



The VD-291 series detects the quadrature phase using The CD-552 series. The amplitude and the phase of the input signal synchronous with a reference signal are calculated by a DSP from the result. That's output as analog voltage.

VD-291 series is equipped with the interference rejection ability, so it can detect the amplitude and the phase in the signal buried in noise.

▼ Signal Input

Input connector	BNC
Maximum input voltage	±10 V
Input impedance	VD-291F2/VD-291F3: 5 kΩ VD-291F4:1.25 kΩ

▼ Reference signal

Input connector	BNC
Input signal	CMOS(0/5 V)level, Square wave Pulse width ≥200 ns
Input polarity	The rising edge is regarded as a reference

▼ Detector

Output connector	BNC
Detection frequency range	VD-291F2:100 Hz to 20 kHz VD-291F3:1 kHz to 200 kHz VD-291F4:10 kHz to 2 MHz
Gain	The slide switch(SW4) selects the gain among ×1, ×10 and external resistance. It's possible to establish the gain between 1 and 10 by soldering SMD resistance(R7, R8) on the substrate.
Low pass filter	It depends on slide switch(SW3) VD-291F2:100 Hz/10 Hz/1 Hz VD-291F3:1 kHz/100 Hz/10 Hz VD-291F4:10 kHz/1 kHz/100 Hz
Detection characteristics switch	It depends on slide switch(SW2) Please use in setting of PSD1=SIN.
Output impedance	50 Ω
Maximum output voltage	±10 V@DC, load ≥2kΩ
Maximum output current	±5 mA @ DC

▼ Phase shifter

Phase shifter voltage control switch	The slide switch(SW1) selects the phase shifter control from potentiometer(POT) and external input(BNC(VC φ IN))
Control range by potentiometer	±100 °(typ.) Continuously variable
External voltage control	
Input connector	BNC
Input impedance	100 kΩ
Control range	±100 °(typ.) Continuously variable (-100 ° /+5 V, +100 ° /-5 V)
Voltage control sensitivity	-20°/1 V
Phase offset	The slide switch(SW5) selects the phase shift among 0° and 180°

▼ A/D, D/A

Resolution	12 bit
Sampling rate	100k samples/s

▼ Output

Output connector	BNC
Output impedance	50 Ω

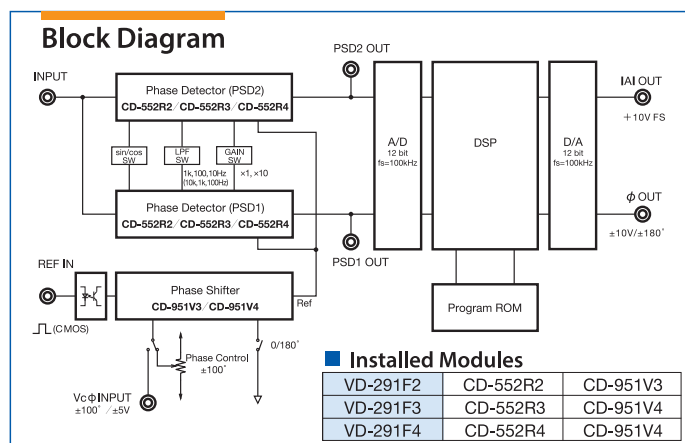
Amplitude output(A out)	10 V
Resolution	2.5 mVΩ
Accuracy	VD-291F2 100 Hz to 20 kHz within ±3 % VD-291F3 1 kHz to 80 kHz within ±3 % 80 kHz to 200 kHz within ±5 % VD-291F4 10 kHz to 2 MHz within ±3 %
Phase output(f out)	±10 V/±180 °
Resolution	0.1°
Accuracy	The relative accuracy to the change amount of the input signal phase (A reference signal is the standard.) VD-291F2 100 Hz to 20 kHz within ±1° VD-291F3 1 kHz to 20 kHz within ±1° 20 kHz to 200 kHz within ±3° VD-291F4 10 kHz to 20 kHz within ±1° 20 kHz to 200 kHz within ±3° 200 kHz to 2 MHz within ±5°(typ.)
Output current	±2 mA (max.)

▼ Power Supply

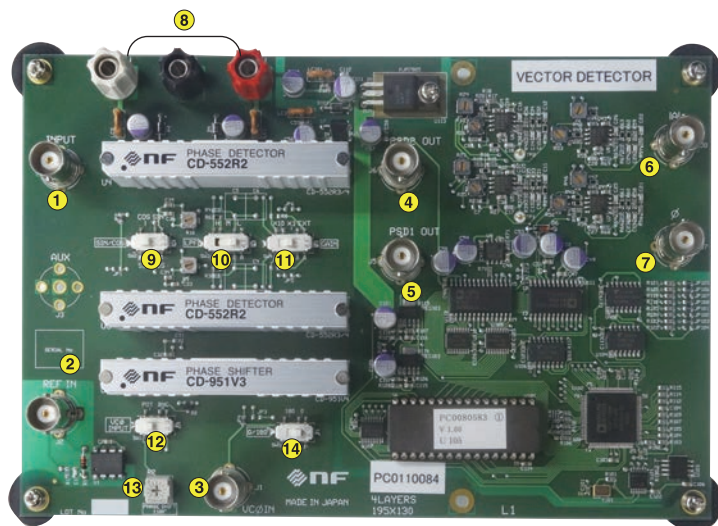
Operating voltage range	15 V±1 V
Current consumption	VD-291F2 +15 V 180 mA(max.) -15 V 100 mA(max.) VD-291F3 +15 V 180 mA(max.) -15 V 100 mA(max.) VD-291F4 +15 V 200 mA(max.) -15 V 100 mA(max.)

▼ General

Specified temperature	23°C±5°C
Operating environment	0°C to 50°C, 10 %RH to 90 %RH, non-condensing
Storage environment	-10°C to 60°C, 10 %RH to 80 %RH, non-condensing
Pollution degree	2 (indoor use)
Dimensions	201×136×31.5 mm
Weight (NET)	Approx. 250 g
Accessories	Instruction manual

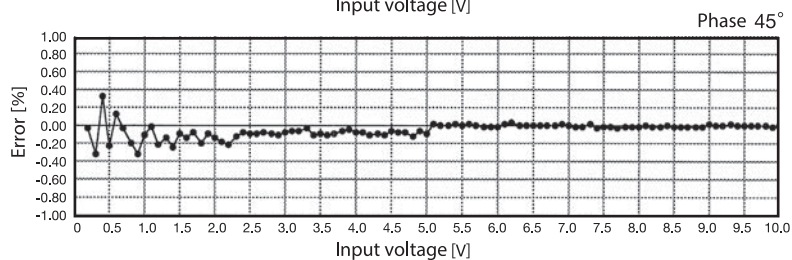
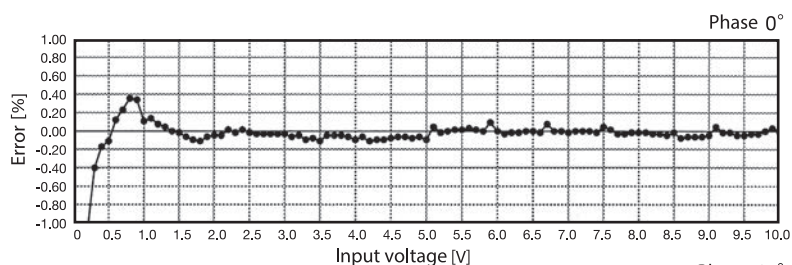


Part Functions



- ① INPUT
- ② REF IN
- ③ $VC\phi$ IN
- ④ PSD2 OUT
- ⑤ PSD1 OUT
- ⑥ $|A|$ OUT
- ⑦ ϕ OUT
- ⑧ $-15V/GND/+15V$
- ⑨ SIN/COS
- ⑩ LPF(common to PSD1 and PSD2)
- ⑪ GAIN(common to PSD1 and PSD2)
- ⑫ $VC\phi$ INPUT
- ⑬ PHASE SHIFT $\pm 100^\circ$
- ⑭ $0/180^\circ$

Characteristics

Amplitude output error
vs Input output

Phase output error vs Phase

