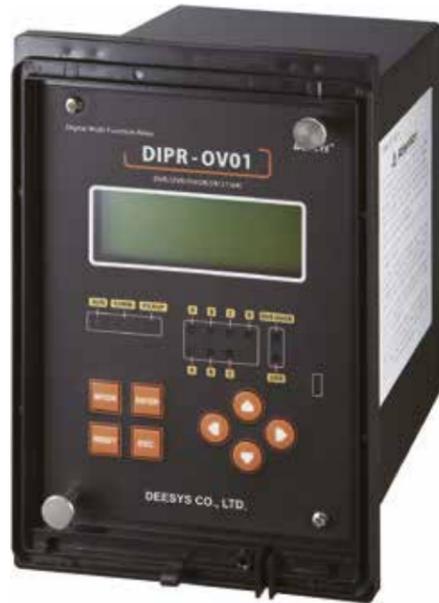


## Digital Intelligent Protective Relay - Over/Under Voltage & Ground Over Voltage



◆ It is a digital complete operation type relay equipped with DSP, and various operating times and operating voltages can be easily corrected. It performs powerful calculation function and 32 sampling per channel, and 4x20 LCD provides convenient MIMIC function and various types of display.

◆ FAULT VIEW program provided Easy system design using soft PLC function, free application to PMS system by applying MODBUS RTU protocol, and EMC performance enhancement for high and low voltage switchgear, stable system operation.

◆ As a relay that operates when abnormal voltage occurs such as undervoltage or overvoltage in the system, logic can be configured with a simple PLC program for input/output contacts, and it can be applied to various sequences and easily configured for a user's specific purpose.

◆ Various monitoring and measurement functions are supported, and 16 Faults, 128 System Events, 16 Waves and maximum waveform data can be saved, making accident analysis easier. In addition, the self-diagnosis function is performed during operation, and an alarm is output when an error occurs.

◆ Through the operating program for the PC interface, you can set and monitor all protection elements and various functions supported by the product.

### 계전사양 개요

- ▶ Real-time storage of line failure information including accident time by storing 128 events
- ▶ Built-in Fault Recording function to save the accident waveform in case of an accident (up to 16)
- ▶ Instantaneous and time-limited, IEC 60225 standard 2 TIME CURVE built-in (definite time, inverse time)
- ▶ The relay's set value and LOGIC configuration are permanently stored regardless of the presence or absence of control power.

### Use Environment

Store Temp. Range	-10°C ~ 55 °C
Use Temp. Range	-25 °C ~ 70 °C
Use Humidity Range	Daily 30 ~ 80%
Elevation	Low than 1,000m Sea level
etc	Place no vibration and shock
Applicable Standard	KEMC 1120

### Case

Type	Rectangular Drawout Type
Color	Munsell No. N1.5 (Black)
Material	LUPOY

### Ratings

Rated Input	Frequency	60Hz/50Hz
	Input Voltage	VT Rate : 10V / 190V
	Control Power	AC/DC 100V ~ 240V
	Power Consumption	Stand by : less than 10W, Run : less than 20W
	Input Burden	VT : within 0.5VA/Phase
Contact Capacity	Digital Input (DI)	Digital Input : AC/DC 100V ~ 240V
	Output Contact (Relay 2Ports for DO Trip)	AC 240V 30A, DC 28V 30A: Resistive Load
	Output Contact (Relay 2Ports for DO ALARM)	AC 240V 10A, DC 30V 10A: Max. switching voltage/ current

### Over Voltage Element [59]

RUN	Rated Voltage	3 Phase AC 110V
	Operating voltage correction	60 ~ 160V (1.0V STEP)
	Operating voltage Accuracy	within ±5% of correction value
	Operation time correction	Limited time (40~50ms), Definite time (0.04~60s/0.01s STEP)
	Operation time precision	within 5%of correction value or ±35ms
RETURN	Return value	95% or more of correction value
	Return time	Less than 100ms
	Output holding time	0.00 ~ 30.00S (0.01 STEP)

### Ground Fault Over Voltage Element [64]

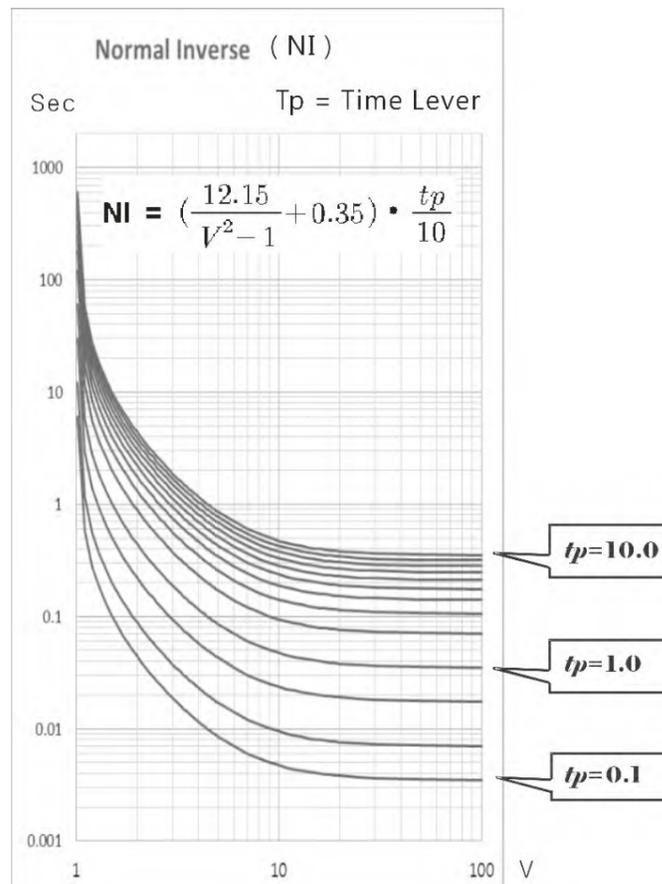
RUN	Rated Voltage	AC 110 / 190V
	Operating voltage correction	1.0 ~ 12.0A (0.1A STEP)
	Operating voltage Accuracy	±5% of correction value
	Operation time correction	Definite time: 0.04~60.0s (0.01s STEP), Reverse time: 0.10~10.0s ( 0.1s STEP)
	Operation time precision	within 5% of correction value, or ±35ms
RETURN	Return value	95% and more of correction value
	Return time	Less than 100ms
	Output holding time	0.00 ~ 30.00S (0.01 STEP)

## Low Voltage Relay Element [27]

RUN	Rated Voltage	3 Phase 110V
	Operating voltage correction	Limit-time : 20~90V (1.0VSTEP) / Instantaneous time : 20~90V (1.0V STEP)
	Operating voltage Accuracy	±5% of correction value
	Operation time correction	Definite time: 0.04~60.0s (0.01s STEP) / Reverse time: 0.10~10.0s (0.1s STEP) / Instantaneous time : within 50ms or 0.4~1.0s STEP
	Operation time precision	Instantaneous : 50ms / Limit-time: within 5% of correction value, or ±35ms
RETURN	Return value	Less than 105% of correction value
	Return time	Less than 100ms
	Output holding time	0.00 ~ 30.00S (0.01 STEP)

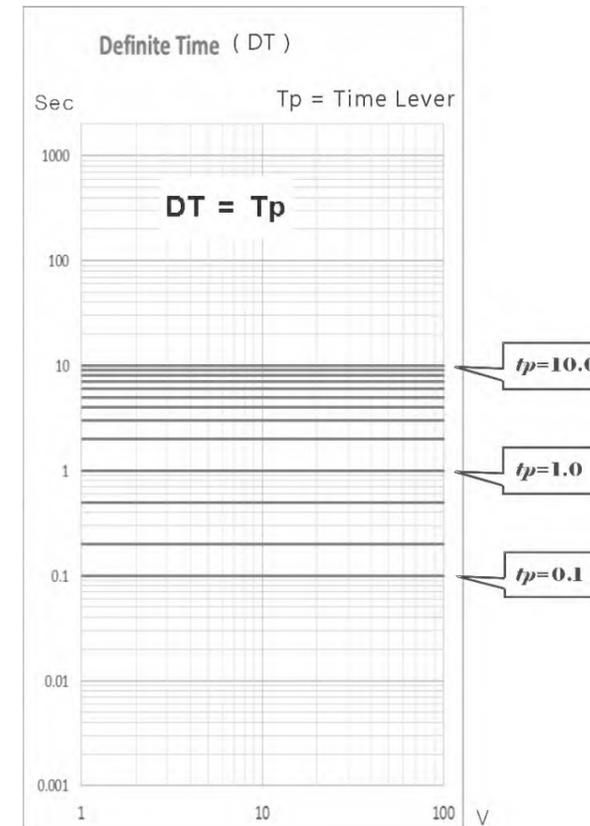
## Protection Relay Characteristic Curve

IEC NI Curve (Normal Inverse)

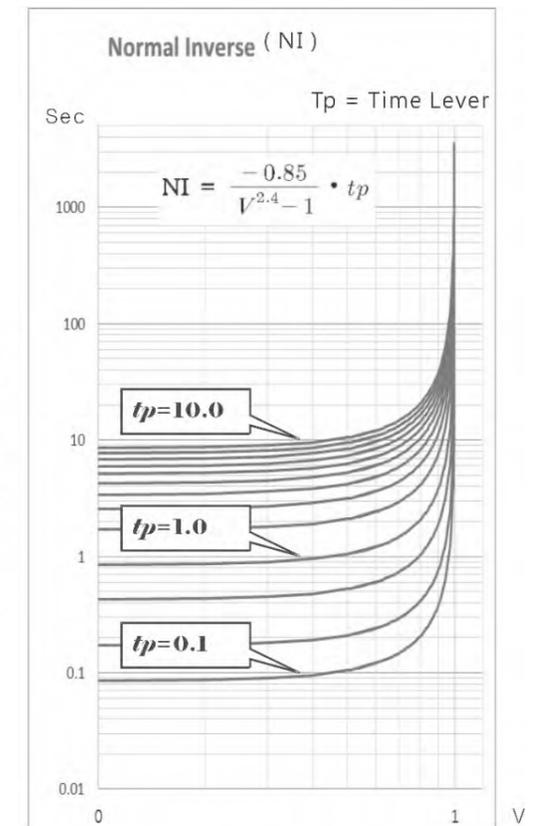


## Protection Relay Characteristic Curve

IEC DT Curve (Low&Over Volage)



IEC NI Curve (Low voltage)



## Continuous monitoring function [Self-diagnosis]

### Add-on Function

CT/PT Calibration	It monitors whether CT/PT Calibration is performed, and if it is not valid data or calibration is not performed, it is recorded in the SYSTEM event.
Watch Dog	It judges whether DSP operates normally, and if the DSP does not operate normally, the external monitoring IC forcibly resets the DSP and peripheral devices and boots in the same order as when the first power is booted. In this case, there is no separate indication. Determining whether the DSP operates normally,
Memory and correction value abnormal monitoring	Monitors external memory errors. If the external memory does not operate normally, "FRAM ERROR" is displayed on the LCD, and if the correction value is abnormal, "MEMORY ERROR" is displayed and recorded in the SYSTEM event.

## EVENT FUNCTION [EVENT RECORDING]

### Add-on Function

Fault Event : 16 count	
Trigger	Pickup, Operation
Time Tag	Time of Event occurrence
Main Information	Fault Voltage or Current
Sub Information	DI/DO Status
System Event : 128 count	
Trigger	Power ON, Setting Change, DI/DO Status change
Time Tag	Time of Event occurrence
Wave : 16 count	
Trigger	Operation
Sample/Cycle	32
Saving Cycle	30 Cycle(50/60Hz common)
Time Tag	Time of Operation occurrence

## Measurement display function [METERING]

### Add-on Function

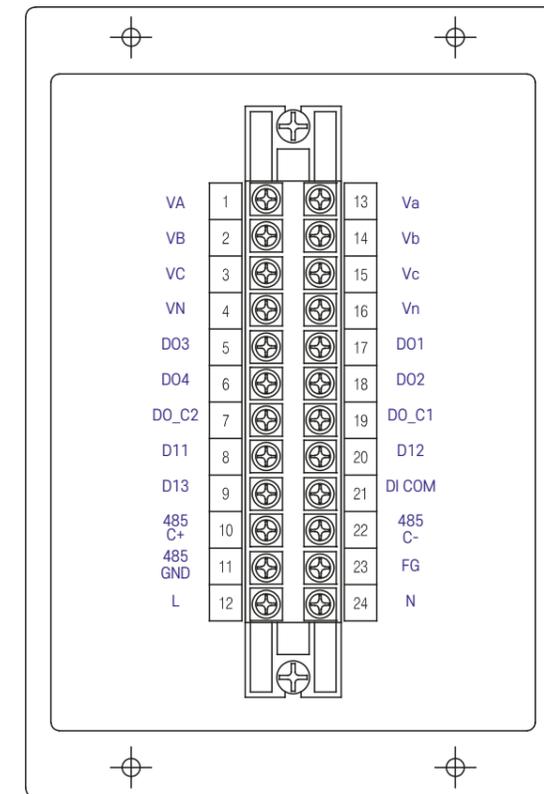
Meas. Item	Display range (Based on device display value)	Error (Based on device input rating)
Phase V (V)	0.000V ~ 999.999kV (Less than 5V Cut-off)	±0.5[%] at Vn , ±0.5[%] or ±1[%] at Other Voltage range
Zero Phase V (Vo)	0.000V ~ 999.999V (Less than 5V Cut-off)	±0.5[%] or ±1[%]

## DO Default Setting

### Add-on Function

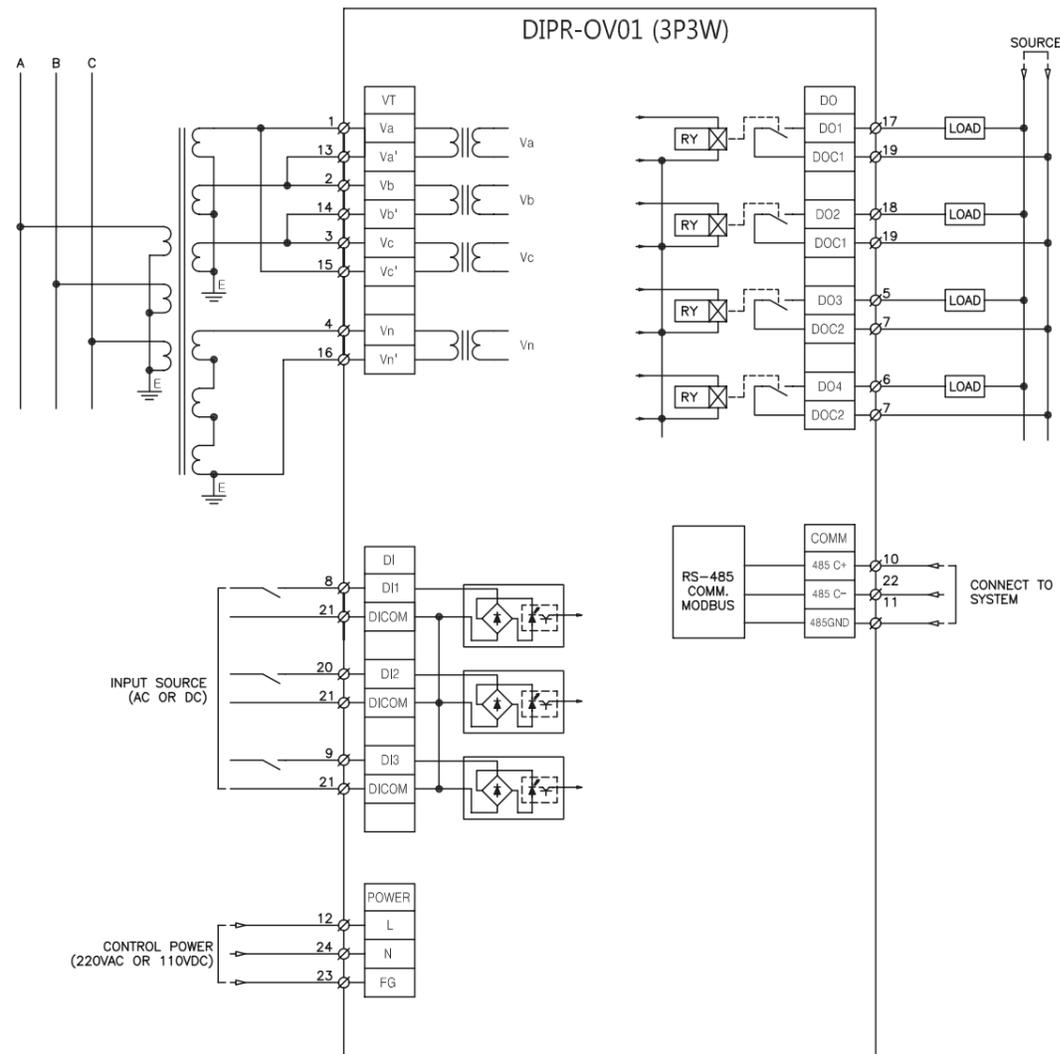
DEVICE	ITEMS	SETTING
DIPR-OV01	DO 01	UVR, OVR, OVGR
	DO 02	OVR
	DO 03	OVGR
	DO 04	UVR

## Terminal Configuration

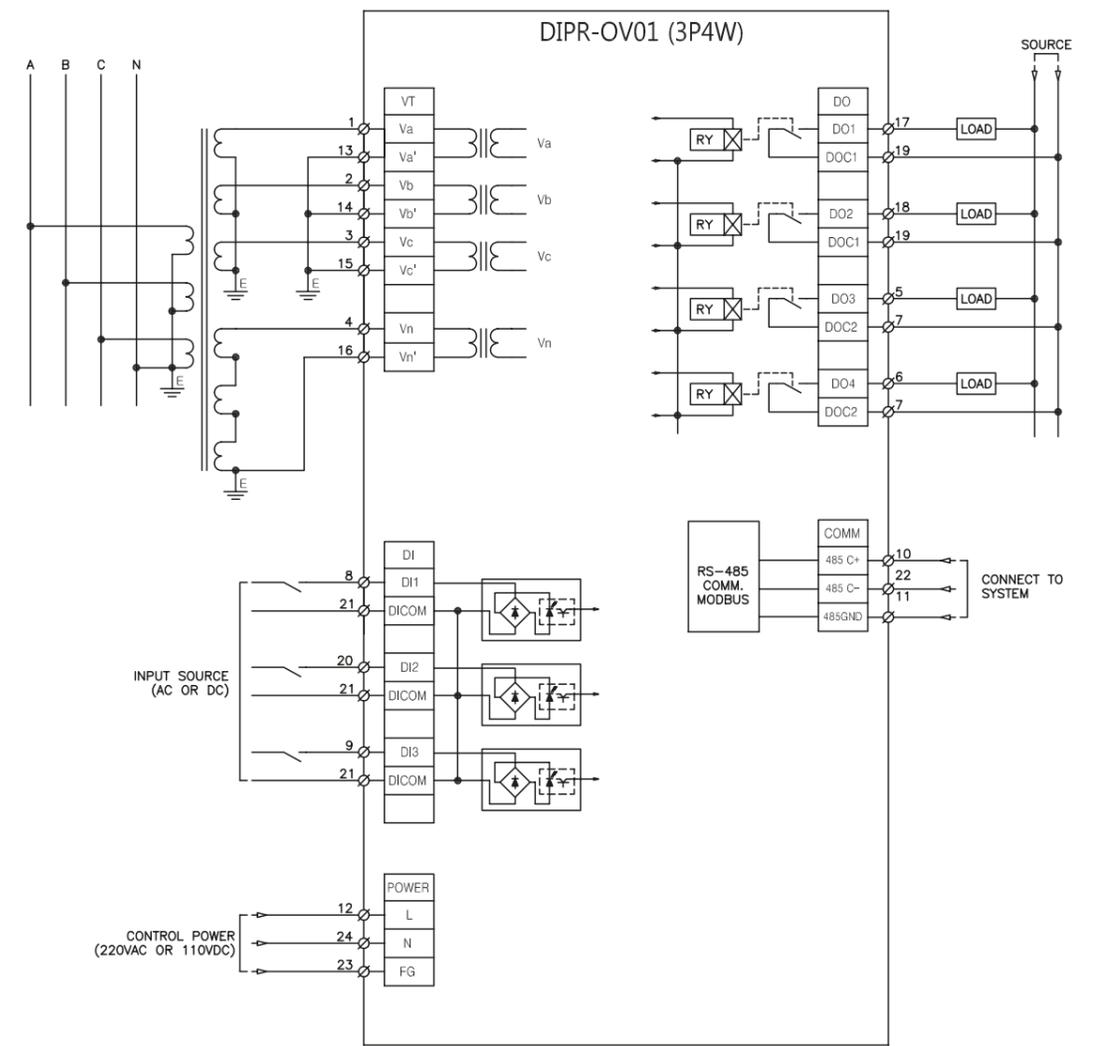


Items	Description
VA-Va ~ VN-Vn	Connect the current input terminal and PT.
D01 ~ D04 DO_C1 ~ _2 OVR/OVGR	Digital Output terminal. Output Trip/Alarm signal in case of accident DO_COM1(COM)-DO1(NO),DO2(NO) : CONTACT for TRIP(40A) DO_COM2(COM)-DO3(NO),DO4(NO) : CONTACT for ALARM(16A) DO1 ~ 4 : Custom Setable
DI1 ~ 3/DI_COM	Digital Input Terminal. In the case of DI_1 and DI_2, the ON/OFF signal of the circuit breaker can be input and all DI terminals can be set arbitrarily by the user.
485C+/C-/GND	Communication Terminal. Comm. is RS-485/MODBUS method.
FG	FGound Terminal
L/N	Power Input Terminal. Rating : AC 85 ~ 240V

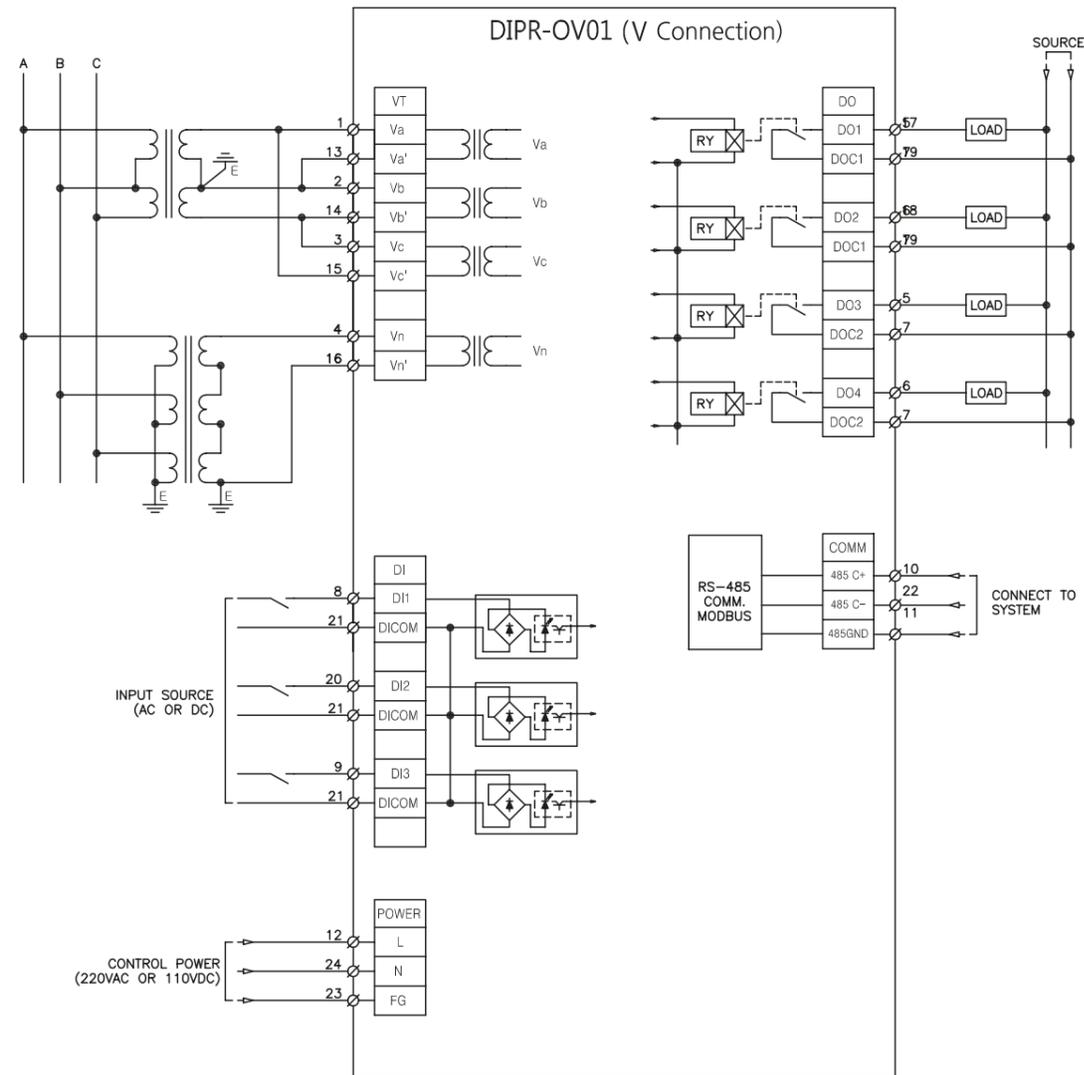
Wiring Diagram (3P 3W)



Wiring Diagram (3P 4W)



## Wiring Diagram (V Connection)



## Dimensions

