

CONSTRUCTION MACHINERY

## Rugged computers and HMI systems

**Syslogic offers CAN-capable industrial and touchscreen computers that are specifically designed and manufactured for use in construction machinery. The devices can withstand extreme loads, such as shock and vibration.**



(Photo: Adobe Stock)

Electronic components used in construction machinery are exposed to high loads. This includes shock and vibrations as well as dust, splashing water, and extreme temperatures. The embedded computer provider Syslogic offers control computers and input panels specifically designed and manufactured for this purpose.

The company's industrial computers and human machine interface (HMI) systems are used in construction machinery, such as motor graders, wheel and tracked loaders, trucks, bulldozers, horizontal boring machines, and cold milling machines. The devices serve as data loggers, as IoT (Internet of Things) gateways, as control computers, for data acquisition, or for vehicle-to-vehicle or vehicle-to-infrastructure communication.

In construction machinery, extreme strain is part of everyday life. An ultra-rugged electronic design ensures that the vehicle computers in this environment work reliably for a very long time. The devices do not have any moving parts. This means that they are passively cooled instead of using delicate fans. In addition, Syslogic uses ultra-rugged solid state drives (SSD) instead of rotating hard disks. M12 screw-on connectors are used for connections.

Another feature of the industrial and touchscreen computers is the galvanic isolation of the interfaces. As a result, the electronics are protected against damage even in the case of large potential differences, such as those caused by long cables.



The Syslogic products (Photo: Syslogic)

### Individually configurable

Depending on the application, the industrial computers and HMI systems can be equipped with various interfaces. These include CAN, LAN, and serial interfaces (EIA-422/485, EIA-232). For CAN interface support, well-known CAN drivers such as SocketCAN, LinCAN, or CAN protocols such as J1939 and CANopen are pre-installed on the operating systems. Yet another feature enables activation of CAN read-only (passive CAN), which is frequently used in data loggers. In addition, the devices use 4G technology (LTE, UMTS,

GSM, as well as WiFi and Bluetooth). As a result, they can be used as an IoT device and pave the way for the Industrial Internet of Things (IIoT).

### IP67 protection for vehicle use

The industrial design of the devices is also reflected in the sophisticated casing. These versions meet protection class IP68 standards, which makes them resistant to dust, water, and chemicals. Another key criterion in construction machinery applications is the capacity for tough outdoor use. The vehicle computers are designed for temperatures ranging from -40 °C to +85 °C. The touch panels are designed to withstand temperatures from -30 °C to +70 °C.

The fact that the devices are almost indestructible is well-established through numerous qualifications - and not just on paper, but also in continuous use under harsh conditions. Some of the endurance tests passed include vibration testing for frequency ranges of 5 Hz to 2000 Hz (EN 60068-2-64) or shock testing (EN 60068-2-27).

At the core of the industrial and touchscreen computers are Intel Atom x5/x7-E39xx processors (Apollo Lake). They were specifically developed for 24/7 applications and work in the long term, even at very high or low temperatures. The company's devices are used in mining vehicles, construction, and agricultural machinery, excavators, and bulldozers world wide.

