





### IEEE® 802.3af/at/bt PoE PD with Active Clamp Flyback/Forward DC-DC Controller

## EVAL Kit Physical Contents

Item #	Description	Quantity
1	KTA1140 (+KTB2140) Evaluation board fully assembled PCB	1
2	Anti-static bag	1
3	KTA1140 (+KTB2140) Quick Start Guide, printed 1 page (A4 or US Letter)	1
4	EVAL Kit box	1

## QR Links for Documents

<p><b>KTA1140 IC Datasheet</b></p>  <p><a href="https://www.kinet-ic.com/kta1140/">https://www.kinet-ic.com/kta1140/</a></p>	<p><b>KTA1140 (+KTB2140) EVAL Kit Landing Page</b></p>  <p><a href="https://www.kinet-ic.com/kta1140euag-wb-mcev01/">https://www.kinet-ic.com/kta1140euag-wb-mcev01/</a></p>
<p><b>KTB2140 IC Datasheet</b></p>  <p><a href="https://www.kinet-ic.com/ktb2140/">https://www.kinet-ic.com/ktb2140/</a></p>	<p><b>KTA1170 IC Datasheet</b></p>  <p><a href="https://www.kinet-ic.com/kta1170/">https://www.kinet-ic.com/kta1170/</a></p>

## User-Supplied Equipment

### Required Equipment

- Power Sourcing Equipment (PSE), PoE power injector or PoE powered network switch that can source 48V at 90W or greater.
  - Alternatively, a bench Power Supply may be substituted for a PoE power injector, but this will bypass the KTA1140 functionality. Such a supply should provide 37V-57V up to 3A as needed for intended application.
  - When sourcing power from non-compliant PSE environments, which have no PD detection or handshaking, ensure that the fastest rise time is 15µs from 10%-90% of 57V (maximum from POWER\_ON to POWER\_UP as per the IEEE802.3 standards).
- CAT-5, CAT-5e or CAT-6 RJ45 M/M ethernet cable, 1m length or shorter.
- Digital Multimeters, two required – used to measure input/output voltages and currents.
- Load – any of the following may be used:
  - Electronic load capable of sinking 12V at 6A (72W)
  - Power Resistor - 2Ω / 72W or greater value is required
  - Actual system load that does not exceed 72W at 12V
- Test leads:
  - One pair of banana-to-clip test leads to connect a voltmeter to the eval board VIN and AGND
  - Two pairs of banana-jack test leads to connect VO+/VO- to an electronic load and volt meter

### Optional Equipment

- Oscilloscope with 10x probes to monitor switching regulator waveforms



### Quick Start Procedures

The output voltage of this board is set to 12V by the Kinetic Technologies KTA1140 controller. There are two methods to power KTA1140 (+KTB2140) evaluation board:

#### Method 1: Connect to PSE

1. Connect a voltage meter between the VIN and AGND test points to monitor the input supply voltage.
2. Connect a voltage meter to the VO+ and VO- output jacks to monitor the regulated output voltage.
3. Connect the load to the output VO+ and VO- output jacks.
4. Connect the RJ45 ethernet cable from the PSE into the evaluation board ethernet Jack J1. The board will automatically start up.

#### Method 2: Connect to Local Power Supply

1. Connect one pair of power cables to the Test pins (Adapter+ and Adapter-) of EVAL Kit.
2. Before connecting the EVAL Kit to the bench power supply, turn on the supply and adjust the voltage as close to 0V as possible. Then disable the power supply output or turn the supply off. While disabled or off, connect the Adapter + / Adapter - power cables' ends to the bench supply.
3. Connect a voltage meter to the VO+ and VO- output jacks.
4. Connect the load to the output VO+ and VO- output jacks.
5. Turn on the bench supply and very slowly ramp its voltage to an appropriate voltage, such as 48V (37V ~ 57V). While ramping bench supply slowly, use the bench supply's output current indication (or a digital multimeter) to monitor the bench supply current. If the current becomes high, reduce the bench supply voltage quickly to prevent damage. Then inspect the setup for any wiring errors.
6. Verify 12 Volts on the VO+ / VO- output jacks.
7. If power is sourced from a non-compliant PSE and supplied through an RJ45 ethernet cable, see Required Equipment section above, item 1b.