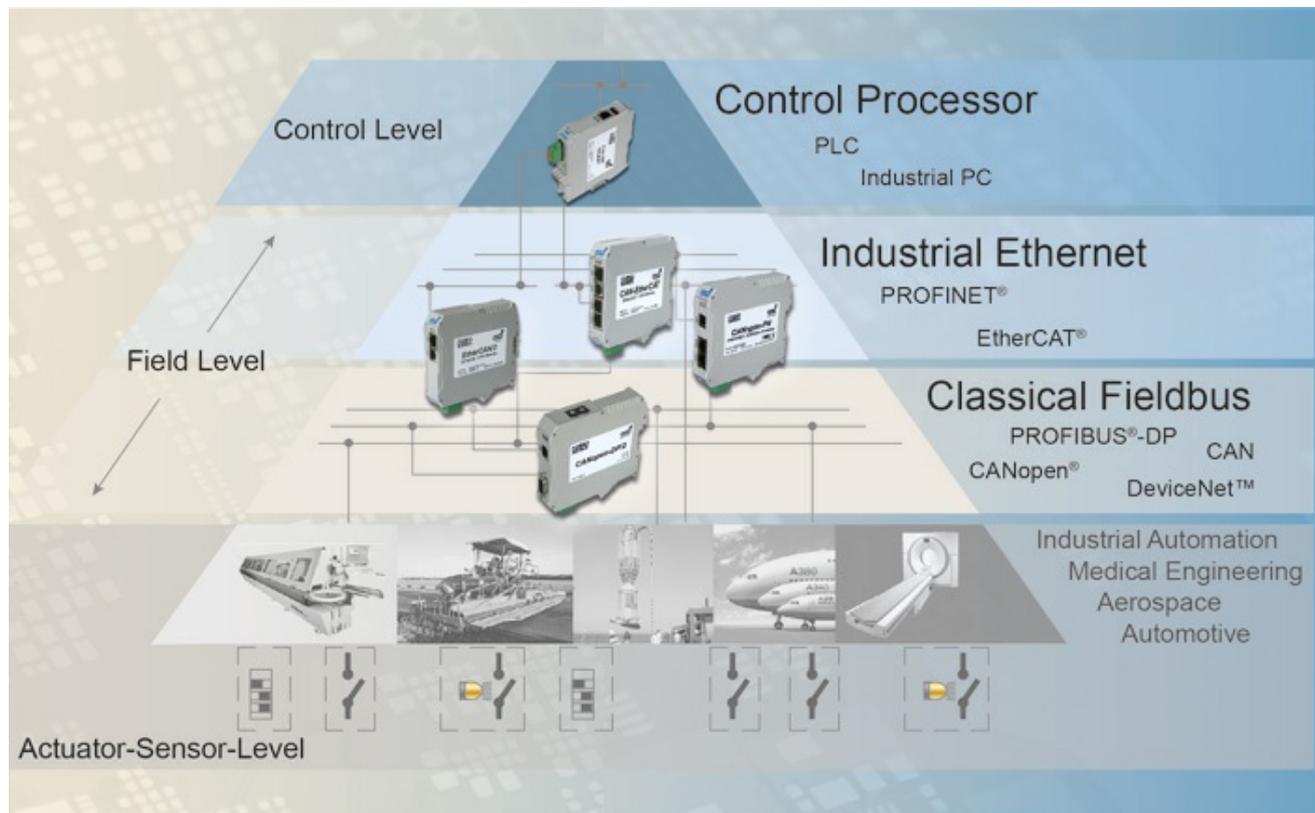# CAN *Newsletter Online*

Easy migration with gateways

In order to integrate devices into a higher-level network, ESD Electronics provides a series of gateways and bridges linking CAN to Ethernet and to other fieldbuses.

The classic fieldbus (CAN, Profibus, Devicenet etc.) is well-established within many industrial machines and equipment; Gateways set up a link to higher-level systems (Source: ESD Electronics)

This article originally appeared in the of the CAN Newsletter magazine 2019. This is just an excerpt.

New functionalities as well as Industry 4.0 concepts involve high data and information demands, which can only be met by fast communication protocols, partly with real-time characteristics. These concepts are often implemented by means of industrial Ethernet systems. However, a lot of industrial machinery and equipment is still controlled by classic fieldbus protocols such as CAN, CANopen, Devicenet, as well as Profibus. In order to integrate these devices into a higher-level network, ESD Electronics provides a series of gateways and bridges linking CAN to Ethernet and to other fieldbuses.

Although nowadays much is said and written about Industrial Ethernet, industrial communication is still distributed in almost equal shares between classic fieldbus systems and Ethernet. Thus, due to its high data security and its inexpensive components the CAN network is just as often used in industrial automation as in safety related areas. Many older industrial machines and devices use CAN to process input and output data in a decentralized way. In order to integrate CAN network communication with its various protocols into higher-level fieldbus or industrial Ethernet systems scalable and easy to configure gateways are needed.

ESD can call upon experience as a system vendor since the 1990s in the field of CAN-based automation solutions. This especially includes interface boards and gateways. With the help of gateways transitions between CAN/CANopen and industrial Ethernet, such as Profinet, Ethercat as well as Ethernet/IP and Profibus can easily be realized. CAN-to-Cloud solutions even go one step further by providing machine and process data by download over the internet. All this can be done without changing the machine programming. Bridges exchanging data with independent CAN networks or Ethercat networks complement the product range.

Gateways linking CAN to Profibus or Profinet do not have to be configured externally by the user. The entire configuration and parameter setting is completed by the PLC's (programmable logic computer) own user program, which makes the replacement of individual modules significantly easier. In the field there is no need for additional external tools or assistance to configure or to parameterize the gateways.

Linking CAN via Ethernet

When it comes to transferring CAN data to industrial Ethernet, ESD provides four different gateways. The devices CAN-PN and CANopen-PN connect CAN respectively CANopen to Profinet I/O. The CAN-PN gateway with buffer storage is equipped with a CAN interface acc. to ISO 11898-2 and a Profinet interface (IEEE 802.3). It is particularly suitable for connecting the CAN network to PLCs such as Siemens S7-300, S7-400, S7-1200, or S7-1500. Configuration is performed for instance via the PLC Simatic manager or the TIA portal. This kind of configuration makes exchanging individual modules quite easy.

The CANopen-PN gateway serves as a link between CANopen devices and Profinet I/O. It operates with a maximum of 1440 input
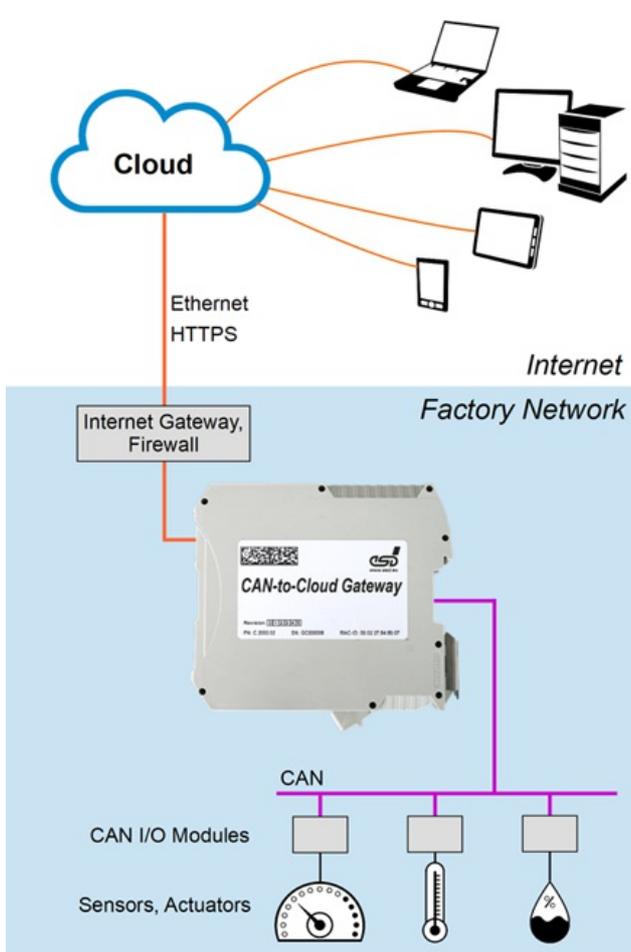
CAN-to-Cloud device connection (Source: ESD Electronics)

and 1440 output bytes on the Profinet bus. Like the CAN-PN this device has a CAN interface designed acc. to ISO 11898-2. By means of this gateway the integration of up to 127 CAN nodes is possible. Alternatively CAN is accessible via an Inrail bus plug connector. The Profinet interface is compatible with IEEE 802.3, and the gateway has been designed acc. to „Profibus international document TC2-09-0002" as well as „CANopen specification CiA 309-4". The configuration of the gateway is carried out via the Profinet configuration tool GSDML composer. The ESD CAN tools (CAN SDK, CANreal etc.) can be used for configuration and diagnosis of the CANopen-PN gateway.

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