

Digital Motor Protection Relay



DSP-2SD

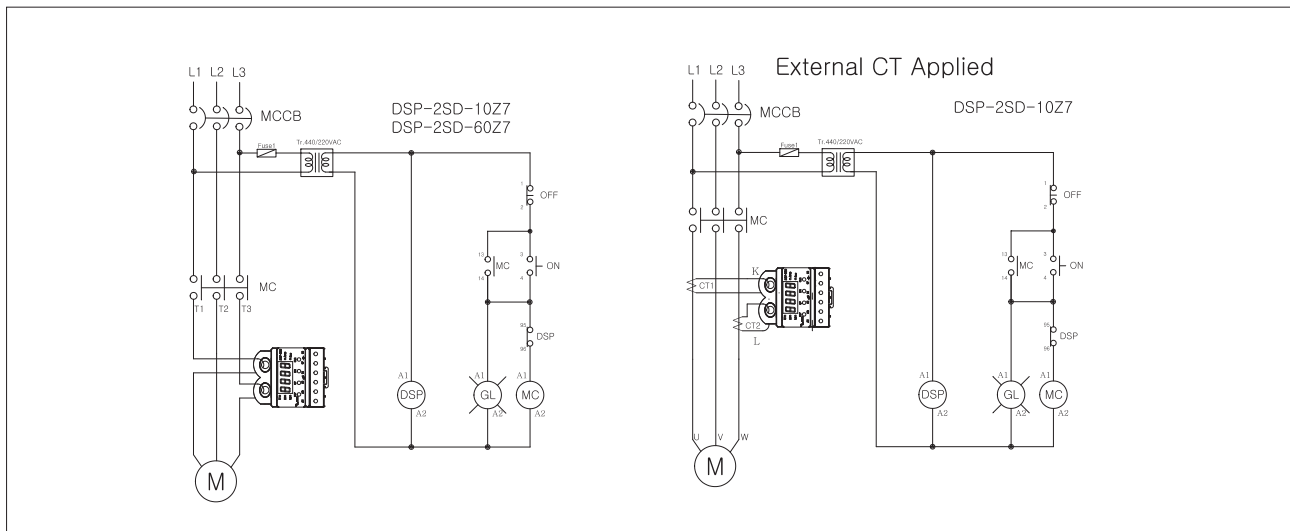
Panel Mounting Type
Wire Through Type

DSP-2SD

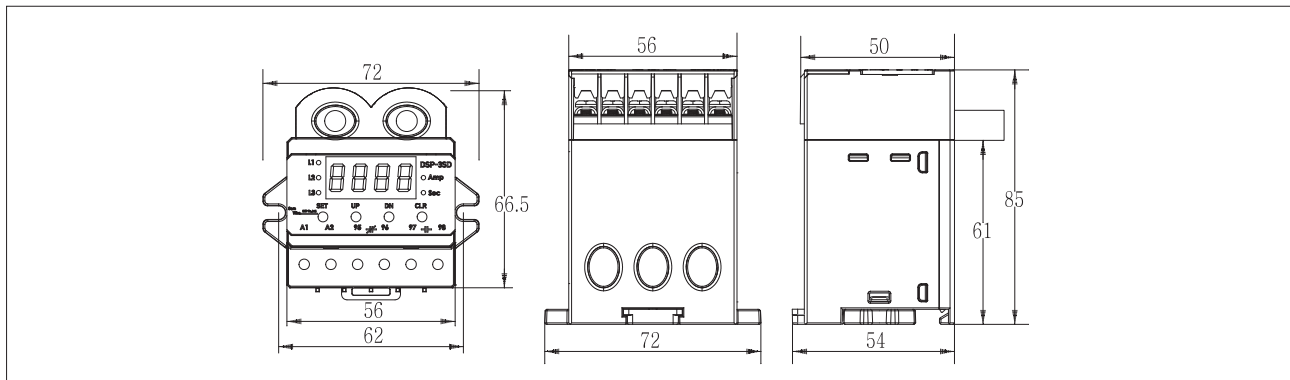
Main Features

- Access restricted to authorized operator: Password
- 3Phase Load protection through 2CT
- MCU based digital control : optimized protection
 - **Protection** : Over current/Phase loss/Locked rotor
 - **Indication** : 3 Phase Current/L1, L2, L3
- To cover a wide and precise current range for the protection
 - 10 Type : Definite T-I : 0.5A~10A , 0.5A~6A with external CT
 - 60 Type : Definite T-I : 5A~60
 - Extended protection current range with external CT : 1A~600A
- Display for trip cause and operation information in character and/or number : 4 Digit Window
- Rotated indication for each phase current with 3 sec interval
 - 1P(single phase) : L1-L3 current
 - 3P(three phase) : L1-L2-L3
- Indication of necessary information every 3 sec
- Convenient selection for 1P/3P in preset mode
- Various trip reset options : Manual, Electrical or Automatic /flexible for automated and sequence machine operation,
- Stable operation under frequency variation from Inverter : 30Hz ~ 400Hz
- Possible to check and/or to change(optional condition) preset value during the operation
- Self-diagnostic test by one touch for "SET" key
- History of latest 8 trip events

Application Sequence Diagram



Dimension



Order Form

No.	Feature	Description
1	Type	• DSP-2SD
2	Rating Current	• 10 : 0.5~10A • 60 : 5~60A • Combined with external 3CT • C12 : 100/5 • Cc2 : 150/5 • C22 : 200/5 • C32 : 300/5
3	Control Power	• B : DC24V/Optional • Z7 : 100~240VAC, 50/60Hz(120~370VDC) / Standard
4	P	• NIL : Standard Type • P : Customized Type
e.g.	DSP-2SD-10-Z7	Panel Mounting Type, 0.5A~10A, 100~240VAC, 50/60Hz (120~370VDC), able to use external CT
	DSP-2SD-60-Z7	Panel Mounting Type, 5A~60A, 100~240VAC, 50/60Hz(120~370VDC), able to use external CT

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Digital Motor Protection Relay



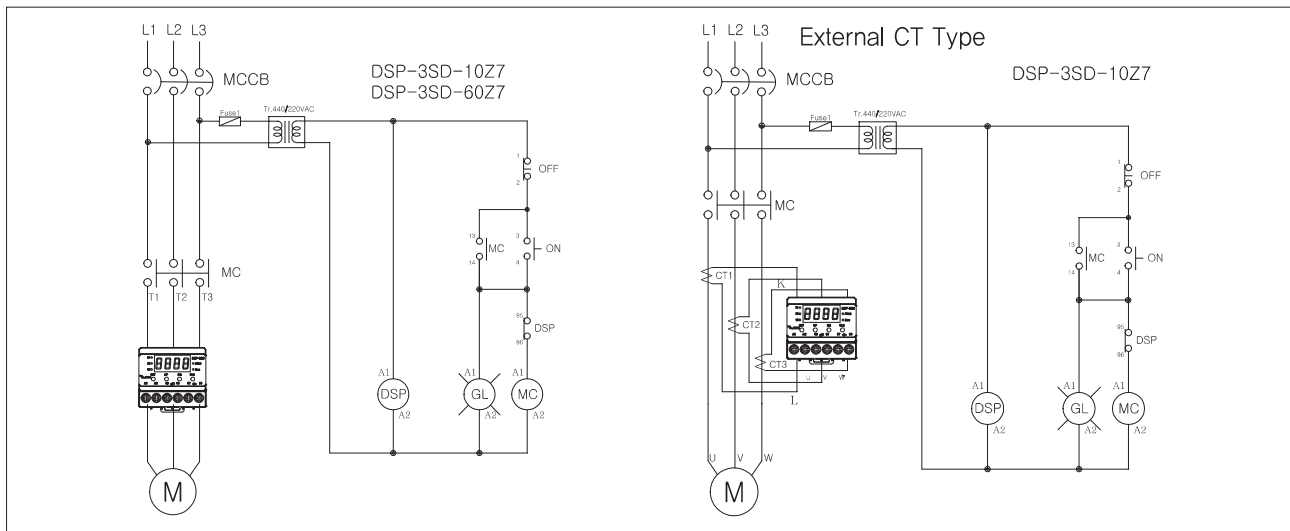
DSP-3SD

DSP-3SD, 3SD-RG

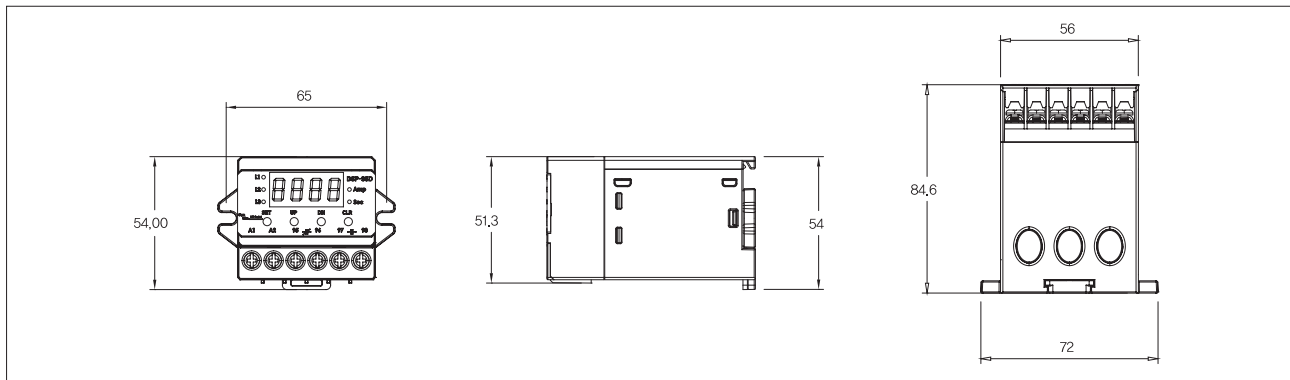
Main Features

- Access restricted to authorized operator : Password
- Compact size, Multi-function
 - **Protection** : – Over current/Under current/Phase loss/Reverse phase/Locked rotor/Current unbalance : 3SD Type, 3SD-RG Type
– Ground fault : 3SD-RG Type
 - **Indication** : Current/L1, L2, L3/Earth current
- To cover a wide and precise current range for the protection
 - 10 Type : – Definite T-I : 0.5A~10A, 0.5A~6A with external CT
– Inverse T-I : 0.5A~6A/800% to "oc"
 - 60 Type : – Definite T-I : 5A~60A
– Inverse T-I : 5A~15A/800% to "oc"
 - Extended protection current range with external CT : 1A~600A → 3SD Type
- Display for trip cause and operation information in character and/or number : 4 Digit Window
- Rotated indication for each phase current with 3 sec interval
 - 1P(single phase) : L1-L3 current • 3P(three phase) : L1-L2-L3
- Ground fault protection based on residual zero phase current : 0.5A~10A
(not suitable for external CT application) : 0.5A~10A → 3SD-RG Type
- Various trip reset options: Manual, Electrical or Automatic / flexible for automated and sequence machine operation.
- Stable operation under frequency variation from Inverter : 30Hz ~ 400Hz
- Possible to check and/or to change(optional condition) preset value during the operation
- Self-diagnostic test by one touch for "SET" key
- History of latest 8 trip events

Application Sequence Diagram



Dimension



Order Form

No.	Feature	Description
1	Type	• DSP-3SD • DSP-3SD-R
2	Rating Current	• 10 : 0.5~10A • 60 : 5~60A • Combined with external 3CT : Not available for 3SD-RG • C1 : 100/5 • Cc : 150/5 • C2 : 200/5 • C3 : 300/5 • C4 : 400/5
3	Control Power	• B : DC24V/Optional • Z7 : 100~240VAC, 50/60Hz(120~370VDC) / Standard
4	P	• NIL : Standard Type • P : Customized Ty
e.g.	DSP-3SD-10-Z7	Panel Mounting Type, 0.5A~10A, 100~240VAC, 50/60Hz (120~370VDC), able to use external CT
	DSP-3SD-RG-60-Z7	Panel Mounting Type, 5A~60A, 100~240VAC, 50/60Hz(120~370VDC), GF protection : 0.5A~10A/ sensed in residual circuit, not available for external CT

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Digital Motor Protection Relay



DSP-SS1

Panel Mounting Type

DSP-SS1

Main Features

- MCU based digital control : optimized protection
- Compact size, Practical simple application
 - Protection : – Over current / Under current, Phase Loss, Locked rotor
 - Protection for Phase loss and Locked rotor is executed based on over current
 - Possible to check actual current and trip state based on LED indication
- 3 phase load protection through 2 CT
- To cover wide and precise current range for the protection
 - 10 Type : – Definite T-I : 0.3A~12A(0.3~6A for external CT)
 - Matched with external CT : 1~600A, secondary rating of external CT is 5A
 - 60 Type : Definite T-I : 2A~60A

■ LED Indication

DIV	LED Indication		Description
Control Power	POWER/RUN		Green LED is turned on
Motor operation			Red LED is turned on
Over / Under current protection	POWER/RUN		Red LED is flickerd with 1sec interval during o-time
	TRIP		Yellow LED is turned on
Trip Cause Indication			
Cause		POWER(Green)/RUN(Red)	
Phase Loss	L1	Red LED is turned on continuously by the pattern with 1sec(on)–1sec(off)–1sec(on)	■ ■ ■ ■ ■ ■ ■ ■ ■ ■
	L2	Red LED is turned on continuously by the pattern with 1sec(on)–0.5sec(off)–0.5sec(on)	■ ■ ■ ■ ■ ■ ■ ■ ■ ■
	L3	Red LED is turned on continuously by the pattern with 1sec(on)–0.5sec(off)–0.5sec(on)–0.5sec(off)–0.5sec(on)	■ ■ ■ ■ ■ ■ ■ ■ ■ ■
Locked Rotor	Trip Yellow LED is flickered by the pattern with 1sec(on)–1sec(off)–1sec(on)		■ ■ ■ ■ ■ ■ ■ ■ ■ ■

■ Convenient functional selection by DIP SW

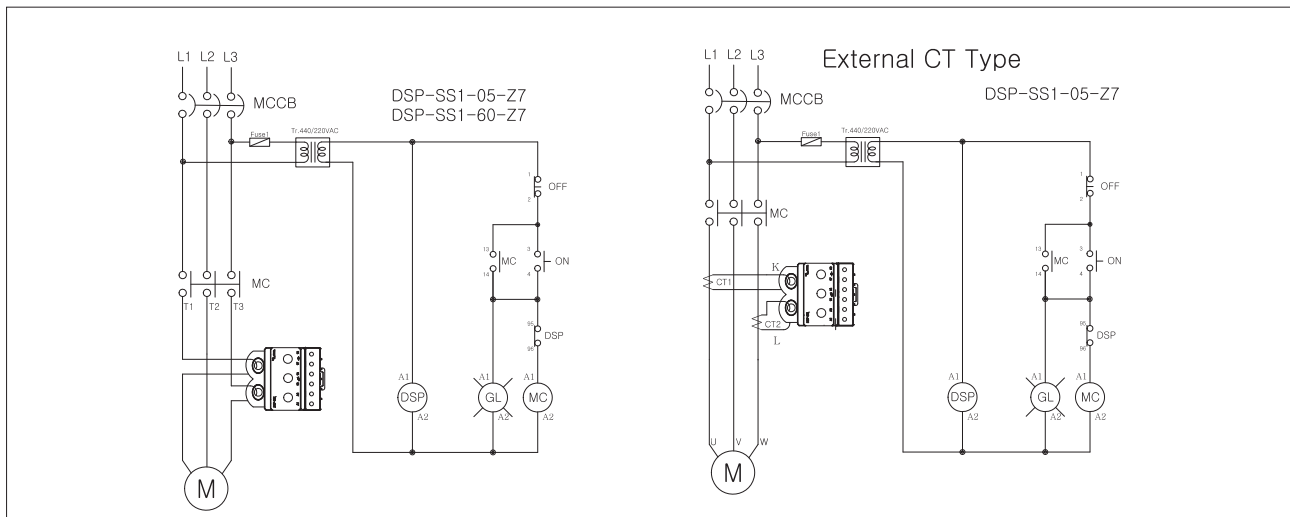
- N type : trip output(95–96,97–98) is energized in case control power is loaded
- R type : trip output(95–96,97–98) is not energized in case control power is loaded
 - trip output is not responded for selection of DIP SW in case normal operation is processed
- RP ON : able state to protect reverse phase protection • RP OFF : disable state to protect reverse phase protection

■ Reset after tripped

- Manual : press “RESET” SW
- Electrical : control power(A1–A2) off
 - possible to make remote control by power switch with remote distance

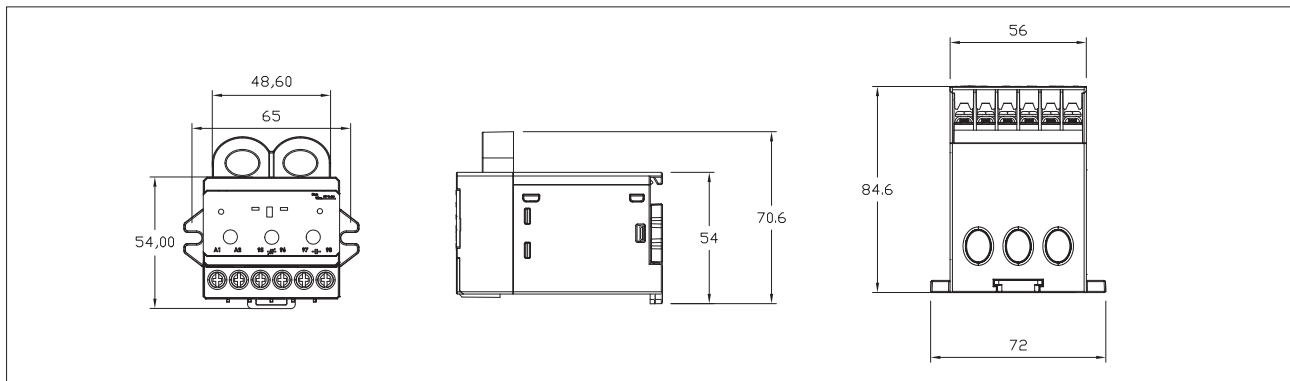
■ Self-diagnostic function : “TEST” SW

Application Sequence Diagram



Note : It is required that external auxiliary power relay shall be matched with trip output of DSP in order to meet large capacity of contactor

Dimension



Order Form

No.	Feature	Description
1	Type	DSP-SS1
2	Rating Current	10 : 0.3~12A 60 : 2~60A Combined with external 2CT C12:100/5 2CT CC2:150/5 2CT C22:200/5 2CT C32:300/5 2CT
3	Control Power	Z7 : 24~240VAC
4	P	NIL: Standard Type P: Customized Type
e.g	DSP-SS1-10Z7	Panel Mounting Type 0.3~12A, 24~240VAC, 50/60Hz Able to use external CT
	DSP-SS1-60Z7	Panel Mounting Type 2~60A, 24~240VAC, 50/60Hz Not available for external CT

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Digital Motor Protection Relay



DSP-SS1-AR

Panel Mounting Type





DSP-SS1-AR

Main Features

- MCU based digital control : optimized protection
- Compact size, Practical simple application
 - **Protection** : – Over current / Under current, Phase Loss, Locked rotor
 - Protection for Phase loss and Locked rotor is executed based on over current
 - Possible to check actual current and trip state based on LED indication
- 3 phase load protection through 2 CT
- To cover wide and precise current range for the protection
 - 10 Type : – Definite T-I : 0.3A~12A(0.3~6A for external CT)
 - Matched with external CT : 1~600A, secondary rating of external CT is 5A
 - 60 Type : Definite T-I : 2A~60A

■ LED Indication

DIV	LED Indication		Description
Control Power	POWER/RUN		Green LED is turned on
Motor operation			Red LED is turned on
Over / Under current protection	POWER/RUN		Red LED is flickerd with 1sec interval during o-time
	TRIP		Yellow LED is turned on

Trip Cause Indication		
Cause	POWER(Green)/RUN(Red)	
Phase Loss	L1	Red LED is turned on continuously by the pattern with 1sec(on)–1sec(off)–1sec(on) 
	L2	Red LED is turned on continuously by the pattern with 1sec(on)–0.5sec(off)–0.5sec(on) 
	L3	Red LED is turned on continuously by the pattern with 1sec(on)–0.5sec(off)–0.5sec(on)–0.5sec(off)–0.5sec(on) 
Locked Rotor	Trip Yellow LED is flickered by the pattern with 1sec(on)–1sec(off)–1sec(on) 	

■ Convenient functional selection by DIP SW

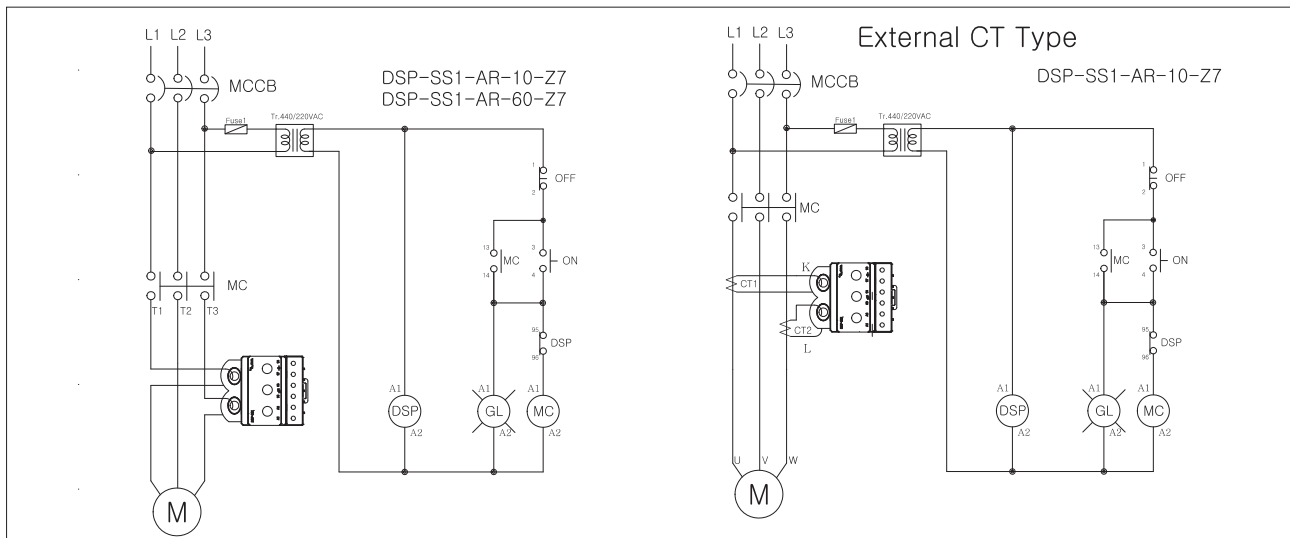
- N type : trip output(95–96,97–98) is energized in case control power is loaded
- R type : trip output(95–96,97–98) is not energized in case control power is loaded
 - trip output is not responded for selection of DIP SW in case normal operation is processed
- RP ON : able state to protect reverse phase protection • RP OFF : disable state to protect reverse phase protection

■ Reset after tripped

- Manual : press “RESET” SW after presetting “OFF” for R–Time knob • Automatic : after R–Time
- Electrical : control power(A1–A2) off
 - possible to make remote control by power switch with remote distance

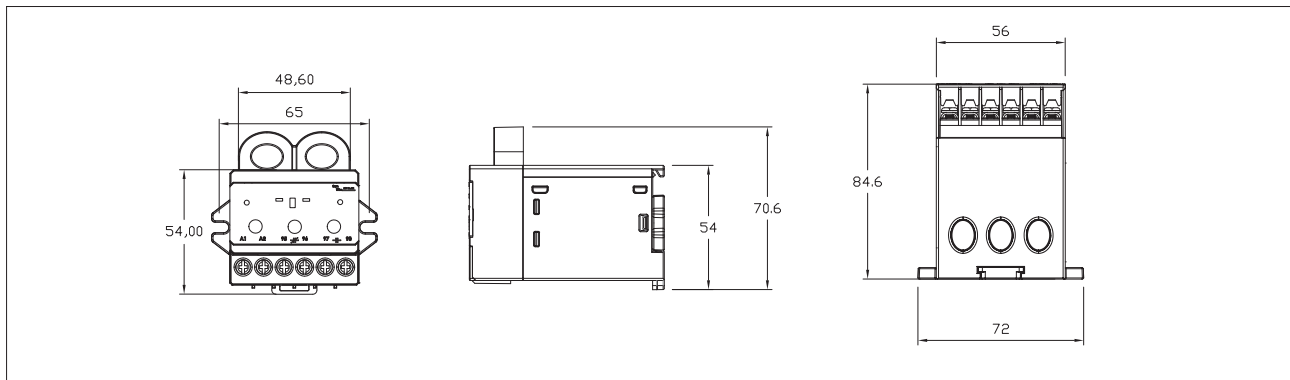
■ Self-diagnostic function : “TEST” SW

Application Sequence Diagram



Note : It is required that external auxiliary power relay shall be matched with trip output of DSP in order to meet large capacity of contactor

Dimension



Order Form

No.	Feature	Description
1	Type	DSP-SS1-AR
2	Rating Current	10 : 0.3~12A 60 : 2~60A Combined with external 2CT C12:100/5 2CT CC2:150/5 2CT C22:200/5 2CT C32:300/5 2CT
3	Control Power	Z7 : 24~240VAC
4	P	NIL: Standard Type P: Customized Type
e.g	DSP-SS1-AR-10Z7	Panel Mounting Type 0.3~12A, 24~240VAC, 50/60Hz Able to use external CT
	DSP-SS1-AR-60Z7	Panel Mounting Type 2~60A, 24~240VAC, 50/60Hz Not available for external CT

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Digital Motor Protection Relay



DSP-3SS

Panel Mounting Type

DSP-3SS

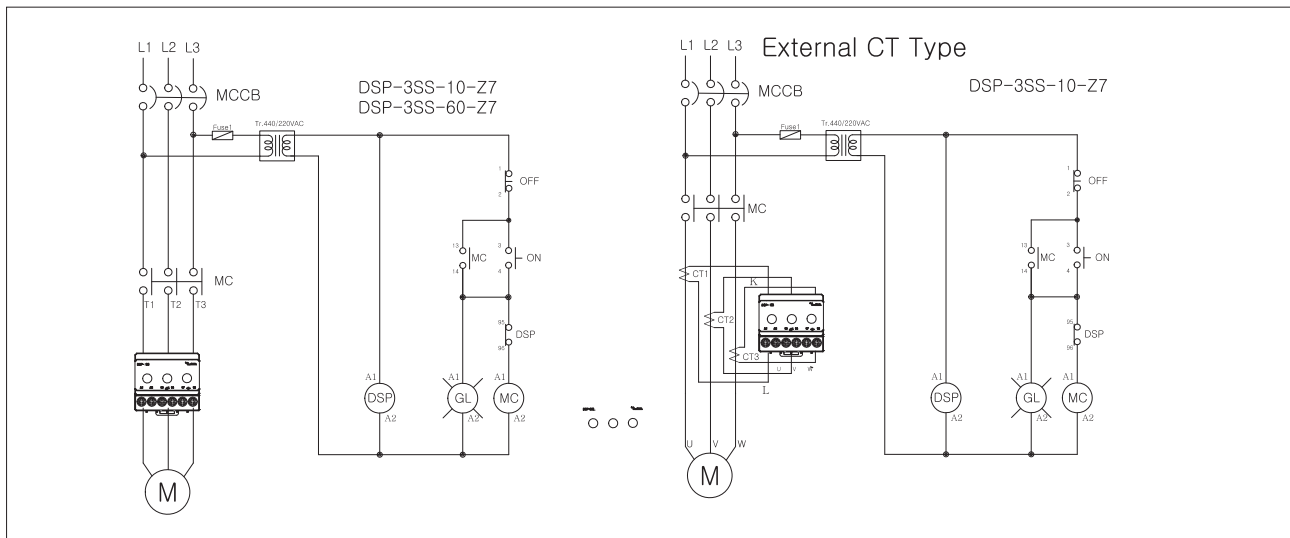
Main Features

- MCU based digital control : optimized protection
- Compact size, Practical simple application
 - **Protection** : Over current, Reverse phase, Phase loss, Locked rotor
 - Possible to check actual current and trip state based on LED indication
- 3 phase load protection through 3 CT
- To cover wide and precise current range for the protection
 - 10 Type : – Definite T-I : 0.3A~12A(0.3~6A for external CT)
 - Matched with external CT : 1~600A, secondary rating of external CT is 5A
 - 60 Type : Definite T-I : 2A~60A
- LED Indication

DIV	LED Indication	Description
Control Power	POWER/RUN	Green LED is turned on
Motor Starting State		Red LED is flickerd with 1sec interval during d-time
Motor operation		Red LED is turned on
Over current protection	POWER/RUN	Red LED is flickerd with 1sec interval during o-time
	TRIP	Yellow LED is turned on
Trip Cause Indication		
Cause	POWER(Green)/RUN(Red)	
Cause	Red LED and Green LED is turned on with 1sec interval alternatively	
Phase Loss	L1	Red LED is turned on continuously by the pattern with 1sec(on)–1sec(off)–1sec(on)
	L2	Red LED is turned on continuously by the pattern with 1sec(on)–0.5sec(off)–0.5sec(on)
	L3	Red LED is turned on continuously by the pattern with 1sec(on)–0.5sec(off)–0.5sec(on)–0.5sec(off)–0.5sec(on)
Locked Rotor	Trip Yellow LED is flickered by the pattern with 1sec(on)–1sec(off)–1sec(on)	

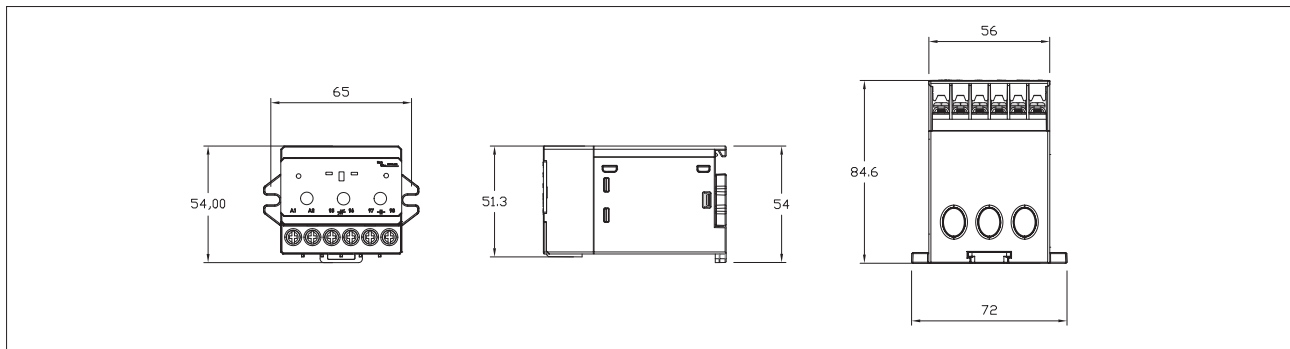
- Convenient functional selection by DIP SW
 - N type : trip output(95–96,97–98) is energized in case control power is loaded
 - R type : trip output(95–96,97–98) is not energized in case control power is loaded
 - trip output is not responded for selection of DIP SW in case normal operation is processed
- Reset after tripped
 - Manual : press “RESET” SW
 - Electrical : control power(A1–A2) off
 - possible to make remote control by power switch with remote distance
- Self-diagnostic function : “TEST” SW

Application Sequence Diagram



Note : It is required that external auxiliary power relay shall be matched with trip output of DSP in order to meet large capacity of contactor

Dimension



Order Form

No.	Feature	Description
1	Type	DSP-3SS
2	Rating Current	10 : 0.3~12A 60 : 2~60A Combined with external 3CT C1:100/5 3CT CC:150/5 3CT C2:200/5 3CT C3:300/5 3CT C4:400/5 3CT
3	Control Power	Z7 : 24~240VAC
4	P	NIL: Standard Type P: Customized Type
e.g	DSP-3SS-10Z7	Panel Mounting Type 0.3~12A, 24~240VAC, 50/60Hz Able to use external CT
	DSP-3SS-60Z7	Panel Mounting Type 2~60A, 24~240VAC, 50/60Hz Not available for external CT

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Digital Motor Protection Relay



DSP-3SS-RG

Panel Mounting Type

DSP-3SS-RG

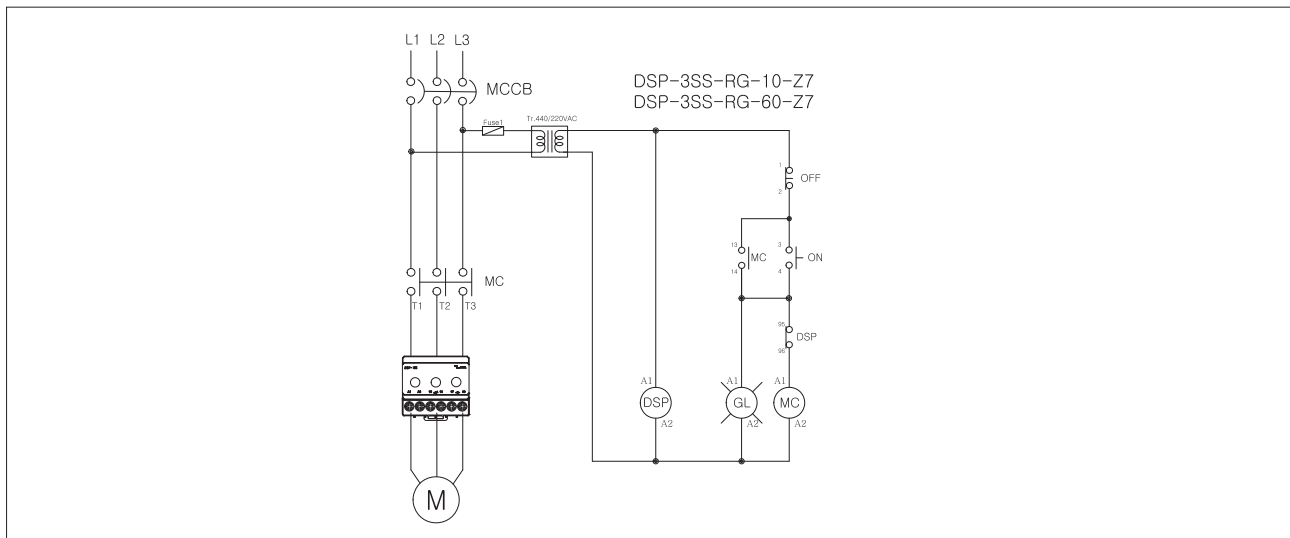
Main Features

- MCU based digital control : optimized protection
- Compact size, Practical simple application
 - **Protection** : Over current, Reverse phase, Phase loss, Locked rotor, Ground fault
 - Possible to check actual current and trip state based on LED indication
- 3 phase load protection through 3 CT
- To cover wide and precise current range for the protection
 - 10 Type : – Definite T-I : 0.3A~12A(0.3~6A for external CT)
 - Matched with external CT :1~600A, secondary rating of external CT is 5A
 - 60 Type : Definite T-I : 2A~60A
- Ground fault protection based on residual current : 0.5A~10A
- LED Indication

DIV	LED Indication	Description
Control Power	POWER/RUN	Green LED is turned on
Motor Starting State		Red LED is flickerd with 1sec interval during d-time
Motor operation		Red LED is turned on
Over current protection	POWER/RUN	Red LED is flickerd with 1sec interval during o-time
	TRIP	Yellow LED is turned on
Trip Cause Indication		
Cause	POWER(Green)/RUN(Red)	
Cause	Red LED and Green LED is turned on with 1sec interval alternatively	
Phase Loss	L1	Red LED is turned on continuously by the pattern with 1sec(on)–1sec(off)–1sec(on)
	L2	Red LED is turned on continuously by the pattern with 1sec(on)–0.5sec(off)–0.5sec(on)
	L3	Red LED is turned on continuously by the pattern with 1sec(on)–0.5sec(off)–0.5sec(on)–0.5sec(off)–0.5sec(on)
Locked Rotor	Trip Yellow LED is flickered by the pattern with 1sec(on)–1sec(off)–1sec(on)	

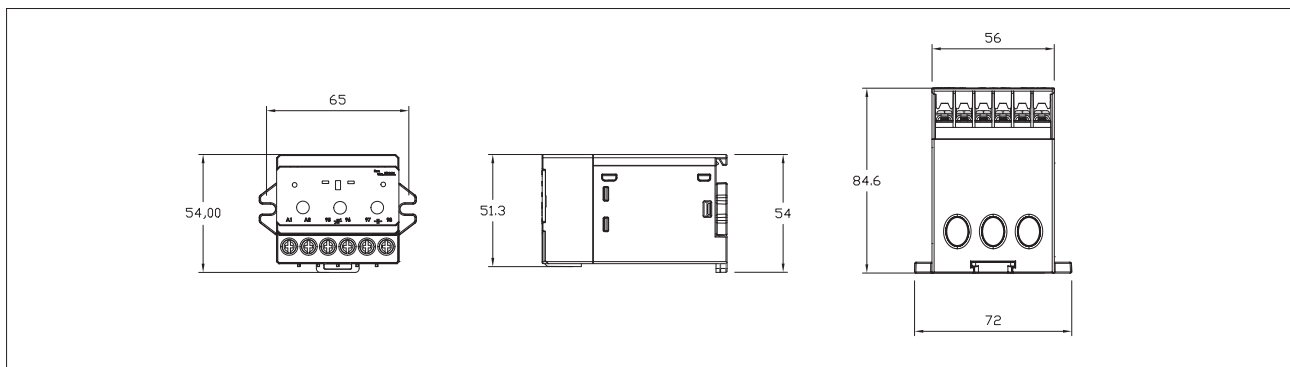
- Convenient functional selection by DIP SW
 - N type : trip output(95–96,97–98) is energized in case control power is loaded
 - R type : trip output(95–96,97–98) is not energized in case control power is loaded
 - trip output is not responded for selection of DIP SW in case normal operation is processed
- Reset after tripped
 - Manual : press “RESET” SW
 - Electrical : control power(A1–A2) off
 - possible to make remote control by power switch with remote distance
- Self-diagnostic function : “TEST” SW

Application Sequence Diagram



Note : It is required that external auxiliary power relay shall be matched with trip output of DSP in order to meet large capacity of contactor

Dimension



Order Form

No.	Feature	Description
1	Type	DSP-3SS-RG
2	Rating Current	10 : 0.3~12A 60 : 2~60A Not available for externa CT
3	Control Power	Z7 : 24~240VAC
4	P	NIL: Standard Type P: Customized Type
e.g	DSP-3SS-RG-10Z7	Panel Mounting Type 0.3~12A, 24~240VAC, 50/60Hz
	DSP-3SS-RG-60Z7	Panel Mounting Type 2~60A, 24~240VAC, 50/60Hz

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