION

The second generation Main Unit for the InSite Construction Data Acquisition System.

Main Unit circuit board Hardware Version 01.
Enclosure revision F – Circuit Board Revision 12.

TRADE NAME

InSite Construction Node

INTERNAL DEFINITION

HV02/MK08

PABM HV02/MK08 PABS HV02/MK06

DESCRIPTION

Analogue Input Module for the InSite Construction Data Acquisition System.

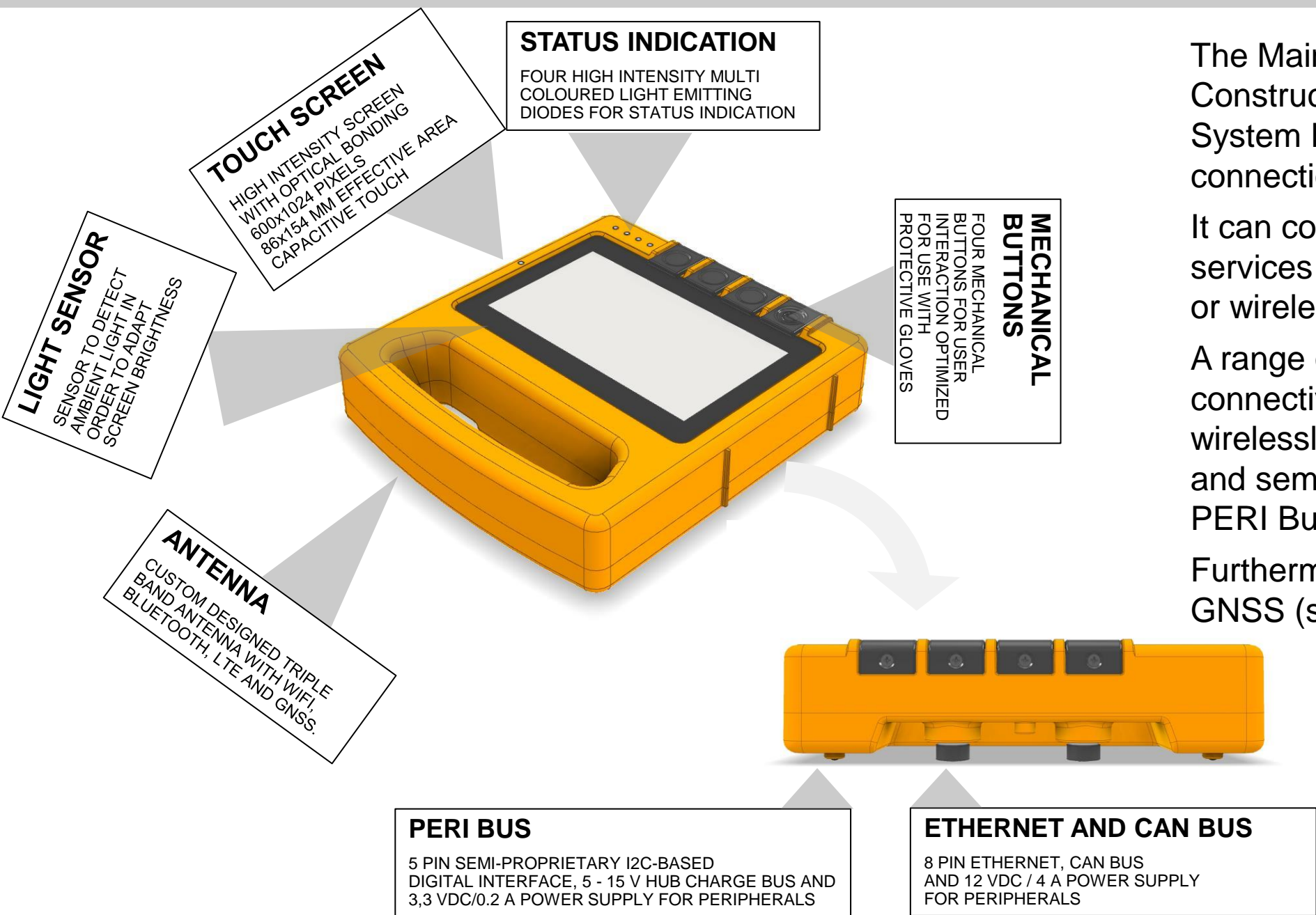
Analogue Input Module Main circuit board
Hardware Version 02.
Enclosure revision F – Circuit Board Revision 08.

The Main Unit for the InSite Construction Data Acquisition System has a wide range of connection capabilities.

It can connect to the Cloud based services using cable-based Ethernet or wireless uplink using LTE or WiFi.

A range of alternatives for sensor connectivity is supported - either wirelessly via LR-WiFi, Bluetooth and semi-proprietary I2C-based PERI Bus.

Furthermore, it is prepared for GNSS (satellite positioning).



InSite Construction Node

PERI BUS CONNECTOR

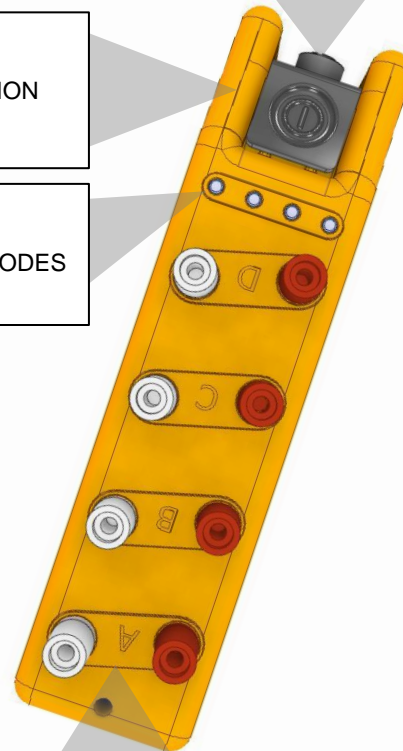
FEMALE 5 PIN M12 DIN CONNECTOR WITH A UNIVERSAL SEMI-PROPRIETARY INTERFACE FOR I2C BASED UNITS COMBINED WITH POWER SUPPLY PINS

MECHANICAL BUTTON

MECHANICAL BUTTON FOR RUDIMENTAL USER INTERACTION SUCH AS POWER ON / OFF FORCE CONNECT AND RESET OPTIMIZED FOR USE WITH PROTECTIVE GLOVES

STATUS INDICATION

FOUR HIGH INTENSITY MULTI COLOUR LIGHT EMITTING DIODES FOR STATUS INDICATION



4 x SENSOR INPUT / OUTPUT LABELED A TO D

FOUR MULTIFUNCTIONAL CHANNELS CAPABLE OF CONNECTING TO EITHER THERMOCOUPLES FOR TEMPERATURE MEASUREMENT OR DRIVING COMPACTION AND INFILL DETECTORS

The first released of the ISC Node has four multifunctional analogue channels for sensors.

Each channel can either connect to a thermocouple for temperature measurement or a compaction and infill detector.

It can also connect digitally to other devices such as pressure transducers using the I2C-based PERI-bus or wirelessly via WiFi.

The idea is to develop additional variants of the ISC Node in the future. Each with the same form factor but supporting a unique use-case and set of sensors.

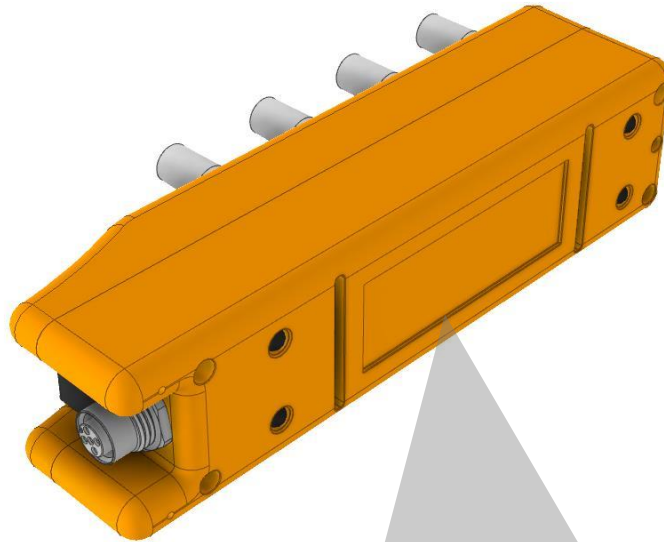
InSite Construction Node

The first released ISC Node has four multifunctional analogue channels for sensors.

Each channel can either connect to a thermocouple for temperature measurement or a compaction and infill detector.

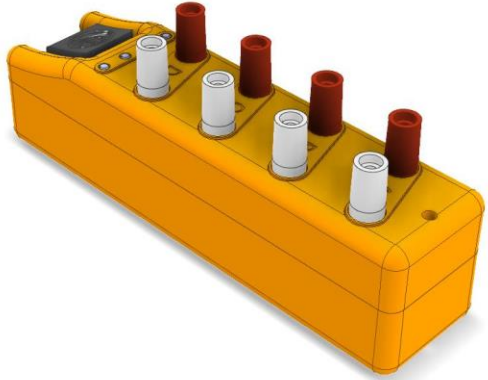
It can also connect digitally to other devices such as pressure transducers using the I2C-based PERI-bus or wirelessly via WiFi.

The idea is to develop additional variants of the Application Brick in the future. Each with the same form factor but supporting a unique use-case and set of sensors.



MAGNET MOUNT

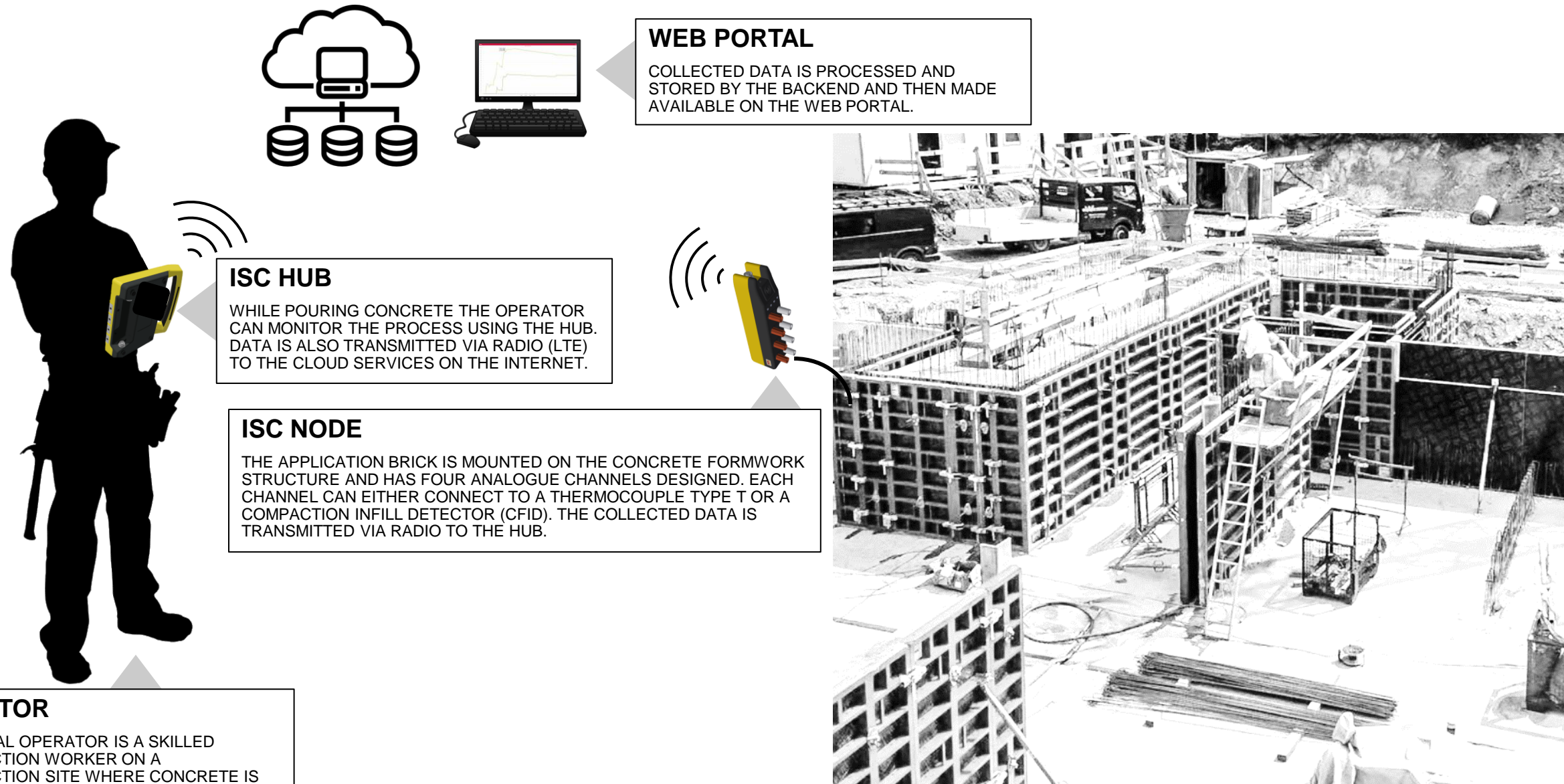
NEODYMIUM MAGNET MOUNT FOR ATTACHING THE APPLICATION BRICK TO THE HUB OR ANY OTHER STEEL SURFACE



Part II – Use cases

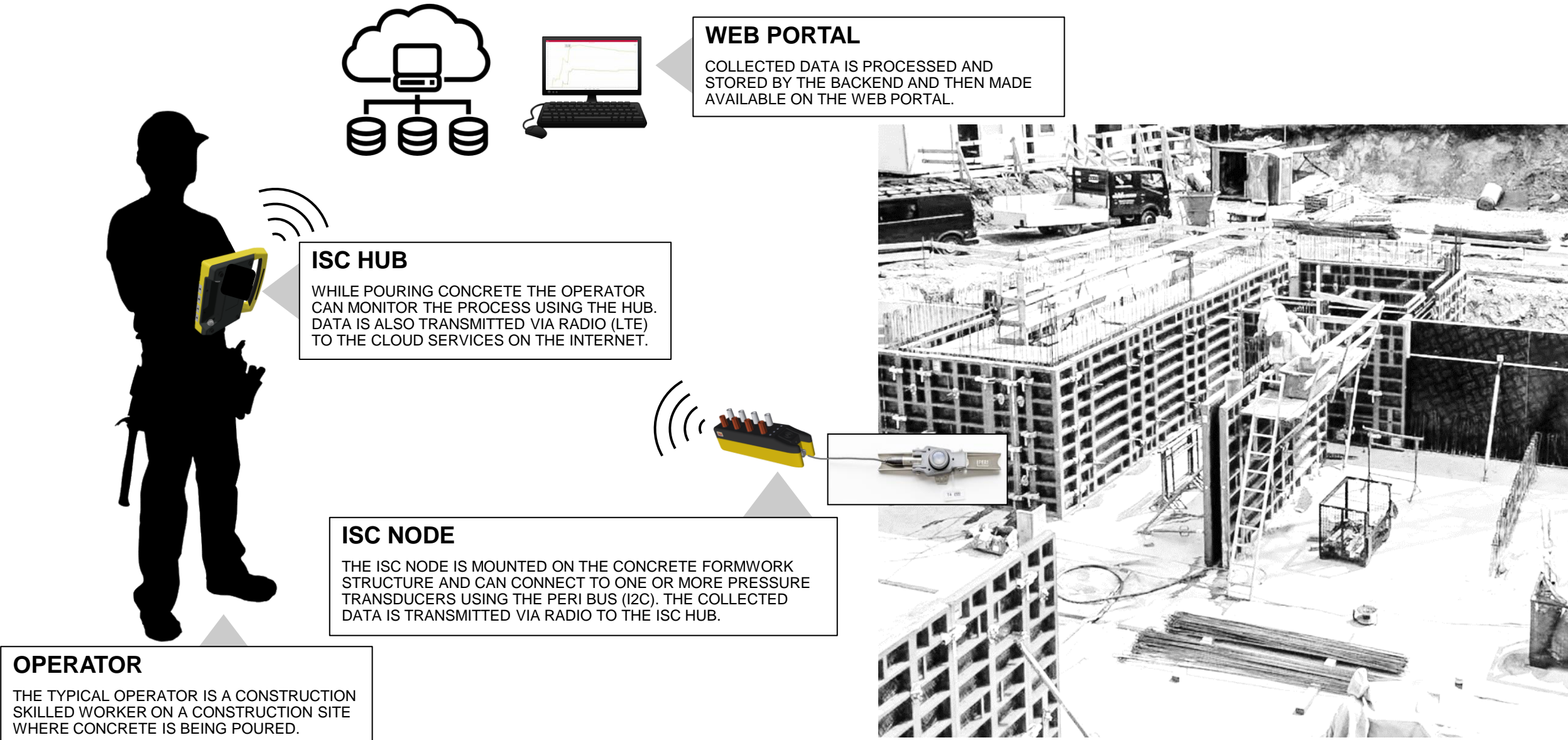
Use case I – Measuring temperature and / or monitoring compaction and infill status

The ISC Node is attached to the formwork structure and is used to collect data, transmit it via radio to the Hub which in turn displays the data on the screen so that the operator can monitor the concreting process. The ISC Hub also acts as an uplink to the web portal on the Internet where the data is stored for future reference.



Use case II – Measuring concrete pressure acting on the formwork (form pressure)

The form pressure sensor is attached to the formwork structure and is used to measure the pressure, transmit the data via cable to the ISC Node which in turn relays the data to the ISC Hub via radio. The ISC Hub displays the data on the screen so that the operator can monitor the concreting process. The ISC Hub also acts as an uplink to the web portal on the Internet where the data is stored for future reference.



Use case III – Measuring concrete pressure acting on the formwork (form pressure)

The form pressure sensor is attached to the formwork structure and is used to measure the pressure, transmit the data directly via cable to the ISC Hub which in turn displays the data on the screen so that the operator can monitor the concreting process. The ISC Hub also acts as an uplink to the web portal on the Internet where the data is stored for future reference.

