

KiHUB and KiHUB Advanced

On-board data acquisition system

Type K3878A,
K3879A

The KiHUB Type K3879A and KiHUB Advanced Type K3878A represent part of the new Kistler communication device family in order to link Kistler on-board measurement systems and ATDs used in automotive crash testing.

Basic functions of KiHUB are:

- CrashLink1 / CrashLink2 / DTI connectivity
- Power distribution and internal power backup
- Trigger distribution
- 8-port Ethernet switch
- Media converter

The KiHUB Advanced offers the following additional functions:

- Additional trigger input
- Additional trigger output
- USB connectivity

Both KiHUB versions have input connections for CrashLink2 trailing cable. The CrashLink1 connector can be utilized to connect a standard interconnection cable that can be used to interface with the widely used MINIDAU family. Common to both systems are six sockets for the connection of CrashLink2 devices such as nxt32 ATDs or KiDAU Data Acquisition units. DTI devices can also be connected via COMBox respectively MiniCOMBox. In addition, USB devices (i.e. nxt / MICRODAU technology) can be used on the KiHUB Advanced. Also, there are connections for trigger input (start of record, T0) and trigger output (T0).

Description

The KiHUB and KiHUB Advanced represent an intelligent terminal block that combines the different Kistler data acquisition systems with respect to communication, power and trigger distribution. The power supply of KiHUB / KiHUB Advanced is provided via the trailing cable (CrashLink2) plug-in point (range 20 ... 60 V) or the CrashLink1 (range 20 ... 36 V) connection. By default both plug-in points are decoupled internally by a diode in order to avoid unintended electrical surge on the CrashLink1 interface.

Furthermore the KiHUB / KiHUB Advanced is equipped with a battery for at least 240 seconds. This secures Ethernet communication and trigger event distribution in the case of power breakdown during test. For the KiHUB Advanced this time is programmable through the CrashDesigner software.



Technical data

Type		K3878A	K3879A
Weight	kg	1.3	1.2
Dimensions (LxWxH)	mm	231x64x70.5	231x64x70.5
Trailing cable detect SR delay	ms	200	200
Trigger bus distribution delay	µs	33	33
Minimum trigger pulse	µs	3	3
Interface 1 ... 6 Ethernet, twisted pair	MBit/s	100	100
Trailing cable Ethernet, twisted pair	MBit/s	100	100
CrashLink1 Ethernet coax 50 Ω	MBit/s	10	10
Power distribution fuse opens at 14 A after max.	s	60	60
fuse opens at 7 A after min.	h	4	4
Power supply	VDC	20 ... 60	20 ... 60
Power consumption	W	20	18
Operating temperature range	°C	0 ... 40	0 ... 40
Storage temperature range long term	°C	-25 ... 20	-25 ... 20
short term (<1 week)	°C	-25 ... 50	-25 ... 50
Humidity, max. (non-cond.)	%	80	80
Shock resistance, peak ¹⁾	g	100	100
Vibration resistance, random noise ²⁾	g _{rms}	5.4	5.4


¹⁾ Half sine wave for 6 ms in all axes

²⁾ 30 min. in all axes (5 ... 1 000 Hz)

Technical data (continuation)

Type		K3878A
Trigger bus T0 out to T0 out	µs	1.6
Min. T0 out turn on time	µs	2
Min. output trigger pulse	s	2
Min. input trigger pulse	µs	10
USB port full speed, USB 2.0	MBit/s	12
USB power out 5 V	VDC	4.9 ... 5.1
USB 5 V out max. current	ADC	0.6
USB power out DUMPOW	VDC	CLPOW ... 31
USB DUMPOW max. current	ADC	1.1

Ordering key

Variants		Type K387
KiHUB Advanced	8A	<input type="checkbox"/> 
KiHUB	9A	

Application

The default functionality of the KiHUB / KiHUB Advanced communication is a typical multiport Ethernet switch. 8 Ethernet ports are enabled. 7 of the 8 ports are assigned to the CrashLink2 bus as twisted pair 10/100BASE-T fast Ethernet. The eighth port is linked to the CrashLink1 plug-in point as COAX 10BASE2 Ethernet terminated with a 50 Ω resistance. A built in CrashLink1 to CrashLink2 bridge function acts as a media converter and allows to operate MINIDAU family devices in combination with nxt (only advanced version), nxt32 and DTI devices.

In addition, six galvanically isolated trigger buses are linked together. Is a trigger event detected by one of the trigger buses a 2 second pulse will be generated to the other buses. The trigger bus concept is part of the CrashLink specification and is realized by a dual channel differential bus providing a start of record trigger channel and a T0 trigger channel.

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