SOHARD
EMBEDDED SYSTEMS

SH ARC-HUB

8 channel ARCNET hub

Scope of application

The maximum expansion of an ARCNET network segment is limited by the signaling method. Hubs allow for the consecutive interconnection of several segments. But then, the suppression of bit jitter and the regeneration of signal levels and signal shapes have to be taken care of. Common hubs regenerate the signal levels, however, they do not reduce bit jitter but sometimes even increase it.

In contrast the SH ARC-HUB regenerates signals and reduces bit jitter. Since the throughput time is about 4.5 bit, the number of SH ARC-HUBs that can be cascaded is limited only by the timeout conditions of the connected ARCNET nodes.

Design & Functionality

The products of the SH ARC-HUB family are based on state-of-the-art PLD technology using the SH IP-CORE-ARCHUB by SOHARD. ARCNET signals will be read and regenerated while signal amplitude and shape as well as the timing pattern are being restored. That helps to optimally regenerate even very deferred signals.

The SH ARC-HUB offers 8 ARCNET channels with either BNC or RJ45 (sine dipulse signaling) or D-sub connectors (RS-485).

One green LED for each channel indicates the receiving activity while a red LED indicates reconfigurations. This allows for an immediate recognition of segments on which RECONs occur. The hub also contains one red LED indicating alert burst errors that might occur in instable networks. By permanent comparison of sent and received pulses the operation of the transceivers is monitored.

Key features

ARCNET interfaces: Either BNC plugs (for coaxial cables, sine dipulse), RJ45 plugs (for twisted pair cables, sine dipulse) or D-sub connectors (for twisted pair cables, RS-485)

Bit rate 2.5 Mbit/s; up to 10 Mbit/s with RS-485

Internal termination (93 ohm with BNC, 120 ohm with RJ45 and D-sub)

Transceiver monitoring

Signal regeneration for signal level and shape as well as timing pattern

Expandable for diagnosis functions

Delay time port to port: < 4.5 bit @ 2.5 Mbit/s

Jitter tolerance at reception: – 0.4 bit / + 0.4 bit

Output jitter: < 15 ns

Desktop version (115/230 VAC) or DIN mounting bracket module (24 VDC); the SH ARC-HUB-T8-AC correspond to the DC variant with external power supply

Specification

Compatibility	ANSI/ATA 878.1, CE for industrial environment
Power requirements	115/230 VAC + 10% / – 15%; 19–36 VDC; 30 W max.
Temperature range, operation	0°C to + 55°C
Temperature range, storage	– 20°C to + 85°C
Dimensions (w/h/d) in mm, without connectors	236/55/150 – AC type 236/44/150 – DC type
Weight	max 1.5 kg incl. packaging

Deviations are indicated by this red LED.

The design of the SH ARC-HUB (completely closed metal casing, filter for power supply and ARCNET connectors) ensures error-free operation and optimum EMC even in a rough industrial environment.

The hub may be ordered with a power connector for either 115/230 VAC or 24 VDC. The SH ARC-HUB is currently available as desktop version (AC variant) and with DIN track assembly (DC variant).

Order Information

Product name	Short description
SH ARC-HUB-K8-AC	ARCNET HUB with 8 coax channels for 2.5 Mbit/s, AC power supply
SH ARC-HUB-K8-DC	ARCNET HUB with 8 coax channels for 2.5 Mbit/s, DC power supply
SH ARC-HUB-R8-AC	ARCNET HUB with 8 RS-485/EIA-485 channels up to 10 Mbit/s, AC power supply
SH ARC-HUB-R8-DC	ARCNET HUB with 8 RS-485/EIA-485 channels up to 10 Mbit/s, DC power supply
SH ARC-HUB-T8-AC [1]	ARCNET HUB with 8 twisted pair channels for 2.5 Mbit/s, external AC power supply
SH ARC-HUB-T8-DC	ARCNET HUB with 8 twisted pair channels for 2.5 Mbit/s, DC power supply

[1] Dimensions like DC type track assembly only.
User manual and power cable (only by AC-model) are included with "SH ARC-HUB".