KIMDU TECHNOLOGIES

2025 PRODUCT CATALOG

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AMTIVO
ISO 9001:2015
AS9100 D
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KIMDU TECHNOLOGIES

General Purpose Converter Unit

General Description

GPCU

The Kimdu Technologies' General Purpose Converter Unit (GPCU) is a flight-qualified, COTS piece of equipment that contains ARINC-429 channels, RS-232/422 channels, an optional Dual-Redundant Mil-Std-1553B interface, 10/100 Ethernet, USB, and a CAN or AeroCAN interface, A/D inputs, Discrete I/O and audio multi-tone generator. It can be used to translate between the different protocols when supplied with system-specific firmware. The protocol conversions are performed by the embedded ARM processor. The ARINC-429 interface includes a number of options including: Data Rate (12.5Kbps/100Kbps) and Parity (Normal/Disabled) on a per channel basis. There are up to four serial ports which can operate a various baud rates.

Firmware Uploading Operation

The GPCU has a dedicated serial port for firmware updates. Firmware upload is easily accomplished in the field by using the supplied "Loader" software utility along with a PC with a serial port or RS-232/USB adapter. A serial HEX file can be supplied that can be uploaded to the GPCU at the customer's site.

Customization

The GPCU contains an internal mezzanine card socket that allows for the addition of custom interfaces. Contact the sales group at Kimdu Technologies for details.

FEATURES:

- **COTS**
- **Protocol Conversion between multiple interfaces**
- **Ruggedized, Qualified Unit**
- **MIL-38999 Connectors**
- **Mil-Std-704 28vDC**
- **Mil-Std-461**
- **Mil-Std-810**

QUALITY SUPPORT

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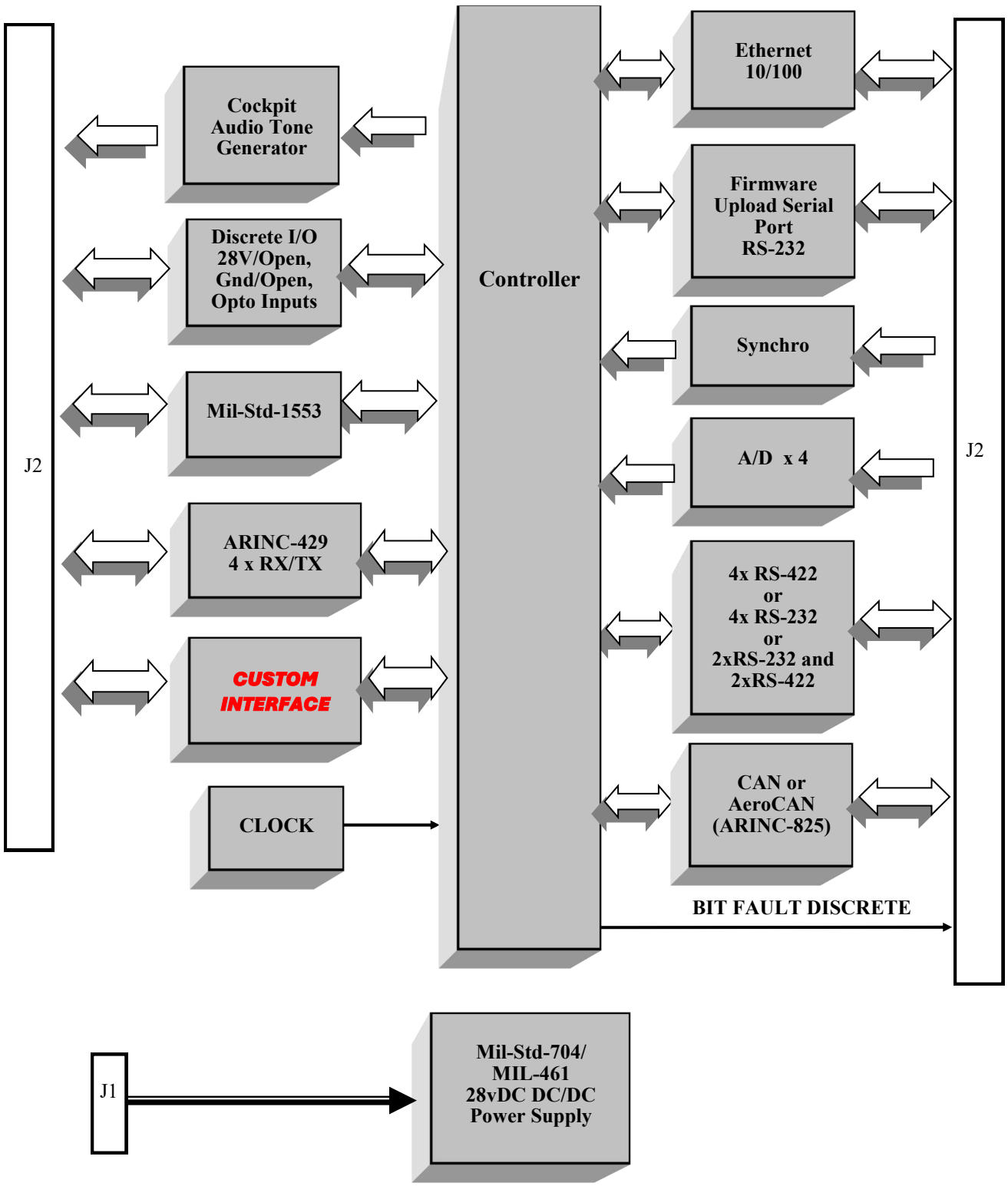

GPCU FUNCTIONAL BLOCK DIAGRAM

4-CHANNEL, 100A SOLID STATE POWER CONTROLLER

General Description

The Kimdu Technologies' 4-Channel, 100A, Solid State Power Controller operates from a nominal 28vDC power source and can safely switch power to four independent output channels. Each channel has a maximum rating of 25A. Output channels can be paralleled for additional current.

The SSPC can be controlled via standard and optional interfaces. The standard interfaces include an isolated, bi-directional RS-422 interface and discrete input control. Optional interface include MIL-STD-1553, CAN 2.0, and Ethernet 10/00. Kimdu Technologies can also supply custom host interfaces per your requirement. The SSPC implements continuous BIT, monitors voltages and currents and implements an I^2T algorithm.

Status Outputs

The SSPC supplies status during its operation. Voltage and currents levels along with Trip conditions can be monitored by issuing commands to the SSPC.

Contact the sales group at Kimdu Technologies for details.

FEATURES:

- **100A, Four Channel, SSPC**
- **25A per Channel**
- **Ruggedized Unit**
- **Continuous BIT**
- **I^2T**
- **Battle Mode**
- **BIT & TRIP Discrete Outputs**
- **Mil-Std-704 28vDC**
- **MIL-38999 Connectors**

User Interfaces include:

- **RS-422**
- **Discretes**
- **CAN 2.0, ARINC-825 (option)**
- **Ethernet (option)**
- **Mil-Std-1553 (option)**

- **Dimensions: 8.54" x 4.7" x 2.2"**

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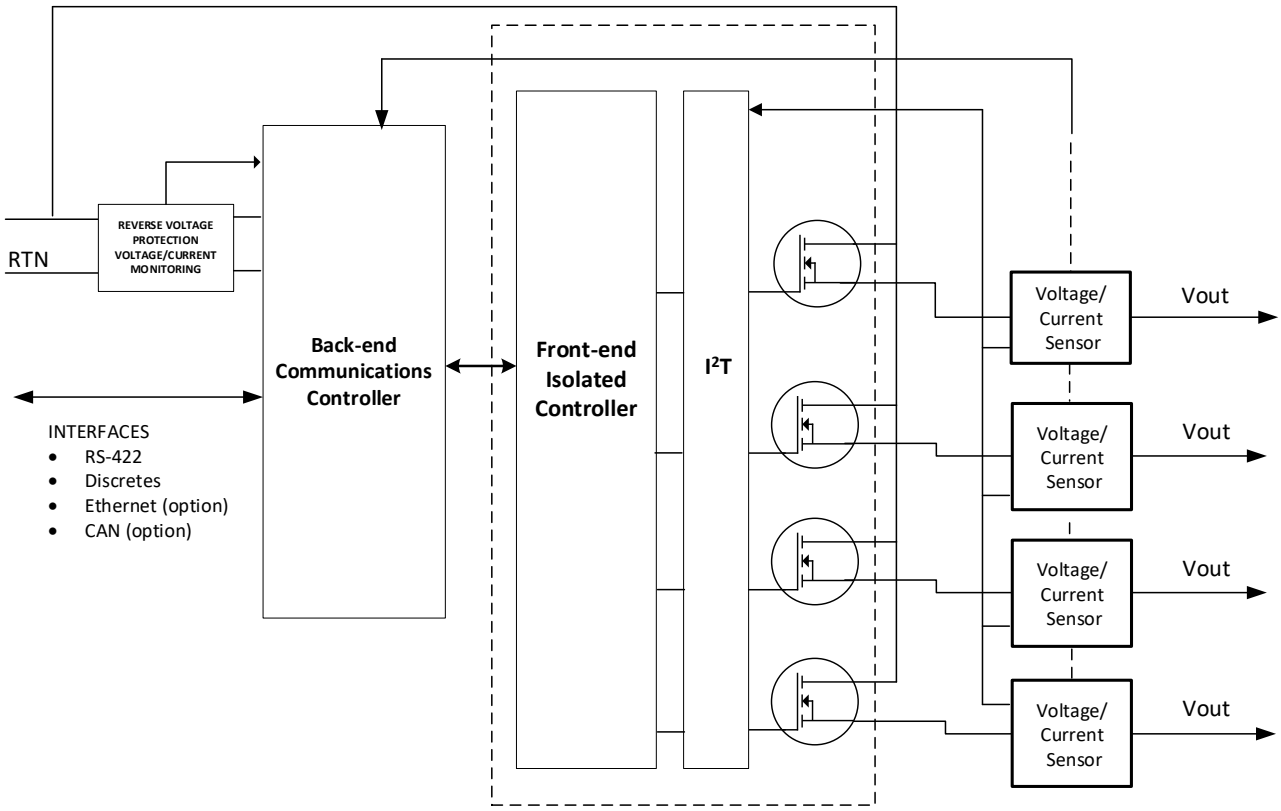
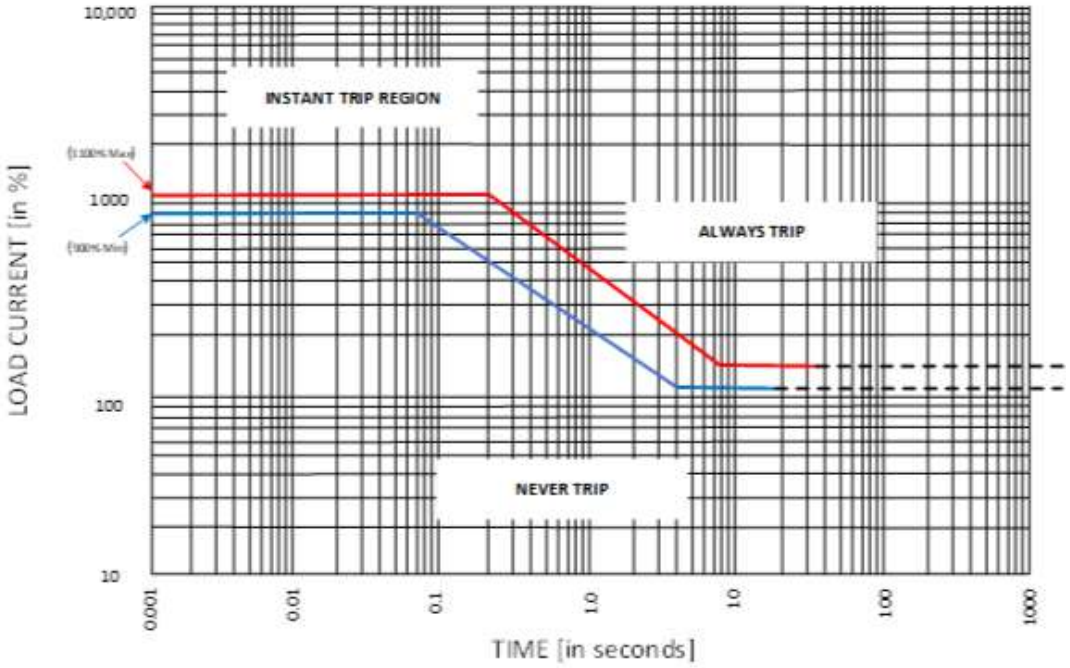


SSPC FUNCTIONAL BLOCK DIAGRAM



I2T GRAPH PER CHANNEL

Ordering Part Number: KSSPC-28-25-4-C0

Rev A

Avionics Serial Interface Unit
Protocol Converter

General Description

The Kimdu Technologies' Avionics Serial Interface Unit (ASIU) is a flight-qualified, COTS piece of equipment that can be ordered with eight ARINC-429/575 channels (4 transmitters and 4 receivers), up to two ARINC-561 channels (2 transmitters and 2 receivers), four RS-232/422 channels, a Dual-Redundant Mil-Std-1553, 10/100 Ethernet, and a CAN2.0 or AeroCAN interface. It can translate between the different protocols using the Kimdu Technologies default protocol or by a customer-supplied definition. The protocol conversions are performed by the embedded CPU. The ARINC-429 interface includes a number of options including: Data Rate (12.5Kbps/100Kbps) and Parity (Normal/Disabled). There are up to four serial ports which can operate a various baud rates. The Mil-Std-1553 interface can operate as either a Bus Controller, Remote Terminal or Bus Monitor. An internal mezzanine [Adapter] Board socket allows for custom interfaces to be easily added.

Firmware Uploading Operation

The ASIU has a dedicated serial port for firmware uploads. Firmware upload is easily accomplished in the field by using the Kimdu-supplied "Loader" software utility and a PC with a serial port. A serial HEX file can be supplied that can be uploaded to the ASIU at the customer's site.

Discrete I/O

The ASIU contains an optional BIT discrete output which is under software control. The operation of this bit is determined by the customer's requirement. Contact the sales group at Kimdu Technologies for details.

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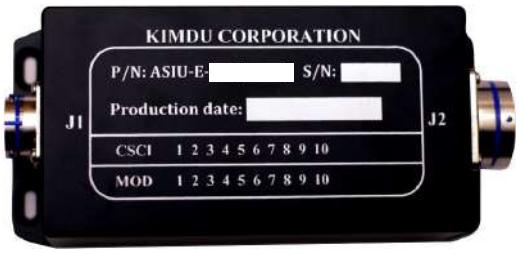
ASIU-E



FEATURES:

- **COTS**
- **Protocol Conversion between multiple interfaces**
- **Ruggedized, Qualified Unit**
- **MIL-C-26482 Connectors (MIL-38999 can be ordered)**
- **Mil-Std-704A-F 28vDC Power Supply**
- **Optional BIT Discrete Output**

Up to 8 ARINC-429 Channels

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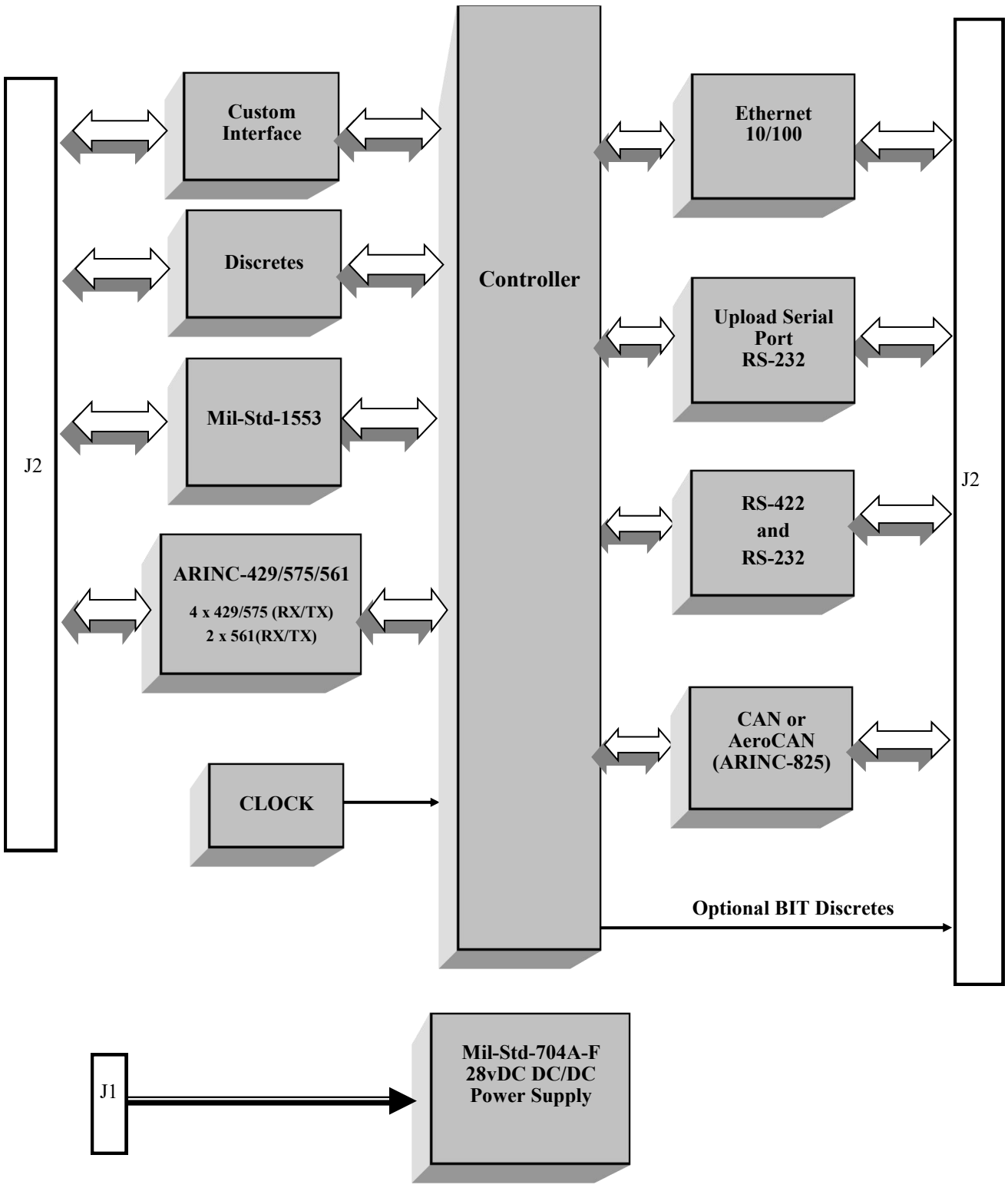

ASIU FUNCTIONAL BLOCK DIAGRAM

SSIU-T
Serial to Synchro Interface Unit

General Description

The Kimdu Technologies newly updated Type 'D' Serial to Synchro Interface Unit (SSIU-T) contains up to four, isolated, independent, 16-Bit Digital-to-Synchro converters. The serial input data is decoded by the embedded CPU and written to the Synchro Converters. The user defines, via the serial bus, the synchro channel to be updated along with the angle data. In addition, the latest Type 'D' version includes extensive BIT testing and status reporting capability. There is an additional, dedicated, RS-232 Serial Port for firmware uploads allowing field-programmable firmware updates. ARINC-429 is an optional serial input to the SSIU-T for ARINC-407 applications. Other optional interfaces include Ethernet 10/100, Mil-Std-1553B, and custom interfaces. Contact Kimdu sales for information. The SSIU-T is supplied with MIL-38999 connectors.

Field-Upgradeable Operation

The SSIU-T allows for uploading firmware upgrades at your site avoiding having to send the unit back to the factory. There is an I/O connector pin that controls the mode; 'Run' or 'Program'. Wire an RS-232 cable to the J2 I/O connector or use an RS-232 to USB dongle adapter along with a free PC-based software utility and upload a Kimdu-supplied Hex file to the SSIU-T.

FEATURES:

- **Up to Four Synchro Channels**
- **90v or 11.8v @400Hz Operation**
- **Ruggedized Unit**
- **RS-232 or RS-422 Interface**
- **16-bit D/S Converter Resolution**
- **Up to 4.5VA Output per channel**
- **Optional Interfaces:**
  - **ARINC- 429**
  - **Ethernet**
  - **Mil-Std-1553B**
  - **Custom**
- **MIL-38999 Connectors**
- **Mil-Std-704 28vDC Power Supply**
- **Designed to meet Mil-Std-704F/461D**

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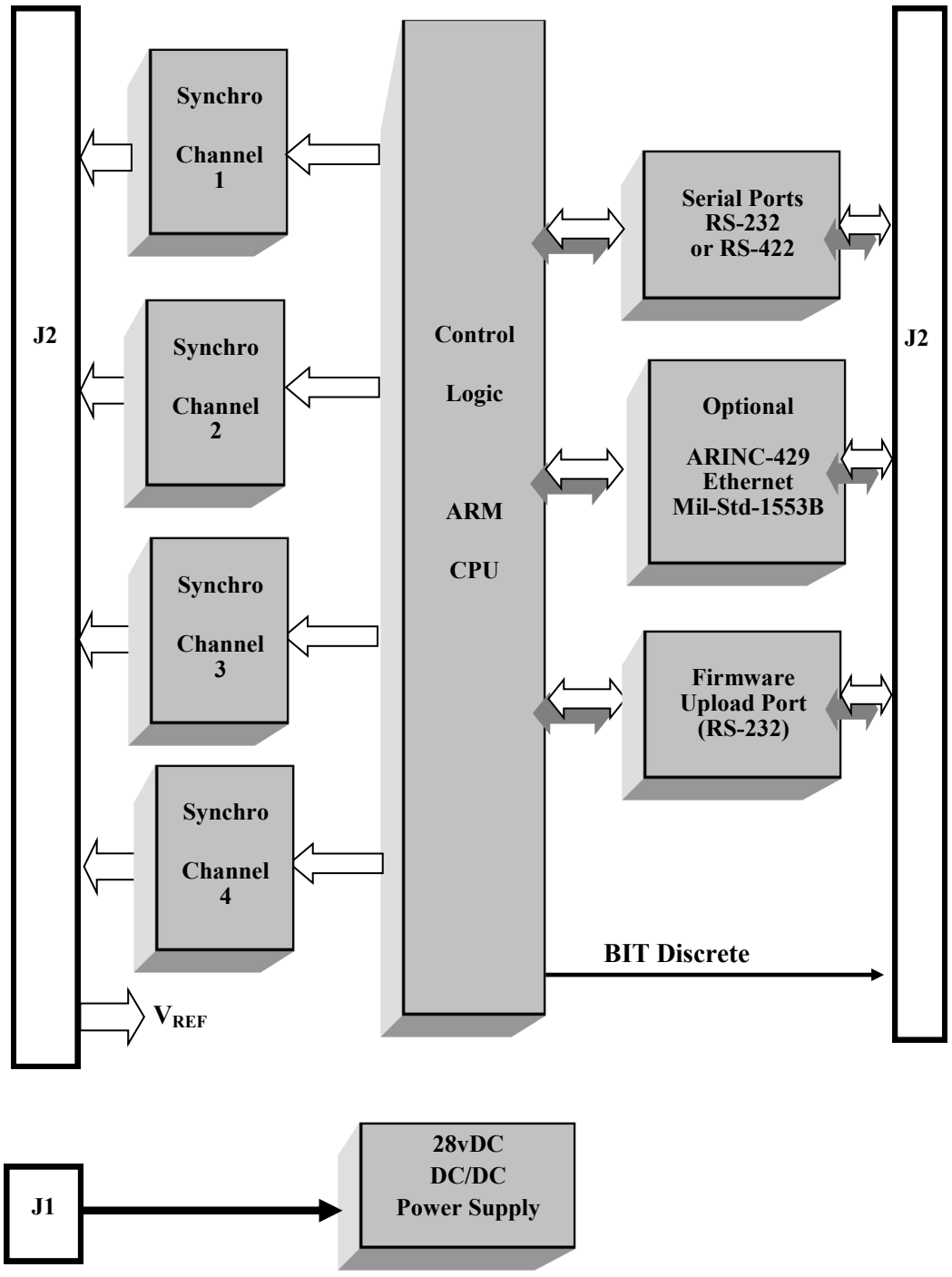

FUNCTIONAL BLOCK DIAGRAM

SSIU-C
Synchro to Serial Interface Unit

General Description

The Kimdu Technologies COTS Synchro to Serial Interface Unit (SSIU) contains up to three independent, 16-Bit monolithic tracking Synchro-To-Digital converters. The digital outputs are translated and formatted by the embedded CPU and transmitted serially over both RS-232 and RS-422 interface ports. The serial data is tagged with header which indicates the synchro channel that the data was received on. There is an additional, dedicated RS-232 Serial Port for firmware uploads allowing field -programmable firmware updates. Both ARINC-429 and Ethernet 10/100 output options are available.

Uploading Firmware Operation
The SSIU allows for uploading firmware upgrades at your site; avoiding having to send the unit back to the factory. Wire an RS-232 cable to the J2 I/O connector or use a USB/RS-232 dongle adapter along with a free PC-based software utility and upload a Kimdu-supplied Hex file to the SSIU. Firmware modifications can include optional baud rates and serial sample/transmission update rates.

Optional BIT/Fault Operation
The SSIU contains BIT capabilities in both the hardware and software levels. The BIT discrete is a GROUND/OPEN type signal. The use of BIT and the conditions which activate the BIT output can be defined by the customer. Call Kimdu Technologies for details.

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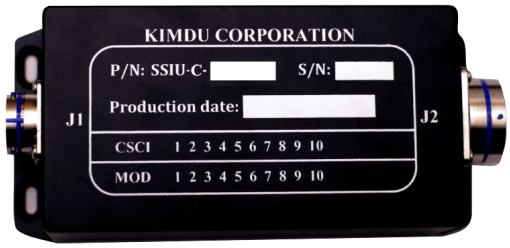

FEATURES:

- **Up to Three Synchro Channels**
- **Outputs: RS-232/422**
  - **ARINC-429 (option)**
  - **Ethernet 10/100 (option)**
  - **MIL-STD-1553 (option)**
- **Ruggedized, Qualified Unit**
- **Choice of Synchro Accuracies**
  - ◊ **2-Minute** (+1 LSB)
  - ◊ **3-Minute** (+1 LSB)
  - ◊ **5-Minute** (+1 LSB)
- **16-bit S/D Converter Resolution**
- **MIL-C-26482 or MIL-38999 Connectors**
- **Mil-Std-704 28vDC Power Supply**
- **BIT Testing with Discrete Output**

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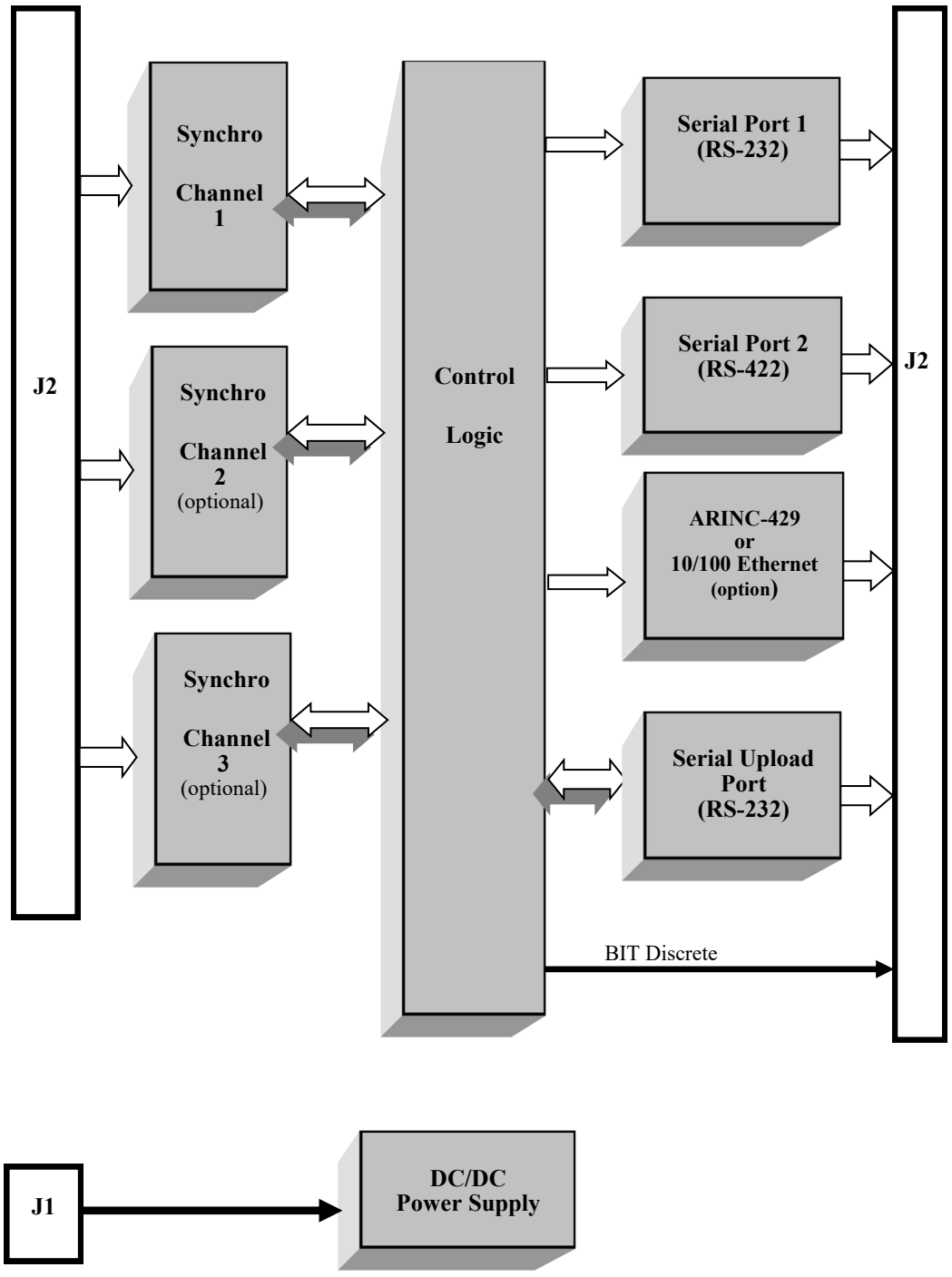

FUNCTIONAL BLOCK DIAGRAM

PT-100 Avionics Portable Flight Line & Lab Test Unit

General Description

The Kimdu Portable Test Unit (PTU-100) is a rugged, hand-held device that can operate in the Test, Analyzer, and Monitor modes for the most widely used avionics data buses including ARINC-429, CAN, ARINC-825 (Aero CAN), MIL-STD-1553, RS-422/232, Discrete I/O, Analog Inputs and Ethernet 10/100. In addition, customized hardware can be installed to allow for the addition of special functions such as Discrete I/O, A/D, D/A, Relays, and customer-defined interfaces. The customized hardware is accompanied by customized GUI interface software. Contact Kimdu sales for details.

Display

The unit comes with a 7-inch Resistive, Touch Screen Display with a protective layer. The display resolution is 800 x 480.

Software

In addition to the many data buses supported along with standard software packages, Kimdu can offer customized

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FEATURES:

- Hand-Held Rugged Device
- Use as Tester & Monitor/Analyzer
- Supports the following Interfaces
  - ARINC-429
  - CAN
  - ARINC-825 (Aero CAN)
  - Mil-Std-1553
  - RS-422/232
  - Ethernet
  - Discrete I/O
  - Analog
  - Custom Interfaces
- Easy to Use GUI Software
- Custom Hardware & Software Available
- Rechargeable Battery w/Charger
- Glove Compatible

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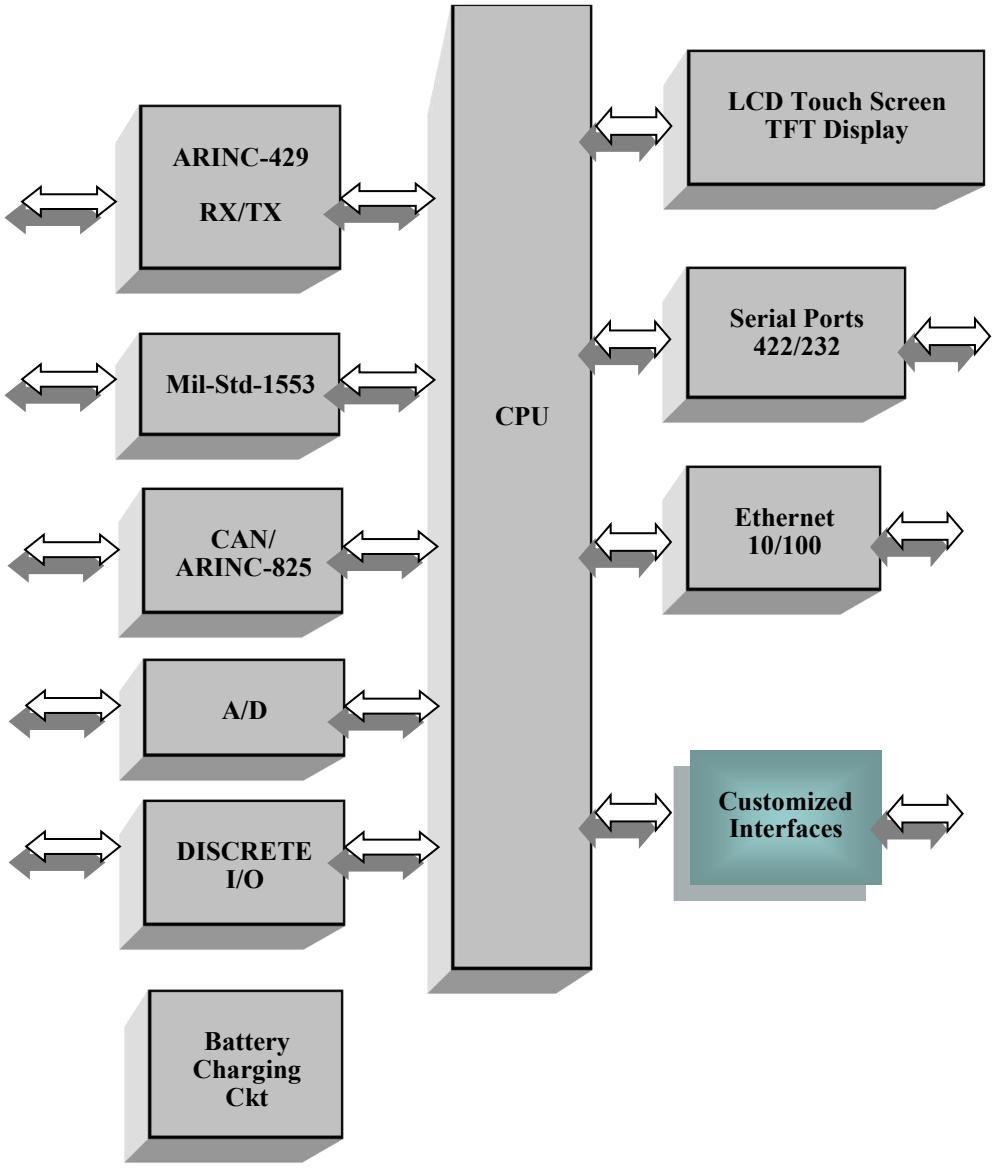

PTU BLOCK DIAGRAM SHOWING OPTIONAL INTERFACES

MIL-704 DC/DC Power Module

General Description

The Kimdu Technologies low-cost Mil-Std-704 compatible COTS power supply module is a rugged, high-efficiency power supplies for industrial and rugged applications.

The single-voltage module can be ordered with different output voltages such as 12v, 5v, and 3.3v. The customer can order the module with a non-standard output voltages - contact Kimdu Technologies for information. The module can operate over a temperature range of -40°c to +71°c.

The multiple-voltage module can also be supplied with a number of output voltages such 12v, 5v, 3.3v. Non-standard voltages are available, as well.

The mechanical size and shape can easily be modified according to the customer requirements.

FEATURES:

- **Small Efficient Models**
- **28vDC Nominal Input Voltage**
- **Reverse Polarity Protected**
- **Mil-Std-704 Compatible**
- **Single and Multiple Outputs**
- **Miniature Mil-38999 Connector or Sealed D-Type**
- **Semi-Custom and Custom Modules Available**

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KIMDU INTERNATIONAL, LTD.

DigiSquib™

General Description

The Kimdu International DigiSquib™ offers a new concept in safe reliable, remote switching of power sources. The DigiSquib™ replaces pyrotechnic switches in many applications.

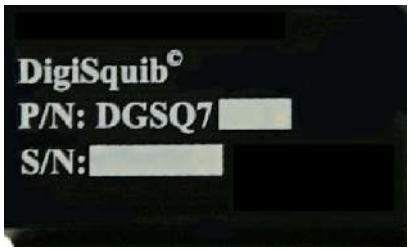
The DigiSquib™ is initiated by supplying an external voltage for a minimum time period. DigiSquib™ is self-powered, using the input source voltage as its initial supply voltage and then operating from the switched power source after activation. The DigiSquib™ has two control inputs, the activation voltage and the PROTECT override.

The activation voltage initiates the DigiSquib™ operation while the protect pin operates as an safety/enable. The protect input is only polled by the device for a specific time period after which the signal is ignored by the device. This ensures that the state of the protect line after the end of the period will not affect the operation.

Customization is our specialty.

Operating Temperature: -40°c to +71°c

QUALITY SUPPORT



FEATURES:

- Replaces Pyrotechnic Switches
- Safe and Reliable
- For Normal & Inductive Loads
- Programmable Delay Timing
- External Protect Signal
- Programmable Protect Window
- Initiated via external power source
- Reusable
- Flight Tested
- Different Models Available
- SMT or Thru-Hole mounting
- Options:
  - Serial Interface

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General

The DigiSquib™ has two standard control inputs, the activation voltage (Vext) and the "protect" override. The activation voltage activates the DigiSquib™ while the PROTECT pin operates as an safety/enable. This pin is left open for normal operation and grounded to disconnect the [system] output voltage from the DigiSquib™ input (see **Timing** below). The system power source (i.e. battery) is directly connected to the DigiSquib™ (Vin pins) and its output (Vout) is connected to the system electronics.

Protect

The Protect input offers the user a means to return from activation and to safely disconnect the input source voltage from the output [system] voltage. This feature is extremely useful in situations where communication is lost with the system after connection to the internal power source. Using the Protect line, you can disconnect the internal voltage (i.e. battery) from the system and then remove power (Vext) from the DigiSquib™. This renders the DigiSquib™ un-powered and inactive. The current method is wait for the internal power source to expire.

Timing

The DigiSquib™ has a number of timing factors that can be factory-programmed per customer requirement. These include:

- **Activation time:** The time required for the voltage to be applied on the Squib Voltage activation pin (Vext). This feature ensures that voltage spikes will not activate the DigiSquib™. Default=500µsec.

- **Protect Timing:** The maximum time [window] allowed for the return to the "Protected" state ***after*** activation, is factory programmable. After this time [window] period, the PROTECT signal is ignored by the DigiSquib™ and the DigiSquib™ will remain activated. The only way to disconnect the power to the electronics is by disconnecting the power source (i.e. battery) and Vext. The DigiSquib™ can be activated again by following the standard activation sequence.

Optional Control Inputs:

Serial Bus

The DigiSquib™ can be ordered with an optional serial interface. This interface allows for the control of DigiSquib™ and the programming of the timing values defined above. Contact factory for details.

Accelerometer

The DigiSquib™ can be ordered with an optional [internal] accelerometer. Different versions are available. Contact factory for details.

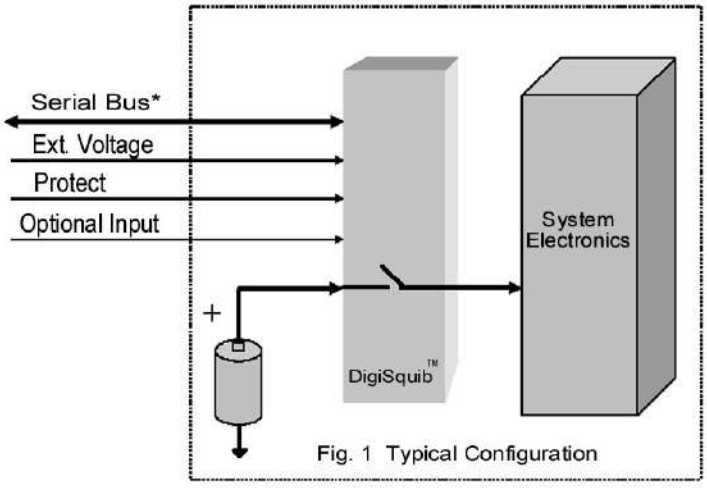
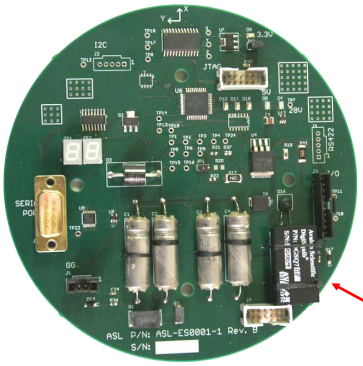
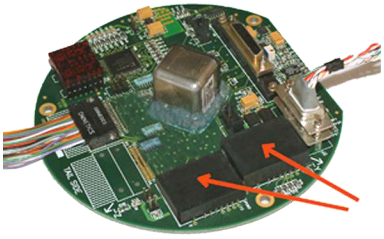


Fig. 1 Typical Configuration



Digisquib shown on a Kimdu Electronic Safe & Arm Board

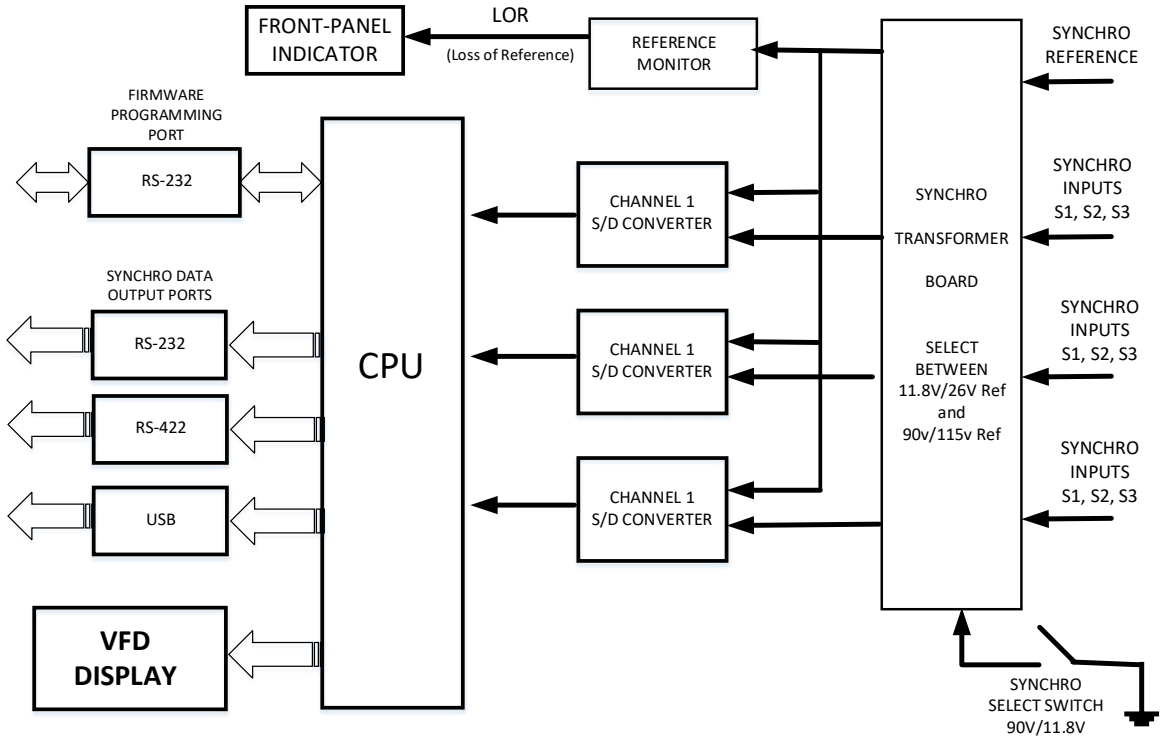


Two Digisquibs shown on a Kimdu Course Correction Pulser Interface Board

AIU-100
3-Channel Portable Synchro Angle Indicator Unit

General

The Kimdu AIU-100 is a three-channel Portable Synchro Angle Indicator Unit. The AIU-100 can operate with 90v or 11.8v synchro levels (26v or 115v Reference) which is selectable via a front-panel switch. A 4-line VFD display shows the angle for each of the three synchro channels. In addition, the AIU outputs the data in ASCII over RS-232, RS-422 and USB ports on the back panel. The AIU-100 monitors the presence of the reference voltage and indicates a loss of reference via a front-panel indicator lamp. The AIU-100 begins operation when power is applied and continuously updates both the front-panel display and the serial outputs. The unit is powered from 110~240vAC 50/60Hz.



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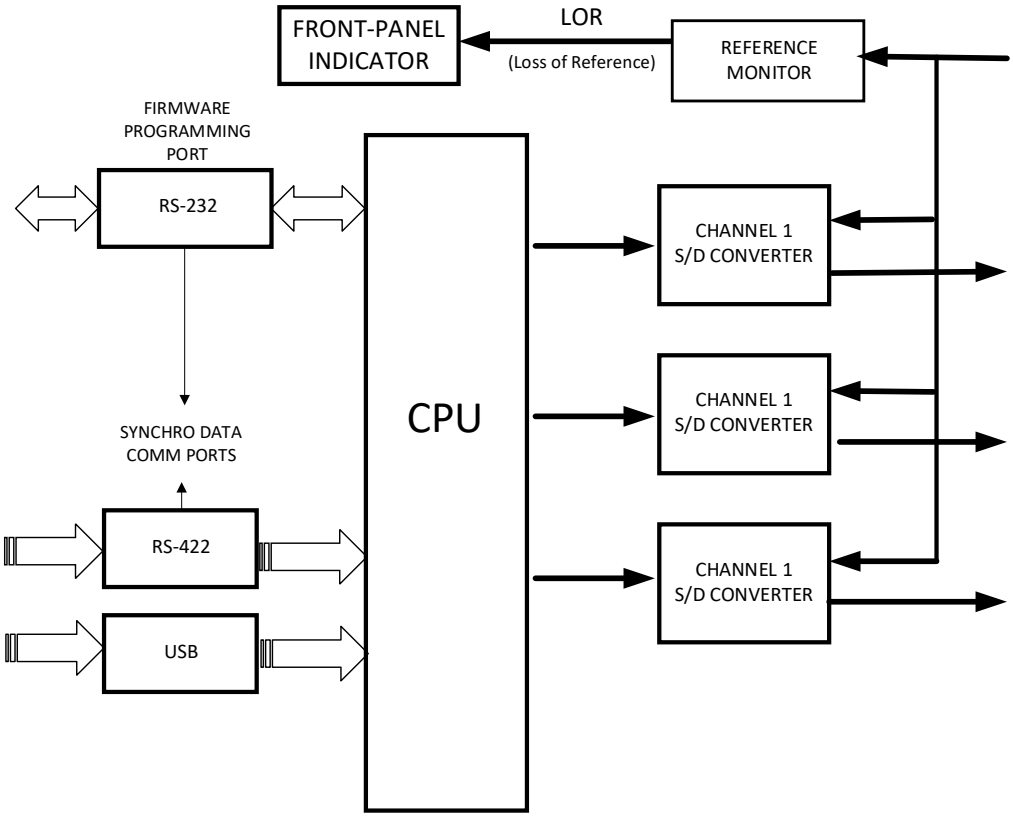
AGU-100
2~4 Channel Portable Synchro Angle Generator Unit

General

The Kimdu AGU-100 is a portable Synchro Angle Generator Unit. The AGU can be supplied with up to 4 output isolated channels. The AGU-100 can be ordered with 11.8v or 90v synchro output levels (26v or 115v Reference).

The AGU is controlled by a PC-based Kimdu GUI software and interfaced using either an RS-422 or USB interface. The unit is powered from 110~240vAC 50/60Hz. .



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KIMDU INTERNATIONAL, LTD.

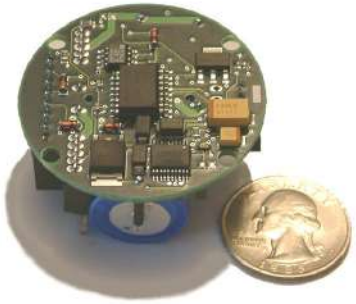
ES&A and INITIATOR SERIES

General Description

The Kimdu Technologies programmable Electronic Safe & Arm (ES&A) and Initiator boards can, in many systems, replace electro-mechanical *Safe and Arm* devices. The Kimdu series of products are controlled by an on-board microcontroller which, along with the accelerometer and safety devices, makes up the heart of the design. In its basic configuration, the boards test discrete inputs (i.e. Umbilical Separation) along with other conditions, charges its Charge Capacitor, wait a programmable delay period, and finally releases the igniter safety before initiating its Fire sequence.

Other inputs include both External and Internal power status lines and an on-boar accelerometer which is tested before the board generates its fire pulse across the load. The timing (i.e. between the "separation" and firing) is programmable via the microcontroller. Other timing variables and test/safety sequences can be modified by Kimdu according to the specific requirements of the customer. In addition to the other safety features, the output pulse generator stage is also protected (shorted to ground) until the initiator is ready to fire and the other safety conditions have been met.

The mechanical size and shape can easily be modified according to the customer requirements. The initiator's output pulse/current value can also be modified to meet the load and timing specifications. Multiple-output versions available.



FEATURES:

- **Miniature Electronic Pyrotechnic Initiators**
- **Programmable Delays**
- **Serial Communications Port**
- **Safety Features**
- **Inputs Include:**
  - **Umbilical Separation**
  - **External Power**
  - **Battery Power**
  - **Acceleration**
  - **Communication Command**
- **On-board MEMS Accelerometer**
- **Custom and Semi-Custom Designs to meet you electrical and Size Requirements**
- **Flight Tested**

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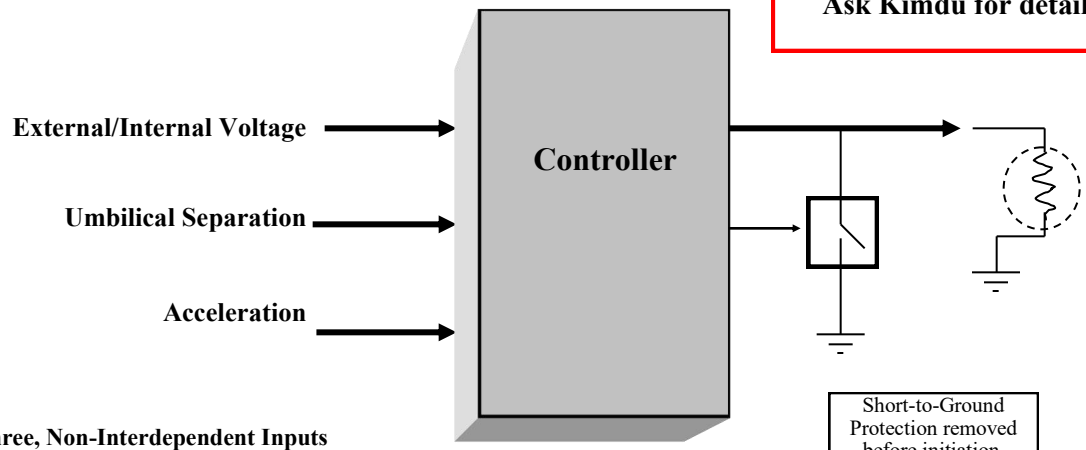
Operational Features
♦ Solid-State, Electronic Initiator (no moving parts)
♦ High-Accuracy, Microprocessor Controlled
♦ Programmable Initiator Timing Delays
♦ Programmable Igniter Pulse Width Timing
♦ Safety Features (Output Shorting Switch, Test: Ground/Air Voltages, Separation, Acceleration)
♦ Host Serial Interface option
♦ On-board MEMS Accelerometer
♦ Operates from nominal 28vDC supply (low voltage step-up adapter available)
♦ Current/Voltage values (charge capacitor size) according to customer specifications

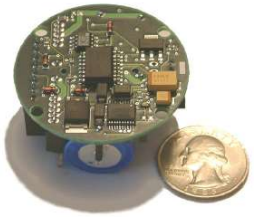
Safety Features

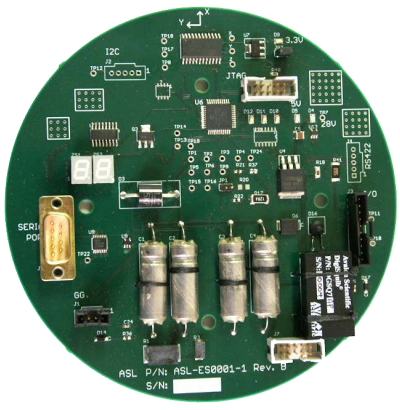
Multiple-Output versions are available. Ask Kimdu for details.

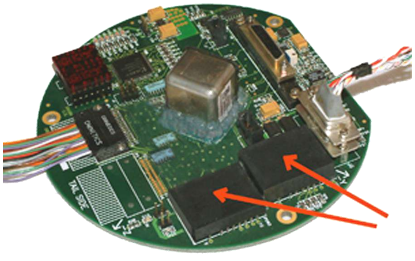


Three, Non-Interdependent Inputs [plus Charging Voltage] and output short-circuit protection offer a high level of Safety.

FUNCTIONAL BLOCK DIAGRAM







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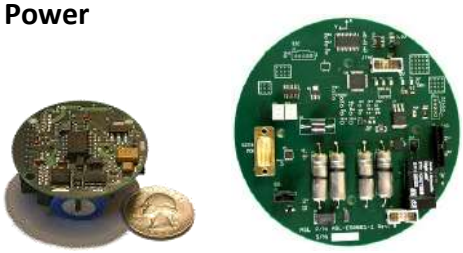

Custom and Semi-Custom Electronic Safe & Arm boards

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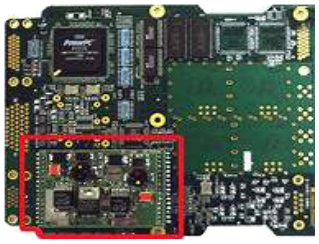
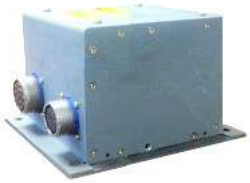
- **C-130; Torque to 429 Converter**
- **A-10; 'Warthog' Synchro/Nav System**
- **Navigation Computer Card**
- **C-130; Brake Temperature Monitor System**
- **Solid-State Heater Controller**



Custom Multi-Channel GPS Flight Computer

Power Distribution and Control Units



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