Electronics & Software

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KiHUB

Type K3879BQ0x

On-board data acquisition system

The KiHUB Type K3879BQ0x represents 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 all KiHUBs and Type K3879BQ00 are:
• CrashLink1 / CrashLink2 / DTI connectivity
• Power distribution and internal power backup
• Trigger distribution
• 8-port Ethernet switch
• Media converter
• Trigger input
• Trigger output

Additional feature of Type K3879BQ01:
• Integrated stepdown converter to supply CL1 devices with 30 V and 100 W, which allows the KiHUB and all connected CL2 devices to be supplied within their full range of 20 ... 60 V

Additional feature of Type K3879BQ02:
• EXT connector supplies 13,2 V and 100 W to third party devices. Also Ethernet, T0 and SR trigger are provided.

Additional feature of Type K3879BQ03:
• Same as K3879BQ00, but with RS-485 sync output.

The KiHUB has an input connection for a CrashLink2 trailing cable. The CrashLink1 connector can be utilized to connect a standard interconnetion cable that can be used to interface with the widely used MINIDAU family. Common to all systems are five or six sockets, depending on type of KiHUB, 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. Also, there are connections for trigger inputs (start of record, T0) and trigger output (T0 and SR).

Description

The KiHUB represents 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 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 is equipped with a battery runtime of at least 240 seconds. This secures Ethernet communication and trigger event distribution in the case of power breakdown during test. This time is changeable through an internal DIP switch.

Technical Data

Type		K3879BQ0x
Weight	kg	1,3
Dimensions (LxWxH)	mm	231x64x77,2
Trailing cable detect SR delay	ms	200
Trigger bus distribution delay	µs	33
Minimum trigger pulse	µs	3
Interface 1 ... 5 and EXT Ethernet, twisted pair	Mbps	100
Trailing cable Ethernet, twisted pair	Mbps	100
CrashLink1 Ethernet coax 50 Ω	Mbps	10
Power distribution fuse opens at 20 A after max.	s	5
fuse opens at 10 A after min.	h	4

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Technical data (continuation)

Type		K3879BQ0x
Power supply	VDC	20 … 60
Power consumption	W	20
Power supply EXT[1]	VDC	13,2
Power consumption EXT[1]	W	100
Power supply CL1[2]	VDC	30
Power consumption CL1[2]	W	100
Operating temperature range	°C	0 … 40
Storage temperature range		
long term	°C	–25 … 20
short term (<1 week)	°C	–25 … 50
Humidity, max. (non-cond.)	%	80
Shock resistance, peak[3]	g	100
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

[1] Only in Type K3879BQ02
[2] Only in Type K3879BQ01
[3] Half sine wave for 6 ms in all axes

Ordering key

Type K3879BQ ☐

Variants

No DC/DC converter	**00**
CrashLink1 DC/DC converter	**01**
EXT DC/DC converter	**02**
Sync output	**03**

Application

The default functionality of the KiHUB 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, nxt32 and DTI devices.

In addition, six galvanically isolated trigger buses are linked together. If a trigger event is 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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