Linking J1939 and Devicenet networks

Aparian (USA) has developed gateway devices connecting Ethernet/IP host controllers to J1939 and Devicenet networks.


J1939 (left) and Devicenet (right) gateway devices for Ethernet/IP (Photo: Aparian)

The configurable J1939 gateway provides an EtherNet/IP port to communicate with Logix controller from Rockwell. The product enables the host controller to not only receive multiple PGs (Parameter Group) from J1939 devices, but also operate as multiple J1939 devices producing data on the J1939 network. The J1939 data is automatically formatted and scaled to engineering units when exchanged with host controller.

Configuration is simplified by combining Aparian's Direct-To-Tag technology with the integrated J1939 database. This allows a user to browse to the required PGs and map it directly to a Logix controller tag. The J1939 gateway is configured using the Aparian Slate application. Slate can be used to create the required UDT (user-defined data types) containing all SPs (Suspect Parameter) in the L5X format, which can be imported in Studio 5000. The gateway is packed with diagnostic information including an on-board packet capture utility, PG monitor, and node live list.
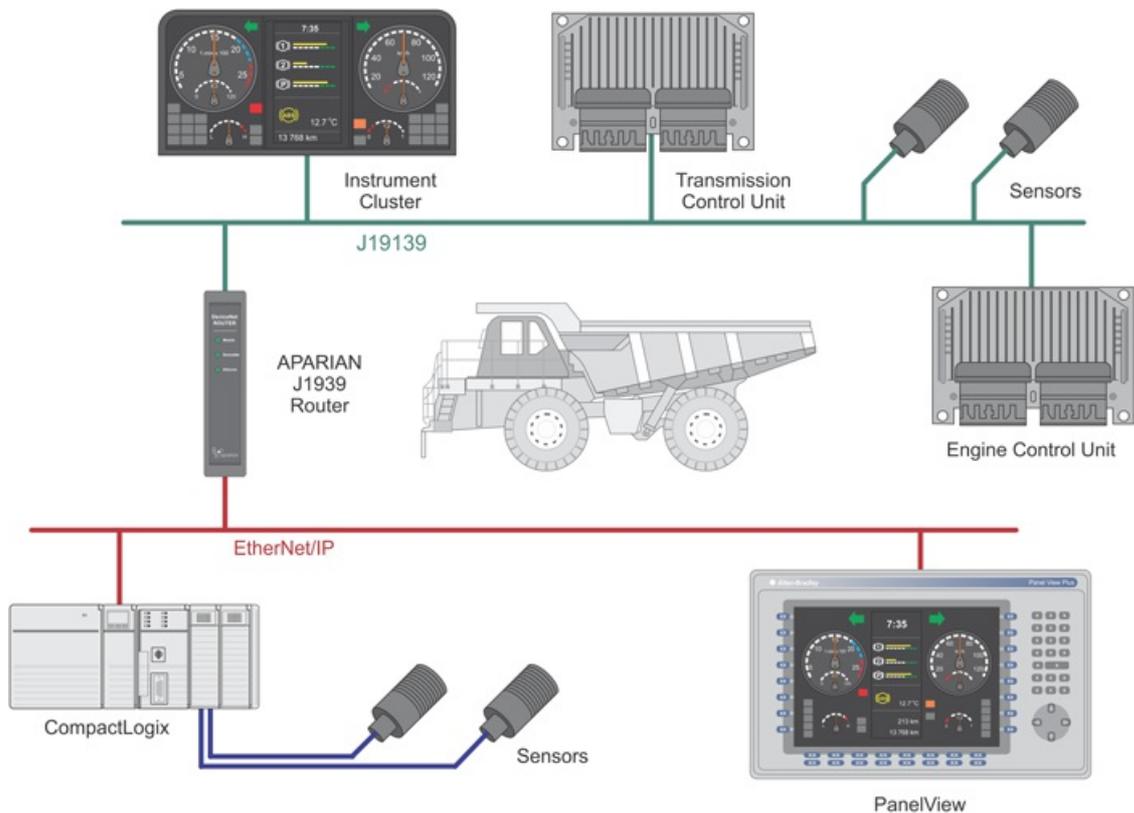
The module can operate in both a Logix "owned" and standalone mode. With a Logix connection the input and output assemblies provide additional diagnostics information, which is available in the Logix controller environment. A built-in webserver provides detailed diagnostics of system configuration and operation.
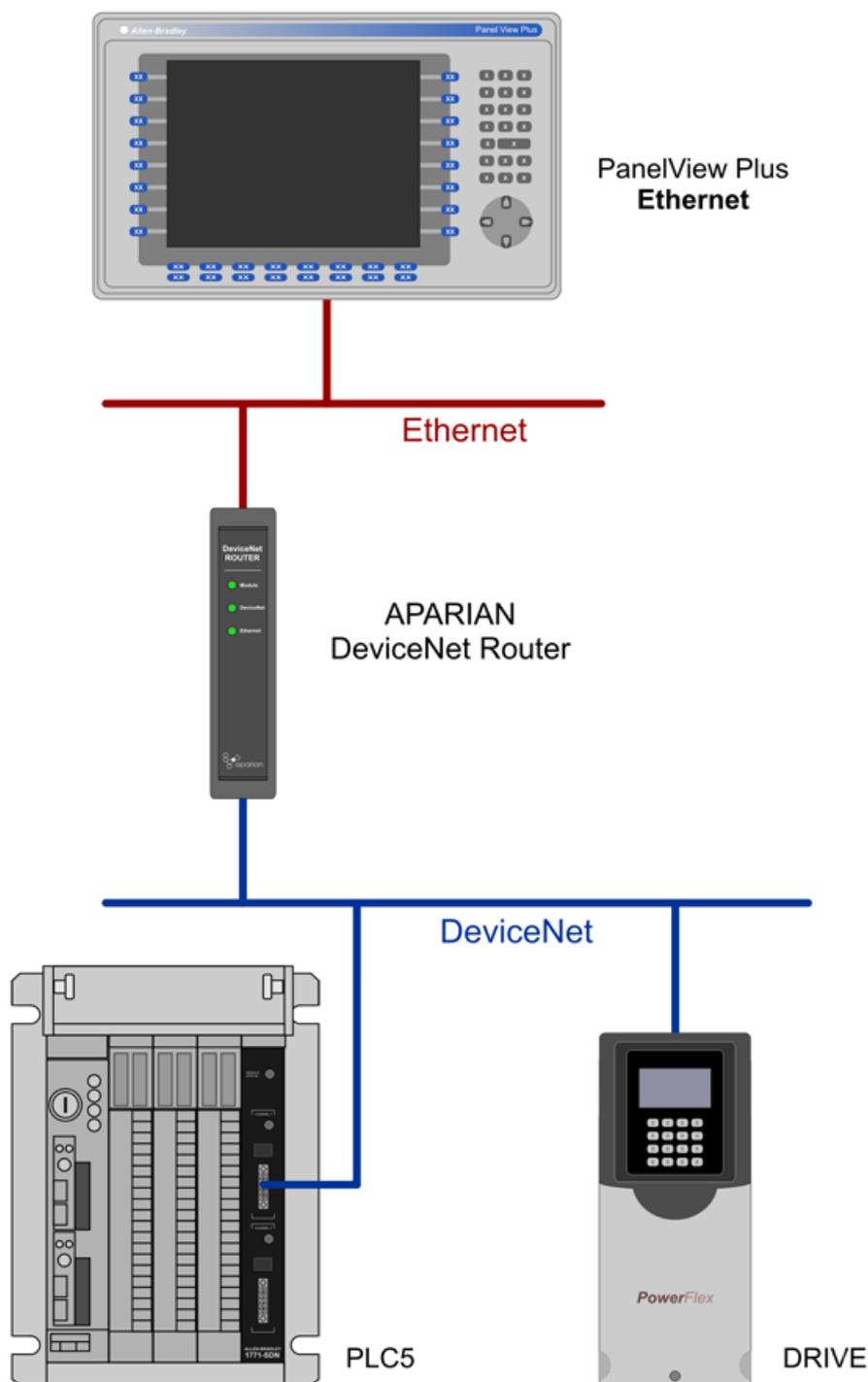
Typical application of the Devicenet gateway (Photo: Aparian)

The company headquartered in Irvine (California) provides also a Devicenet gateway featuring Ethernet/IP connectivity. This product is able to asynchronously exchange data between a Devicenet polling master (scanner) and an Ethernet PCCC device. The sizes of the Devicenet's produced and consumed data are independently configurable from 0 byte to 128 byte each.

The consumed (Devicenet) data can then be mapped to a PLC5 type address file, e.g. N33, and then read by an Ethernet device e.g. a PanelView. Similarly, the produced data (Devicenet) can also be mapped to a PLC5 type address file, to which an Ethernet device could write. In addition, the DeviceNet gateway can be used to transfer parameters of a Devicenet device directly to Logix tags. The scaling of the parameter values will either be extracted from the EDS file imported or can be manually updated by the user. The module also provides a range of statistics and an on-board Devicenet traffic analyzer to assist with fault finding. The gateway is configured using the Aparian Slate application.

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