DEEPSOUND

Go Beyond The Limits

DEEPSOUND R3 System & OEM PAUT

DEEPSOUND R3 Made in Korea

Product Description

DEEPSOUND R3

The DEEPSOUND R3 is built with a PAUT board fit for a 19'' PCB rack and can be mounted with a maximum of 32 channels, 128 elements, and a UT 4 Port.

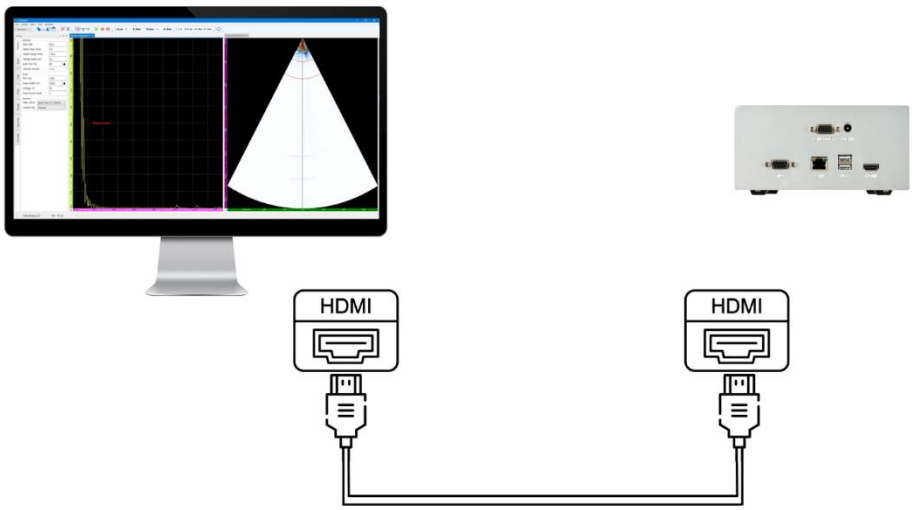
The board in the rack equipment can be used as a multi-board system, and the system can be built using an I.O. Port.

The DSK (Software Development Kit), developed using the DEEPSOUND System, allows anyone to easily produce custom programs and conduct research.

FRONT PORTS

REAR PORTS

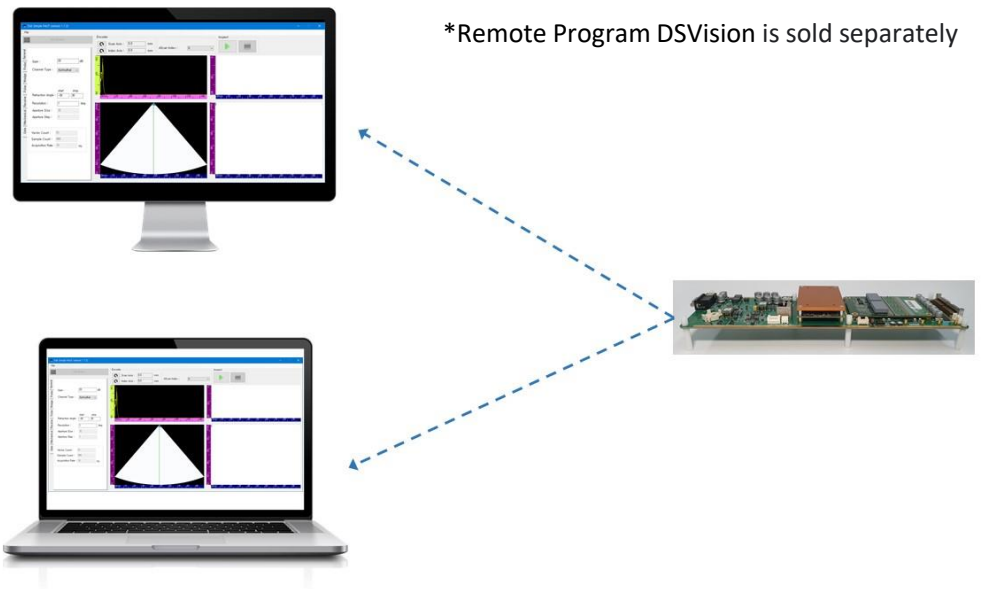
Features



INDEPENDENT SYSTEM

The DEEPSOUND R3 features an HDMI port.

The internal PC of the R3 enables programs to run independently without the need for an external PC.
Images can be displayed through the HDMI port on a separate monitor.

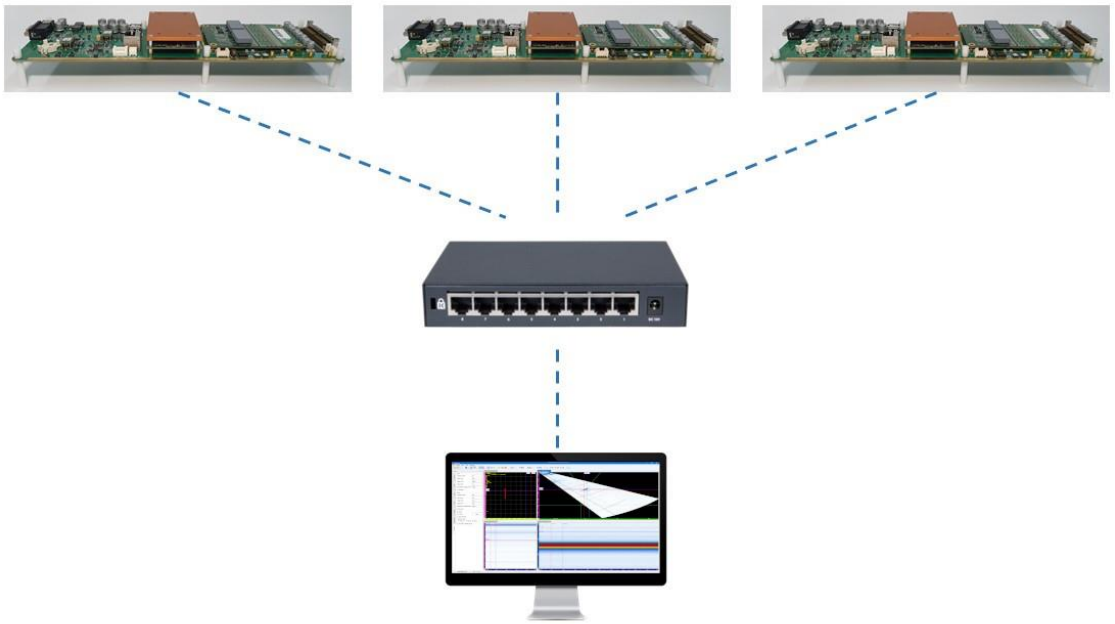


REMOTE CONNECTION

The DEEPSOUND R3's Remote Connection feature allows users to run inspection programs on their desktop PCs or laptops via the LAN port.

Take advantage of this feature in various work environments or when performing CPU-intensive tasks that demand higher performance.

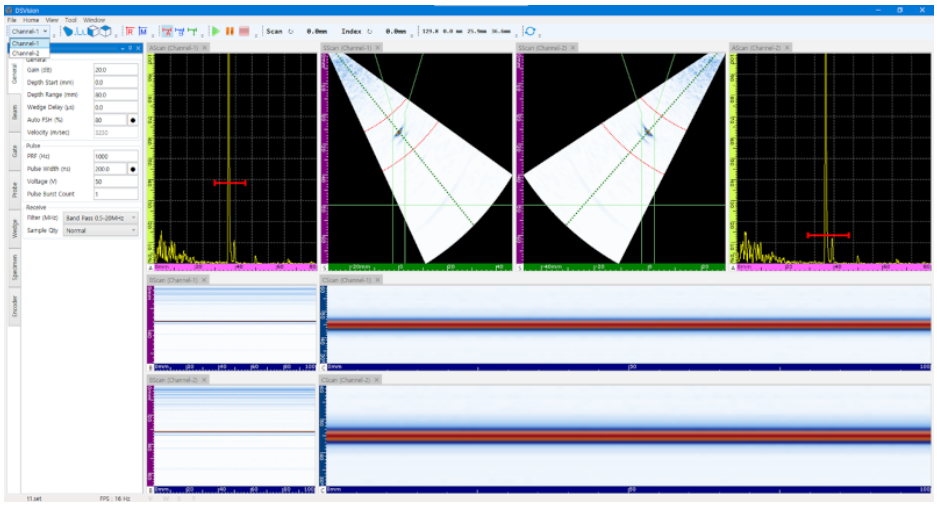
Features



MOUNTED MULTI-BOARD

The R3 multi-board is also available for purchase without the outer casing.

The multi-boards are designed to fit the 19'' rack system. Create a flexible system of multi-boards to help build custom solutions that meet your inspection requirements.



BIPOLAR PULSE WAVE TYPE

DEEPSOUND products use the Bipolar Pulse Wave type, a method recognized in the field of medical ultrasound technology, to achieve less noise and cleaner signals.

Features

The code for resetting is as follows. It is in the same format as the Start project.

```
public Form1()
{
    InitializeComponent();

    Dsk.InitDsk();

    Dsk.LogInfo($"DSK version => {Dsk.GetVersion()}");

    Load += Form1_Load;
    FormClosed += Form1_FormClosed;

}
```

The following code is for the "Init Device" button.

```
private void button1_Click(object sender, EventArgs e)
{
    Dsk.InitDevice();

    Dsk.SetCallbackFrame(DskCallback);

    button1.Enabled = false;
    button2.Enabled = true;
}
```

NDT ultrasonic testing uses the encoder to locate positions or generate an image from a set position.
The Inspection project is an example of using the encoder.

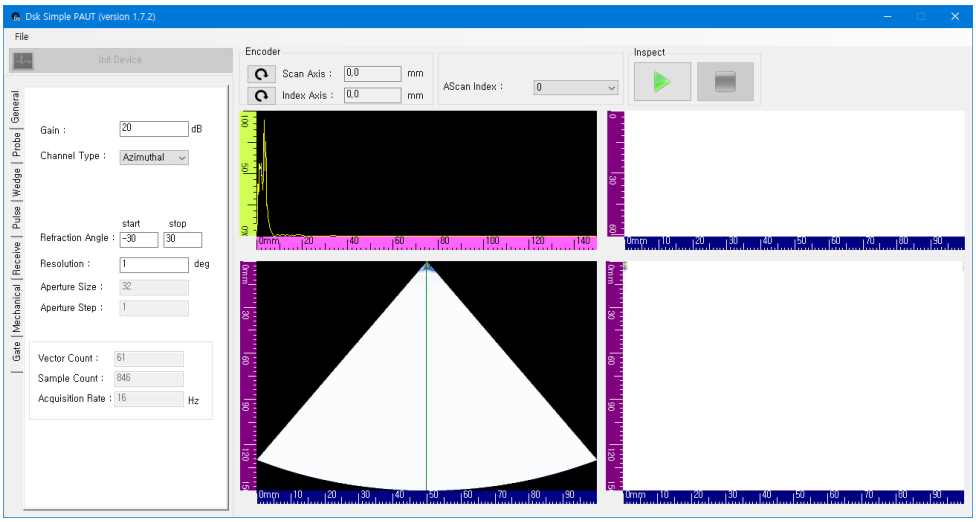
```
void SetParameters()
{
    SScanImageWidth = Dsk.GetSScanWidth();
    SScanImageHeight = Dsk.GetSScanHeight();

    VectorCount = Dsk.GetVectorCount();
    SampleCountPerVector = Dsk.GetSampleCountPerVector();

    // set encoder
    double resolution = 100;   // steps / mm
    Dsk.SetScanEncoder(0, 100, 1, resolution, false);
}
```

The code shown above is an example of using the SetScanEncoder function to initialize the scan encoder. The order of the SetScanEncoder parameters are as follows.

- Start position (mm)
- Stop position (mm)
- Step (mm)
- Encoder pulse count per mm
- Reverse flag

The code above gets an image from 0mm to 100mm by 1mm increments, by using an encoder that generates 100 pulse counts per mm.
The SetScanEncoder function initializes the encoder. To actually use the encoder, inspection mode must be set up.

- UploadInspectionModeStart : Starts inspection mode. **The Callback function calls the image when the encoder is at the predetermined position.**
- UploadInspectionModeStop : **Generates an image** and calls the Callback function regardless of the encoder's position.



BUILD PROGRAMS USING DSK

DSK is a software development kit (SDK) that comes with the DSK Tutorial package that will help develop and research custom programs.

The DEEPSOUND R3 has the advantage of allowing simultaneous use of both PAUT and UT channels, enabling a greater range of research and development.

Specifications

General

Dimensions(WxHxD)	332 x 170 x 82mm(With Case)
Weight (With Case)	1.2kg
Dimensions(WxHxD)	325 x 100 x 23mm(Board Only)
Weight (Board Only)	0.5kg

Connectivity

Ethernet	Fast Gigabit
HDMI	x1
USB Port	USB 2.0 x2
Probe Port	IPEX PA Connector x1
UT Port	Lemo 00 UT Connector x4
Encoder Port	2-axis Encoder input

Environmental

Operating Temperature	0 – 60℃
Storage Temperature Range	-20 – 80℃

PA/UT Configuration

Effective Digitizing	100MHz
Max PRF	30kHz
Refresh Rate	30Hz
A-scan Height	300%

Phased-Array

PAUT Channel Configurations	32:128PR
Scan Type	Linear, Sectorial, Conventional, TOFD
Focal Law	Unlimited
Channel Group	Up to 8 Channels
Focusing Mode	True-depth, Sound path

Data Specifications

Maximum Number of A-scan Data Point	Up to 16384
Rectification	RF, Full wave
Filtering	Selection of Low-pass, Band-pass, High-pass
Video Filtering	Smoothing

Acoustic Specifications

Pulser	Voltage	25V ~ 160V (5V Step)
	Pulse Shape	Bipolar Pulse
	Pulse Width	50nsec ~ 2,000nsec
Receiver	Gain Range	0dB ~ 90dB
	Band Width	0.5 ~ 20MHz
	Sample Resolution	16bit
	Dynamic Sample Focusing	Yes

NDT Ultrasound Equipment Development
Acehightechcity 13f 1318, 52 Gongdan-ro 140 beon-gil,
Gunpo-si, Gyenggi-do, 15847. Rep.Korea
Tel. 02-2039-5725 Fax. 02-2039-5726
E-mail. admin@dspaut.com
Homepage: www.dspaut.com