

KHz Ranging Engine

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Metal Technologies Pty Ltd and NiCT have developed the KHz Ranging Engine (the KRE).

KRE General Features

One box with RGG (range gate generator) and ET servers, separate 100BaseT LAN communications to each server.

2U high, 19" rack-mounting package

100~250VAC 45~65Hz, 1Φ

RGG Server Features

500MHz base frequency multiplied from 10MHz precision input, 2ns granularity on signals

Signal inputs:

10MHz

1pps

Signal outputs:

buffered 10MHz, 1MHz, 1pps (two each)

6 sequential triggers for firing the laser, configurable delays between each

2 range gates, configurable widths and delays

Epoch (1pps) outputs can be synchronized to UTC independent of display time

On-board linear interpolation of blocks of range information.

On-board laser fire - range gate collision avoidance via laser fire delay register

Off-board software development platform

RS232 serial port for diagnostic data (C printf statement)

Register read-after-write self testing on boot

All integer arithmetic (registers all talk in units of nanoseconds).

FIFO task runs at 200Hz

Range gates are epoch triggered - no logical limit on range

Any PRF from 1Hz to ≥2KHz (upper limit not tested yet)

ET Server Features

Primary purpose is to handle the A032ET device

Implemented on single-board PC under Linux, 60GB HDD

Bandwidth: can run Latvian demo mode 1 at ≥10KHz

Optional monitor, keyboard and mouse

On-board USB2.0 port used for Rx controls, such as:

shutters

OD filter

Supports Ping, Telnet and FTP

Java machine supports DHCP