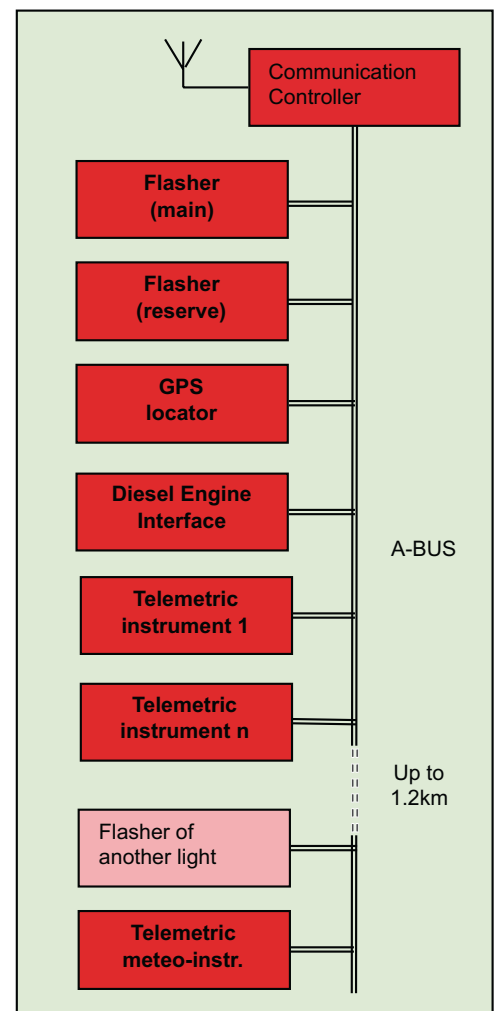


When designing a modern control and monitoring systems of aids to navigation, the modularity and openness of the system are the most important features for many customers. This means that any system could be changed by adding or taking away of equipment units without changing the whole system. It allows also building up a system gradually, step-by step in accordance with the financial and technical resources of a customer

The modularity and openness of EKTA's systems are achieved by designing the system as consisting of standard hardware and software modules which can be combined in different modifications for different systems. To connect the modules together at the lights level, there is the local area RS-485 twisted pair network, or A-BUS. To this network up to 23 nodes or equipment modules in any combination can be connected

Features

- Sending messages to other nodes and receiving messages from other nodes about current state of a node (power supply voltage under the load and standby, current consumption, statistics, logical state etc.)
- Exchange messages with the remote control and monitoring centre through communication controller
- Issuing commands to other nodes:
 - light ON/OFF status
 - lamp ON/OFF status
 - switch to next lamp status
 - synchronization of flashing
 - controller test
 - start Diesel engine
 - stop Diesel engine
 - clock synchronization
 - time synchronization
 - reset
- Exchanging information with other nodes
 - read working statistics
 - get identification information
 - clear error status
 - get device status
 - write new flashing pattern
 - get measurement results



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Specification

Physical standard of the network	RS-485
Transmitter signal voltage between “+DAT” and “-DAT”	
by sending logical “1”	+1.5 ... 5V
by sending logical “0”	- 1.5 ... 5V
Receiver signal voltage between “+DAT” and “-DAT”	
by receiving logical “1”	+0.2... +7V
by receiving logical “0”	-0.2 ... -7V
Input resistance of the receiver	>12kohm
Total Summary load of the network	>54kohm
Communication media	twisted pair or shielded twisted pair, recommended type 24AWG (0.2mm ²) with line impedance 100...300Ω
Length of the line	up to 1.2km, when the length exceeds 50m then using 120Ω terminal resistors at both end is recommended
Number of network nodes	up to 23
Data rate	9600 bps
Data format	start bit, 8 data bits, marker bit, 1 or more stop bits
Data coding	NRZ, asynchronous, half-duplex
Addressing	individual or group
Length of message	from 6 bytes up to 131 bytes max
Message package format	destination address, own address, length of package, user’s data up to 126 bytes , checksum, marker

