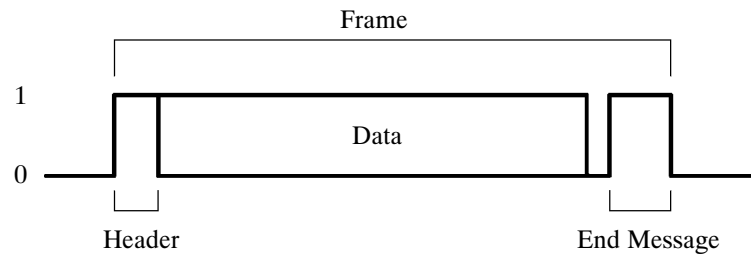


—REFERENCE—

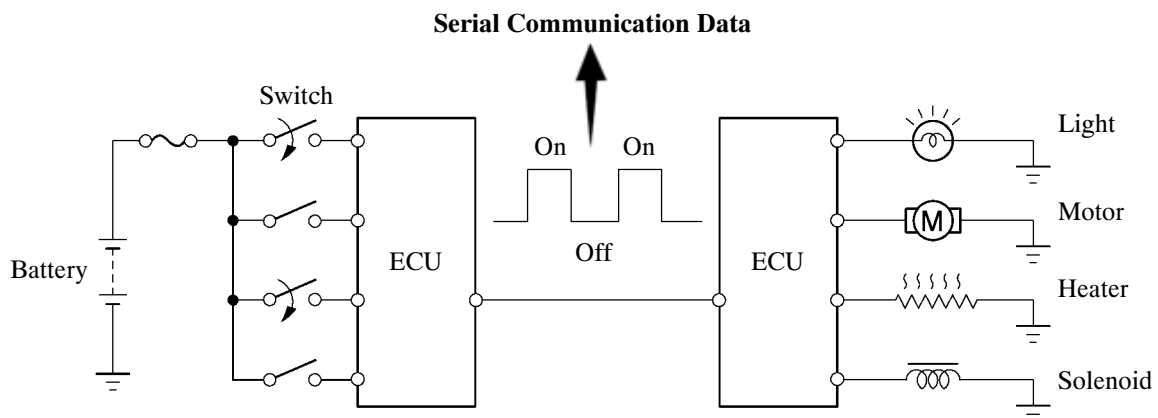
MPX communication uses serial communication data that consists of bits and frames in order to exchange information among the various ECUs. This allows a reduction of the amount of wiring on the vehicle.

- A bit is the basic unit of communication that is used to represent the amount of information. A bit is represented by binary values of “0” or “1”.
- A frame is a body of data that is transmitted together. A frame contains a header that indicates the beginning, and an end message that indicates the end.

► Conceptual Drawing ◀



240BE05



240BE03

■ DIFFERENCES BETWEEN CAN, BEAN AND AVC-LAN

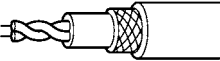
The protocols, which are the rules for establishing data communication, differ between the CAN, BEAN and AVC-LAN. If the ECUs in the networks use different types of frameworks for their data, such as communication speed, communication wire, and signals, they will be unable to understand each other. Therefore, protocols (rules) must be established among them.

Protocol	CAN	BEAN	AVC-LAN
Communication Speed	500 k bps* (Max. 1 M bps)	Max. 10 k bps*	Max. 17.8 k bps*
Communication Wire	Twisted-pair Wire	AV Single Wire	Twisted-pair Wire
Drive Type	Differential Voltage Drive	Single Wire Voltage Drive	Differential Voltage Drive
Data Length	1-8 Byte (Variable)	1-11 Byte (Variable)	0-32 Byte (Variable)

Bps*: abbreviation for “Bits Per Second”, indicating the number of bits that can be transmitted per second.

- Although BEAN and AVC-LAN have almost the same communication speed, CAN communication speed is much faster than BEAN and AVC-LAN.
- When the chassis control system uses BEAN and AVC-LAN with a slower communication speed than CAN, the slower communication speed means that system control could possibly be delayed.
- For this reason, the chassis control system uses CAN, which has a fast communication speed and can send and receive a large quantity of data at one time.

A single, AV (Automobile Vinyl) wire is used for BEAN communication. A twisted-pair wire is used for CAN and AVC-LAN communication.

Communication Wire	Outline
AV Single Wire  240BE09	This is a lightweight single communication wire that consists of a single core line surrounded by insulation. Voltage is applied to this line in order to drive communication, and this system is called a “Single Wire Voltage Drive”.
Twisted-pair Wire for AVC-LAN  240BE10	In this communication wire, a pair of lines are twisted together and covered with insulation. Communication is driven by applying positive (+) and negative (-) voltage to the two lines in order to send a single signal. This system, which is called a “Differential Voltage Drive”, can reduce noise.
Twisted-pair Wire for CAN  241BE168	

