New Leader !! Optimized Preventive Maintenance Solution!!

Digital Motor Protection Relay

DSP - C Series

Samwha DSP Ltd.
DIGITAL STANDARD PROTECTION

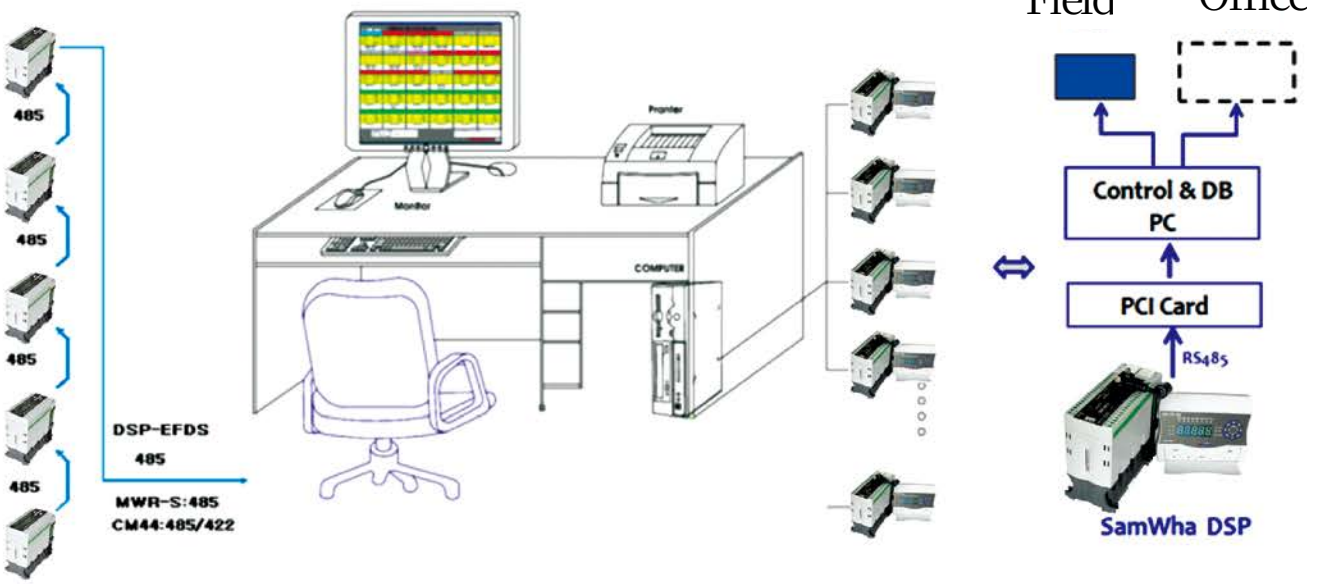
www.samwhadsp.com

Motor Preventive Maintenance Diagnostic System(DSP-EFDS)
: VIP-PM/RTM, "samdsp","samdspdb"

- ●Created data for motor protection : Voltage, Current/KW, Earth current, Isulation resistance, Temperature, Power factor, Unbalance
- ●Building data base(DB) up based on 485/Modbus network
- ●Analyzing and managing DB DATA in order to check the motor condition and to make alarm in case of unstable condition : able to preset alarm level for each factor
- ●Possible to analyze accurate trip cause through stored data of trip instant in MWR-S(Motor working Recorder) connected with converter directly
- ●Office PC is able to do master job without installation for additional Server as master

Field Office

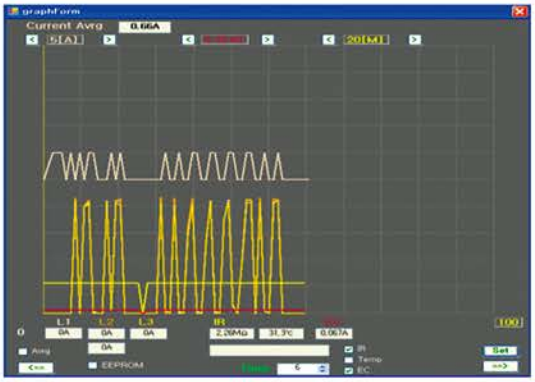
◎ System



–Window 10 or more –Office(Excel) –Net Frame 4.0 or more(open protocol)
–Desk PC(with PCI Card) "samdsp":monitoring & Analyzing" ＊"samdspdb":monitoring & data base"

Main window

Graph window



New Leader !! SamWha DSP!!

Digital Motor Protection Relay

Digital Motor Protection Relay,DSP VIP-Series , P-Series,C-Series,A-Series, is useful for low voltage motor protection. It is aimed to protect a motor against a trouble which is happened from over/under load[current],locked rotor, stall[shock], voltage (power type)/current unbalance, phase loss, reverse phase, short circuit, ground fault, over/under voltage(power type) in motor operation.

Also it is able to raise the efficiency for motor operation as being possible to realize a supervision, a protection and a control, furthermore each kind of series item takes it's own specialized function, respectively, in order to meet various customer need such as short circuit , alarm before trip,4~20mA output for load current, insulation resistance measureemnt, vibrated frequency detection through 4~20mA output from sensor, RS485 or Ethernet communication.

Especially Current-Resistance type can meet two kind of different job which is consisted of powerful motor protection during a motor running state and the insulation resistance measurement for a power line of the motor during a motor stop state. This would be more powerful to prevent an industrial disaster caused by a degraded power line of the motor used for the long term since first installation

Now we launch new item such as DSP-2SD/3SD which is based on 2CT or 3CT with basic essential protective function except GR fault matched with ZCT. However, we prepared 3SD-RG with GR fault protection through residual circuit for user who want to take specific function like GF. We will do not cease R&D to meet customer's need in any condition in today and in future.

Digital Motor Protection Realy
DSP-C Series

Techincal Feature

(M Type)

(M Type)

Division		DSP-C Series							
		Panel Flush Mounting Type							
Model		COM	CTM	CCM	CSM	CCM-E	CTM-D	CCTM	CCM-N
Control voltage		100~240VAC[50/60HZ] (90 ~ 370VDC)							
Available frequency/Inverter		30 ~ 400HZ							
Single phase(1P)		●	●	●	●	●	●	●	●
Three phase(3P)		●	●	●	●	●	●	●	●
Protection	Over current	●	●	●	●	●	●	●	●
	Under current	●	●	●	●	●	●	●	●
	Phase loss/load current	●	●	●	●	●	●	●	●
	Reverse phase/load current	●	●	●	●	●	●	●	●
	Current unbalance	●	●	●	●	●	●	●	●
	Pre-alarm	●	●	●	●	●	●	●	●
	Locked rotor	●	●	●	●	●	●	●	●
	Shock/Stall	●	●	●	●	●	●	●	●
	Short Circuit				●				
	Ground fault	●	●	●	●	●	●	●	●
	Temperature								
Control/ON-OFF									●
Indication	Load current	●	●	●	●	●	●	●	●
	Ground fault current	●	●	●	●	●	●	●	●
	Accumulated working time	●	●	●	●	●	●	●	●
	Preset value check/ change in operation	●	●	●	●	●	●	●	●
	Load factor/Bar Graph	●	●	●	●	●	●	●	●
	Load factor/LF-%								
Auxiliary	Password	●	●	●	●	●	●	●	●
	Main contactor auto close								
Communication	4~20mA		●		●		●/Dual	●	
	RS 485/Modbus,RTU			●	●			●	●
	Ethernet/Modbus TCP					●			
Remarks		Standard :external ZCT/Optional:ZCT embeded							

(M Type)

(L Type)

(L Type)

Division		DSP-C Series							
		Panel Flush Mounting Type			Panel Mounting Type				
Model		CTM-N	CCM-ET	CCM-PT	COL	CTL	CCL	CSL	CCL-PT
Control voltage		100~240VAC[50/60HZ] (90 ~ 370VDC)							
Available frequency/Inverter		30 ~ 400HZ							
Single phase(1P)		●	●	●	●	●	●	●	●
Three phase(3P)		●	●	●	●	●	●	●	●
Protection	Over current	●	●	●	●	●	●	●	●
	Under current	●	●	●	●	●	●	●	●
	Phaseloss /load current	●	●	●	●	●	●	●	●
	Reverse phase/load current	●	●	●	●	●	●	●	●
	Current unbalance	●	●	●	●	●	●	●	●
	Pre-alarm	●	●	●	●	●	●	●	●
	Locked rotor	●	●	●	●	●	●	●	●
	Shock/Stall	●	●	●	●	●	●	●	●
	Short Circuit							●	
	Ground fault	●	●	●	●	●	●	●	●
	Temperature		●	●					●
Control/ON-OFF		●							
Indication	Load current	●	●	●	●	●	●	●	●
	Ground fault current	●	●	●	●	●	●	●	●
	Accumulated working time	●	●	●	●	●	●	●	●
	Preset value check/ change in operation	●	●	●	●	●	●	●	●
	Load factor/Bar Graph	●	●	●					
	Load factor/LF-%				●	●	●	●	●
Auxiliary	Password	●	●	●	●	●	●	●	●
	Main contactor auto close								
Communication	4 ~ 20 mA	●				●			
	RS 485/Modbus, RTU			●			●	●	●
	Ethernet/Modbus TCP		●						
Remarks		Standard :external ZCT/Optional:ZCT embeded							

Digital Motor Protection Relay
DSP-C Series

DSP-COL, CTL, CCL,CCL-PT : Panel Mounting Type
DSP-COM, CTM, CCM,CSM: Panel Flush Mounting Type
DSP-CCM-E,CTM-D,CCTM,CCM-N,CTM-N,CCM-ET,CCM-PT: Panel Flush Mounting Type
Panel Mounting Type → Unified meter with converter
Panel Flush Mounting Type → Seperated meter from converter

COM

COL

Assembled Terminal

Over/Under Current Protection

10 Type	0.5 ~ 10A	Available for external CT
70 Type	5 ~ 70A	

Trip Output Operation Pattern

Trip output : main/95-96(b)-98(a),aux/05-06(b)-08(a)

"b" is selected in "out" mode : factory default
Control power is on/unchanged output state : 95-96(b)-98(a), aux/ 05-06(b)- 08(a)
TRIP operation state : 95-96(a)-98(b), 05-06(a)-08(b)

"a" is selected in "out" mode
Control power is on/changed output state : 95-96(a)-98(b), 05-06(b)-08(a)
TRIP operation state : 95-96(b)-98(a), 05-06(a)-08(b)

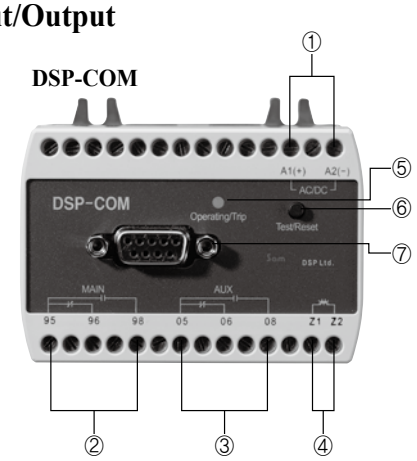
GF protection

Basic	*zero phase current is sensed through external ZCT *ZCT:200mA/1.5mA *30mA~2A
Optional	*zero phase current is sensed through embedded ZCT *30mA~2A

Aux output → : AL/pre-alarm to OC preset value before trip
: Trip factor is selected in "AU-O" Mode
: Independent output contact from main trip output
: "Auo" mode /OFF, AL, UC, SHOCK, EC, rP, Ec-tb
: Ec/auto reset, Ec-tb/independent trip

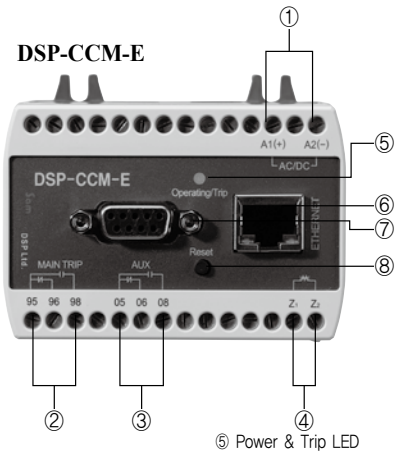
Input/Output

DSP-COM



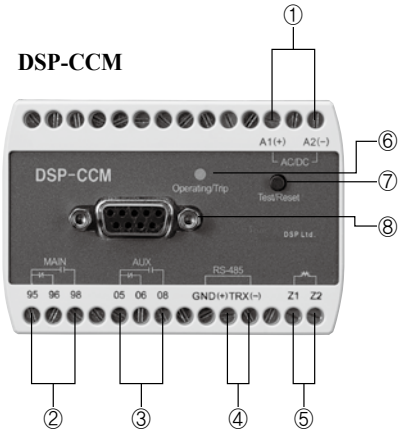
① Control power
② Main Trip output
③ Aux trip output(alarm)
④ External ZCT/embedded if Z1,Z2 is not marked
⑤ Power & Trip LED
⑥ Test & Reset
⑦ 9Pin D-sup to connect meter (RS-232)
⑧ Terminal Without marks is not used

DSP-CCM-E



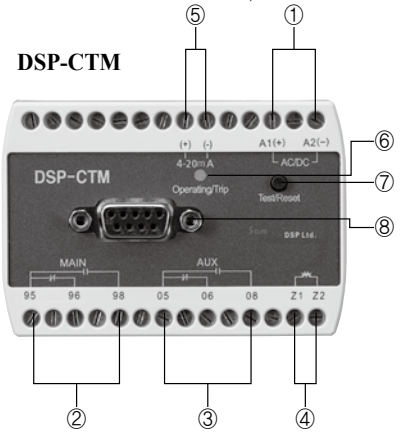
① Control power
② Main Trip output
③ Aux trip output(alarm)
④ External ZCT/embedded if Z1,Z2 is not marked
⑤ Power & Trip LED
⑥ RJ-45 (Ethernet)
⑦ 9Pin D-sup to connect meter (RS-232)
⑧ Reset
⑨ External ZCT/embedded if Z1,Z2 is not marked

DSP-CCM



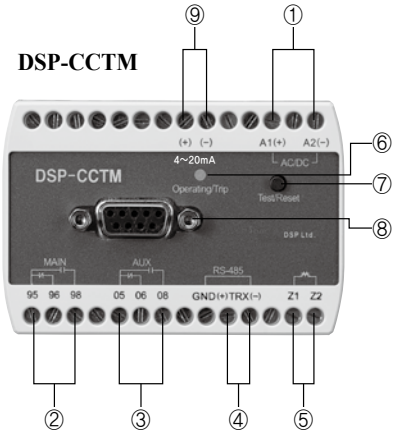
① Control power
② Main Trip output
③ Aux trip output(alarm)
④ RS-485 Modbus / RTU
⑤ External ZCT/embedded if Z1,Z2 is not marked
⑥ Power & Trip LED
⑦ Test & Reset
⑧ 9Pin D-sup to connect meter (RS-232)
⑨ Terminal Without marks is not used

DSP-CTM



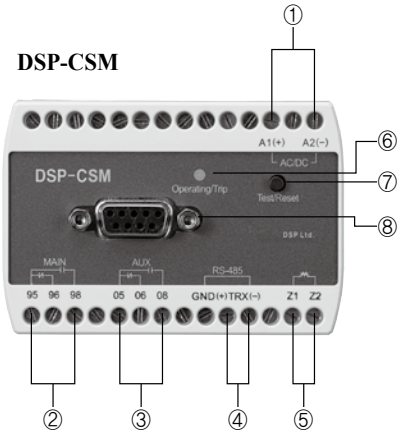
① Control power
② Main Trip output
③ Aux trip output(alarm)
④ External ZCT/embedded if Z1,Z2 is not marked
⑤ 4~20mA, current output
⑥ Power & Trip LED
⑦ Test & Reset
⑧ 9Pin D-sup to connect meter (RS-232)
⑨ External ZCT/embedded if Z1,Z2 is not marked

DSP-CCTM



① Control power
② Main Trip output
③ Aux trip output(alarm)
④ RS-485 Modbus / RTU
⑤ External ZCT/embedded if Z1,Z2 is not marked
⑥ Power & Trip LED
⑦ Test & Reset
⑧ 9Pin D-sup to connect meter (RS-232)
⑨ 4~20mA, current output
⑩ Terminal Without marks is not used

DSP-CSM



① Control power
② Main Trip output
③ Aux trip output(alarm)
④ RS-485 Modbus / RTU
⑤ External ZCT/embedded if Z1,Z2 is not marked
⑥ Power & Trip LED
⑦ Test & Reset
⑧ 9Pin D-sup to connect meter (RS-232)
⑨ External ZCT/embedded if Z1,Z2 is not marked

Operation Time

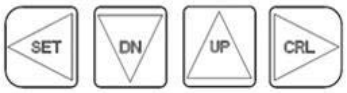
DIV	Description	Operation time	Remark
Over current(OC)	in case the load current greater than preset value is sensed	Definite time:0.1~60 sec/adjustable Inverse time:5~30class	C Series
Under current(UC)	in case the load current lower than preset value is sensed	0.1~30 sec	
Phase loss(PLc)	In case one of three phase is a state of phase loss	1sec~5sec	
reverse phase(rPc)	In case the order of load current phase is changed like "RTS" from "RST"	0.5sec	
Locked rotor(LC)	In case the starting current greater than 300% of "OC" preset value is kept after dt is elapsed	0.1sec	
Shock/Stall	In case the 180~700% running current of preset "OC" value is sensed	0.5sec~3sec	
Current unbalance(ub)	[max current-min current)/max current] * 100%	1sec ~8sec	
Ground fault(EC)	in case the ground fault current greater than preset value is sensed	0.1~30 sec	
Temperature(tEmP)	to ptotect over temperature sensed by PT100	8sec,only for CCM-PT/CCL-PT type	

Technical Specification

DIV		Description
Load Current range	10 Type	*0.5A~10A or external CT(0.5~6A) *0.5~6A for short circuit protection *Inverse T-I : 0.5~10A/800%
	70 Type	*5A~70A *5~25A for short circuit protection *Inverse T-I : 5~40A/800%
	With External CT	1A~1200A
Ground fault	Zero phase current	*30mA~2A *sensed through external ZCT or embedded ZCT
Time preset	Starting delay time(dt)	1~300 sec/def.
	over current trip delay(ot)	1~60 sec/def.
		5~30Class/inv.
	under current trip delay(uc)	1~30sec/def.
	Ground fault starting delay time(Edt)	OFF,0.1~25 sec/def.
	Ground fault trip delay time(Eot)	0.5~30 sec/def.
	Shock/stall trip delay time(st)	0.5~3sec/def.
	Phase loss trip delay time(PLc)	1~5sec/def.

DIV			Description
Allowable tollerance	Current		C<=2A:0.2A,C>2A:±5%
	Time		t<=2sec:± 0.2ec, t>2sec:±10%
Control power			AC100V ~ AC240V,50/60Hz (DC90V ~ DC370V)
Trip output relay	Main:95-96-98		1c(1-SPDT),2A/Resistive
	Aux:05-06-08		1c(1-SPDT),2A/Resistive to alarm output one of Ec/Ect/AL/ uc/Shoc
Application environment	temperature	Operation	-25^{O} C~+70^{O}C
		Storage	-40^{O} C~+80^{O}C
	Humidity		30~85%/Relative,non-condensing
Current tollerance against changeable frequency			Average +,- 5%,30Hz~400Hz
Max Main Conductor Size			25SQ
Screw Torque			Max 0.6 N.m
Insulation Resistence/IEC-60255-5			100Mohm or more/500VDC,circuit-case
High Voltage Withstand Test/ IEC-60255-5			*circuit-case:AC2000V,60Hz, 1 min *contact-contact:AC1000V,60Hz,1min
Lightning Impulse Voltage Withstand Test)/ IEC-60255-5			*Circuit-Ground,Circuit-Circuit:1.2/50uS,5KV *Control Circuits:1.2/50uS, 5KV
1 MHz Burst Immunity Test/:IEC 61000-4-18			2.5KV,Positive/Negative under 2sec
Electrostatic Discharge/IEC-61000-4-2			Air:Level 3, 8KV,Contact:Level 3,6KV
Radiated Electromagnetic Field Disturbance/ IEC-61000-4-3			Level 3, 10V/m
Electric Fast Transient Burst /IEC-61000-4-4			Power,Realy output:Level 4, 4KV
Surge Immunity test:IEC-61000-4-5			Relay output:1.2X50uS,2KV(0°,90°,180°,270°)
Conducted Disturbence Test:/IEC-61000-4-6			10V,Level 3
Digital communication	RS485	Physical	2 wire RS 485,Modbus/RTU
		Address	1~250
		Speed	9.6/19.2/38.4/57.6/76.8/115.2kbps
		Connection	Terminal:TRX(+),TRX(-)
		Termination resistance	it needs to use external resistance with 120 Ω
		Cable	Sheathed 2 Pair
	Etherent	Physical	ModbusTCP, 1Port/Isolation, LED Type
		Address	http://www.sollae.co.kr/kr/down load/utility.php : ezManager v3.2E
Power consumption			6W Max

Preset Key Operation



1. "SET" key	* Press "SET" Key to enter into setting mode, then "P0000" (factory default password) is shown * Move cursor from first digit to right end digit by pressing "CLR"key to input password, like this manner make required digit by using "UP","DN" key if it is customer's number , finally press once more, then operator meets possible state for preset a number or character of mode. * If there is no input for 15sec or pressing both "SET" and "CLR"key, it can be entered into operating condition.
2. Changed feature of Setting Key	* After entering into posible state for preset , each key acts its job as follows : SET---> backward direction, CLR--->foward direction, UP.DN--->able to select number or character in preset mode. * The previous mode based on setting mode is come out as pressing "SET" key during doing a prest job
3. "SET" Key & "CLR" Key/to select MODE	* Possible to select Mode by using "SET" or "CLR" key
4. "UP" key & "DN" Key/ Adjust	* Possible to preset required value as selection a character or number by using UP/DOWN
5."SET" & "CLR" Key/ Store	* The storage for preset data is completed by pressing both SET and CLR key in the same time
6."CLR" key	* While each factor is rotated, one of rotated factor is fixed by pressing "CLR" key * After fixing a operating factor, the operator is able to rotate manual one by one as pressing "UP"(forwardly), "DN"(reversely)
to check and/ or to change preset value of each mode during the operation	*Possible to check a value and a mode as pressing "SET" key once during the operation •preset value and mode are appeared alternatively •next mode as pressing “CLR” Key or previous mode as pressing “SET” key *Possible to change a preset value after entering into checking state if the preset value of “OPSET” mode belonged to “CAB” mode group is “ON”/ factory default value is “OFF” *Return to operating mode as pressing both “SET” and "CLR" key in the same time or waiting for
Test/ Reset:"CLR" Key	*to check if this relay is ready to work normally or not. *"tESt" is appeared in case the operator presses test sw on the converter or "CLR" key for 3 sec or more, then release pressed test sw or "CLR" key *main trip(95-96-98) & aux trip(05-06-08) output will be trip after counting down preset o-time(definite T-I) *In case of display meter type, LED on the converter is flickering after a trip *After making trip, press "CLR" key for the reset action

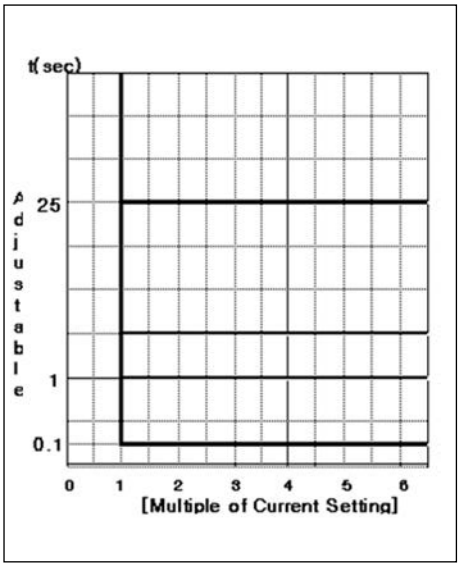
Preset Description

Mode	Function	Description	Factory
P0000	Password	P0000 is shown as pressing SET and need CLR 4 times to enter into mode to be preset	0000
OUt	to decide initial state of main trip relay output	*to make initial state(a or b) of main trip output(95-96-98) when control power is powered *a:normal energized type(95-96(a)-98(b) *b: normal deenergized type(95-96(b)-98(a)/not changed state	b
Ct	to select for direct through it's own CT or external CT	*This mode is available for 10 Type *To preset CT ratio[primary value/5] *CT ratio :1~600 *2t:twice winding through CT hole/0.3~3A *4t:four times winding through CT hole/0.2~2A *1:to sense a current through its own CT or external CT with 5/5 ratio	1
OC	to preset a range to protect over current	10 type:0.5~10A, 70 type: 5~70A	*10:10A *70:70A
dt	to preset starting trip delay time	1.0 ~ 300sec/adjustable	5sec
OtC	to select time-current chracteristics for	dEF : definite, Inv : inverse	dEF
Ot	to preset operating trip delay time	*definite:1sec~60sec *inverse:5~30 Class	5sec
LC	to protect Locked Rotor	*it is available for selecting ON [operation time: 0.1sec after dt is elapsed] *conditoion for "ON" : start running current is kept on 300% after dt is elapsed	OFF
ShoC	to protect mechanical shock during motor is working	*preset to "OC" : followed calculation/max 700% ~ -10Type:180%~[30/"OC"preset value] % -70Type:180%~[200/"OC" preset value] %	OFF
St	to preset a time for shock protection	0.5 ~ 3sec / definite	--
PLC	to protect phase loss by load current	ON : available,1~5sec/adjustable, OFF: not available	ON
rPC	to protect reverse phase by load current	ON: available,0.5sec, OFF : not available	OFF
EC	to preset a range of zero phase current to ground fault	30mA~4A/adjustable, OFF : disable	2A

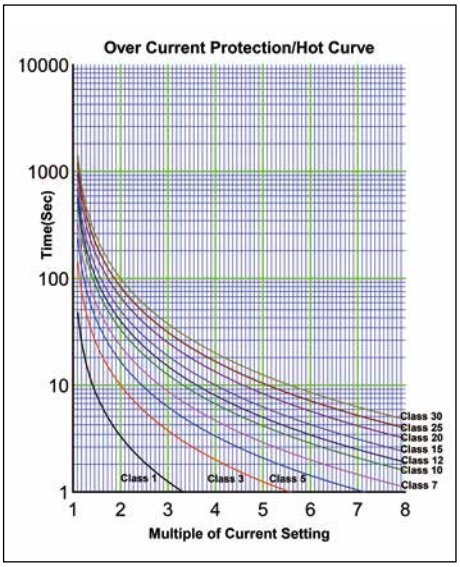
Mode	Function	Description	Factory
Edt	to preset starting trip delay time	1 ~ 25sec/adjustable	2sec
EOt	to preset operating trip delay time to protect ground fault	0.1 ~30sec/adjustable	0.1sec
UC	to preset a range to protect under current	*10 type : 0.4A~under "OC" preset value *70 type : 4.9A~under "OC"preset value	OFF
Ut	to preset trip delay time to protect under current	1 ~ 30sec/adjustable	2sec
Ub	to preset current unbalance rate(%) among 3 phasea	*formular:[(max-min) /max]*100 [%] *range:30% ~ 90% *minimum available current:0.3A	50%
AU-O	to preset a kind of AUX trip output	*oFF:same as main output *trip output for AL/Uc/Shoc/Ec is independent from main trip → this trip output is reset naturally if trip cause is clear *Ec-tb: only for ground fault protection ,but reset is not happened even though trip cause is clear *trip is stored in “trip” mode as a one of 8 latest event	OFF
AL	to preset alarm level rate(%) to OC	* % range : 65%~100%/adjustable ("AL" is preset in "Auo" mode)	90
ALt	to preset a limit of accumulated working time necessary to give alarm.	0.1 hr ~6553.5 hr in 0.1 hr step	6500
dC	to decide max current to change into 20mA	*to transfer maximum current of 3 phase current into 20mA ,and 4mA means zero ampere output/CTM,CTL Type	5
tEmP	to protect over temperature	*8sec, 1~150OC, sensed by PT100, only for CCM-PT/ CCL-PT type	OFF
rOtA	to indicate additional factor besides basic factor to indicate running operation value in a order	*OFF:3 phase current(L1,L2,L3),GF current *ON:[3 phase current] ,GF current] + [AWT] *interval time between each displayed factor : 3sec	OFF
rESEt	to decide how to reset trip state	*Hr:manual reset/Password input → main trip, Ec-tb trip(Aux) *Er:electrical reset : "Reset" key, "CLR" Key, Control power-off *AuL-#(n times):Auto reset by followed condition/ max n=9:n=1:possible to do only by entering password *Password reset : reset is done by comming out from operating mode after input password *Auto:only available for "OC" trip	hr
At	to preset auto reset time	0.1 ,1~ 300sec/adjustable	0.1
t-AUt	to preset total possible time available for executing defined times of auto reset	30min ~ 60min/adjustable	60
trIP	to show latest number of 8 trip cause	trip information in order:faulty phase and faulty value is appeared alternatively as controlling "UP" or "DN" key	1
Addr	to put self-address to communicate with pc	range of number:#1 ~ #250/CCM,CCL Type	1
bPS	to decide communication speed	2400, 9600, 19200, 38400bps/CCM,CCL Type	9600

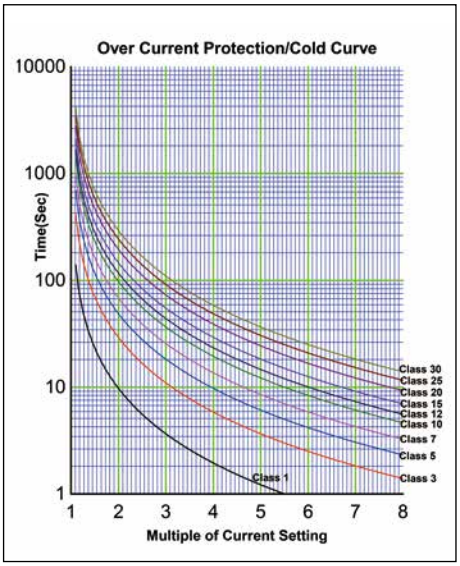
T–I Characteristic to protect over current

■ Definite



■ Inverse





Order Form

DSP-Type-Current rating-Z7(Control Voltage)-ZCT(Embedded ZCT)-P(Customer optional)

eg. Reference Code : DSP-COL-10-CC-Z7 → COL combined with external CT 150/5, control voltage: 100VAC~240VAC,50/60Hz, possible to use external ZCT

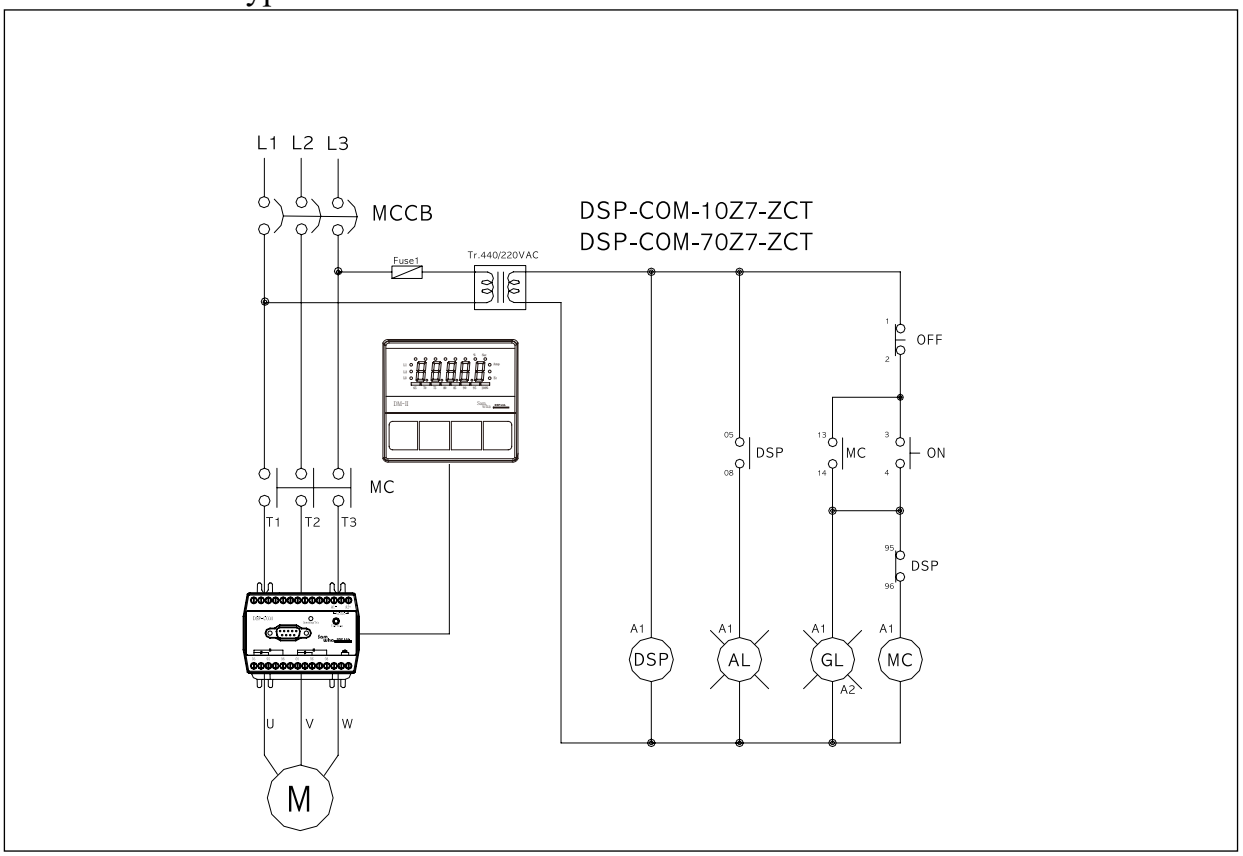
DIV		Description	Remark
1	COL	Panel Mounting Type / Unified Meter type	
	COM	Panel Flush Mounting Type / Seperated Meter type	
2	10	0.5~10A	5~6A with external CT
	70	5~70A	
3	B	24VAC/DC	
	Z	100VAC ~ 240VAC(90VDC ~ 370VDC)	
4	7	50/60Hz	
5	ZCT	Embedded ZCT	not used for external CT type
6	P	Optional by customer	
Terminal Type : Basic reference code +T : eg.XXXXXX -T			

Accessory

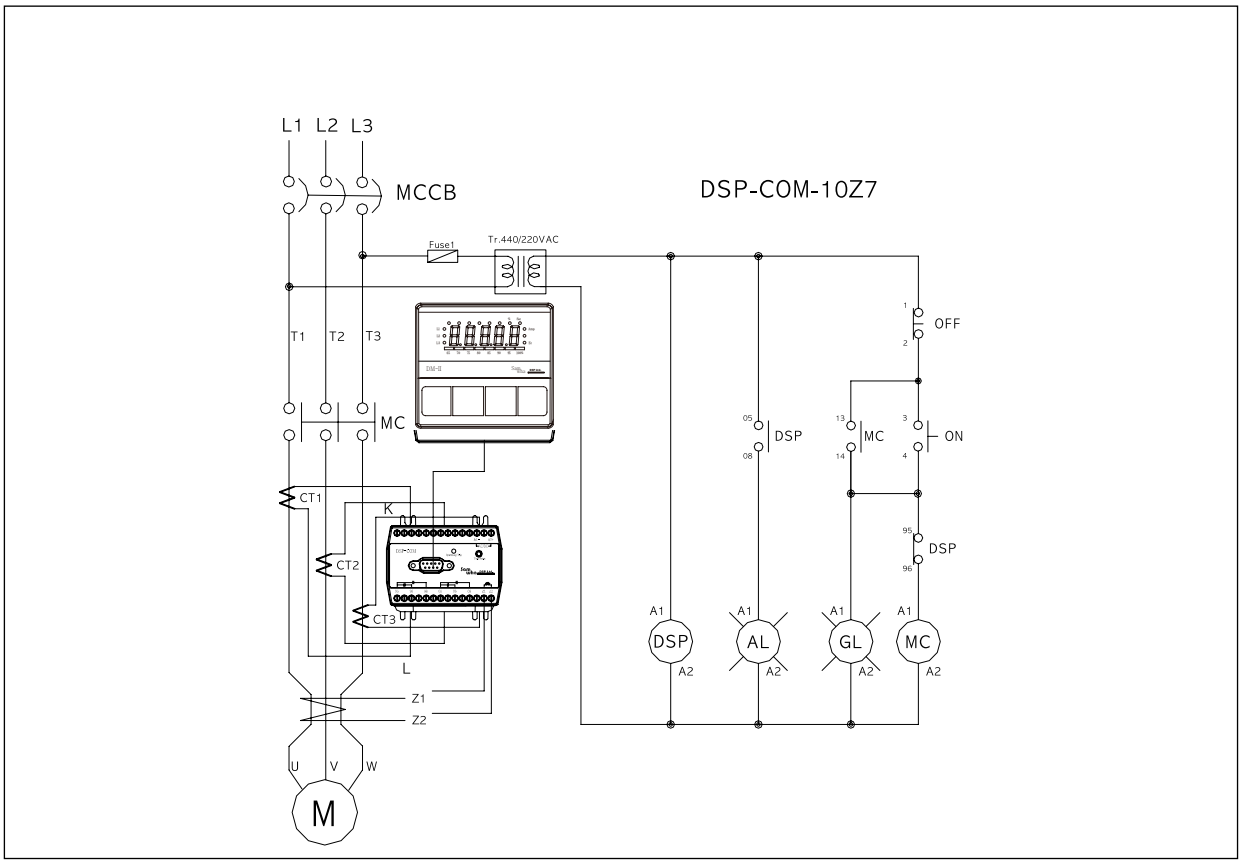
External CT	DSP - C1	3CT/Rectangular, 100/5
	DSP - CC	3CT/Rectangular, 150/5
	DSP - C2	3CT/Rectangular, 200/5
	DSP - C3	3CT/Rectangular, 300/5
	DSP - C4	3CT/Rectangular, 400/5
Cable	DSP - CABLE-12	1.2m
	DSP - CABLE-18	1.8m
	DSP - CABLE-30	3m
	DSP - CABLE-50	5m
ZCT	DSP - ZCT - XX	*100mA/1.5mA *XX : Inner diameter of ZCT

Application Sequence Diagram

Embedded ZCT Type

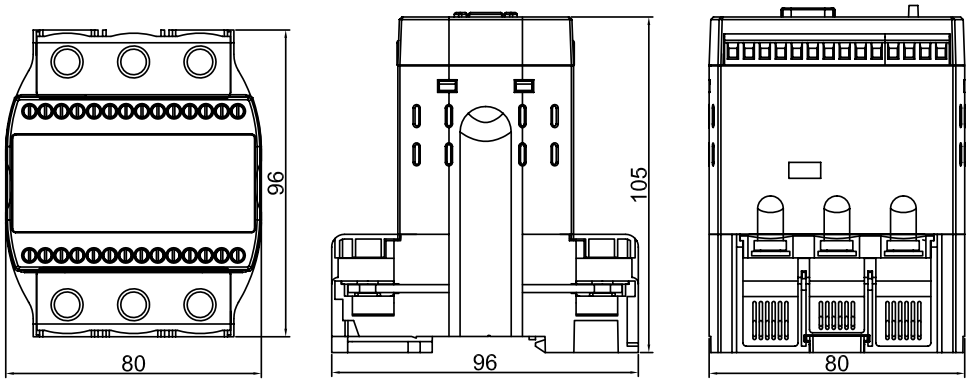


External CT, External ZCT Type

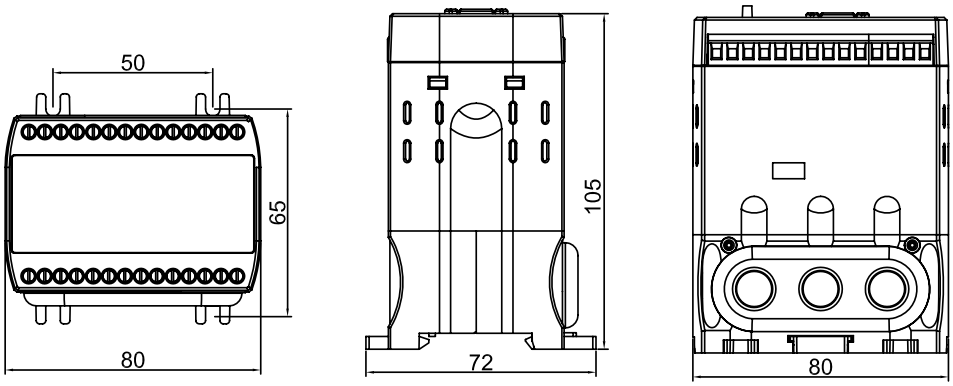


Dimension

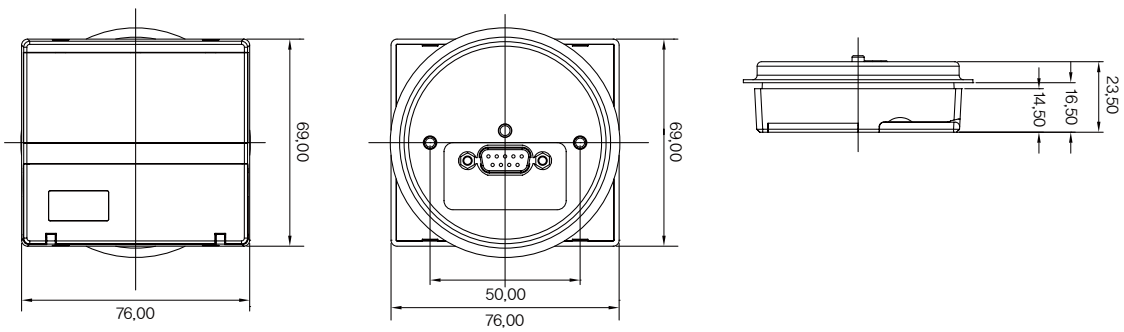
Terminal Type



Wire Through Type



Meter



CUTTING HOLE SIZE ; 65Ø

DSP-3CT
Current Transfomer

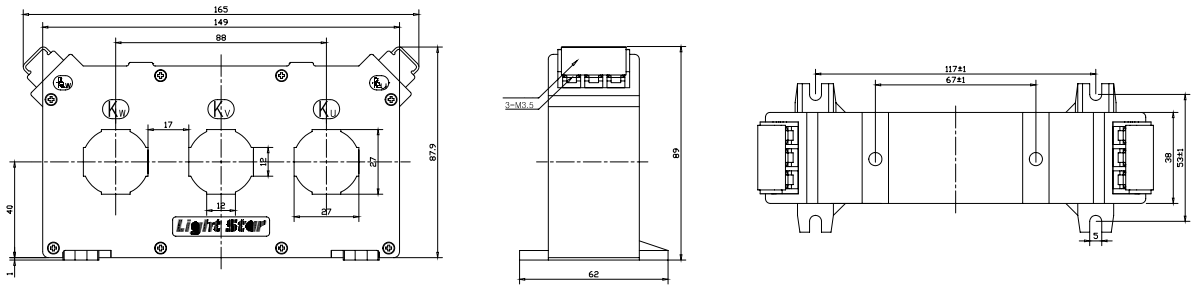
Specification

Model	DSP-3CT	
CT Ratio	100 : 5A	
	150 : 5A	
	200 : 5A	
	300 : 5A	
	400 : 5A	
Class	1.0, 3.0	
Burden(VA)	3VA	
Maximum Voltage	1150V	
Withstand Voltage	4kV / 1min	
Frequency	50 ~ 60Hz	
Accuracy	5P 5	
Cable Length(Max)	2.5SQ / 10M	
Installation	Screw Fix	

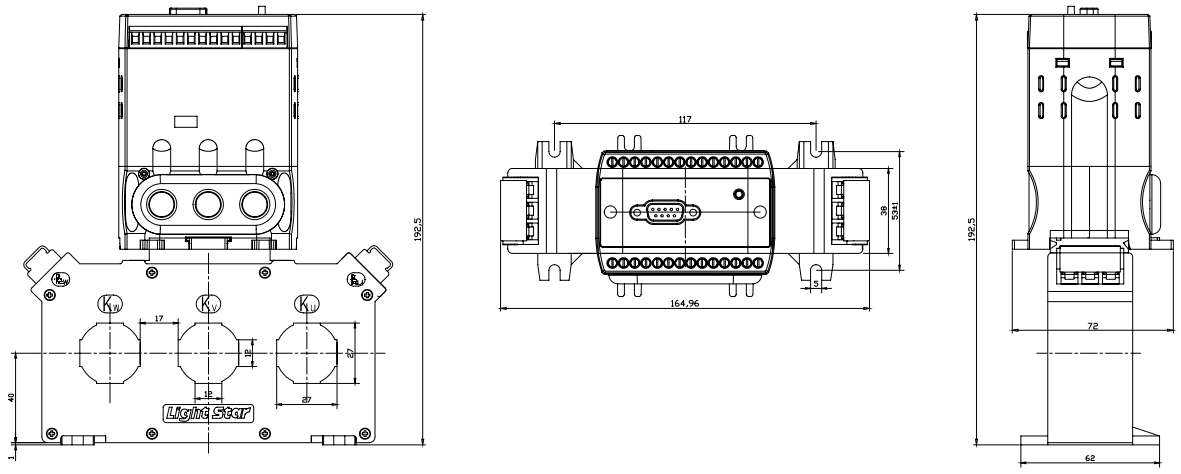
•These CT has to combine with DSP product only.

Dimension

3CT



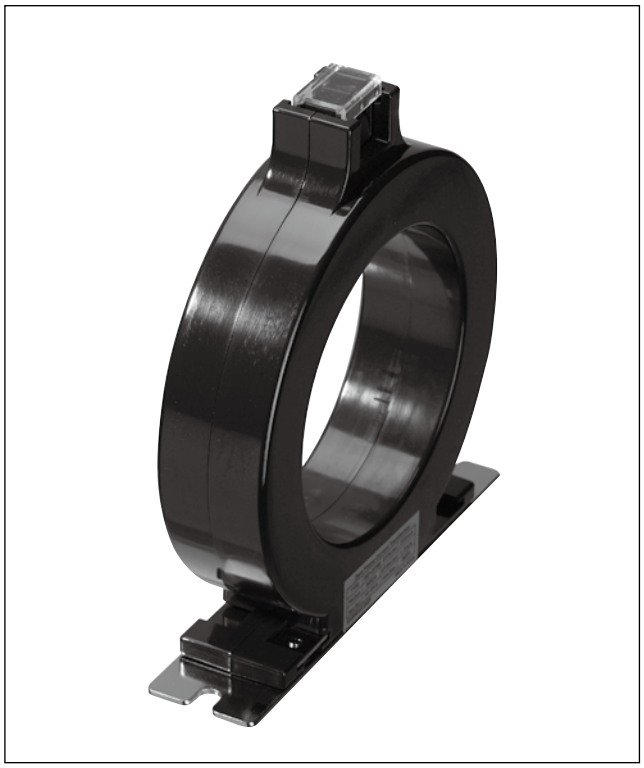
3CT with DSP



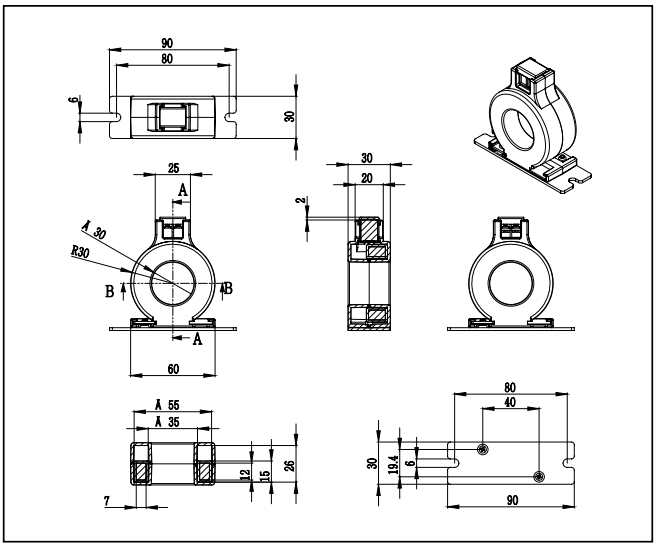
Order

Item	CT Ratio	Reference Code
3CT	100 : 5	DSP-3CT-100
	150 : 5	DSP-3CT-150
	200 : 5	DSP-3CT-200
	300 : 5	DSP-3CT-300
	400 : 5	DSP-3CT-400

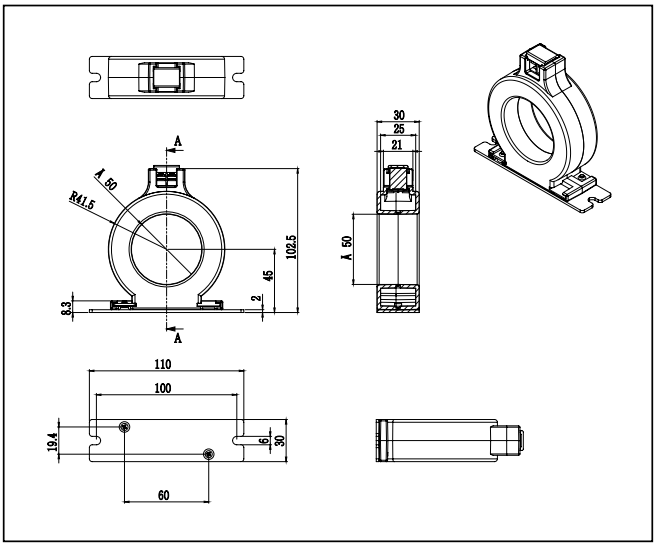
DSP-ZCT
Zero Phase Current Transformer



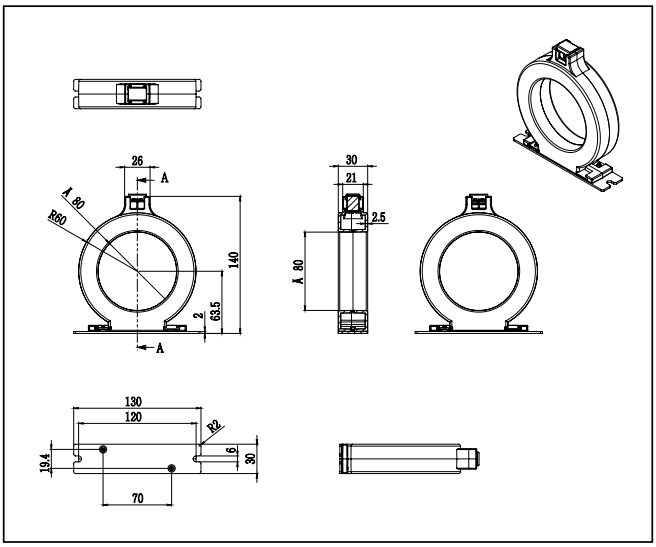
(30 ϕ ~80 ϕ)



30 ϕ



50 ϕ



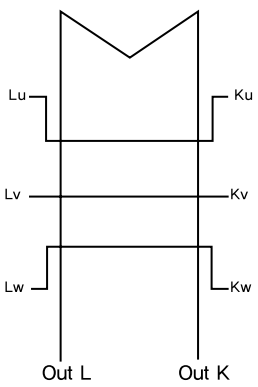
80 ϕ

Specification

Inner Diameter	30	50	80	120
Z.P.PrimaryCurrent	200mA			
Z.P.Secondary Current	1.5mA			
Primary Current	100	250	600	1000
Operating Temperature	-25℃ ~ +70℃			
Storage Temperature	-35℃ ~ +80℃			
High Potential Test	AC 2000V, 1min			
Insulation Resistance	DC 500V, 10MOhm			
Operating Frequency	50/60Hz			
Error Tolerance	10%			
Installation	Screw Fix			
Weight	170	215	345	700

Order Form

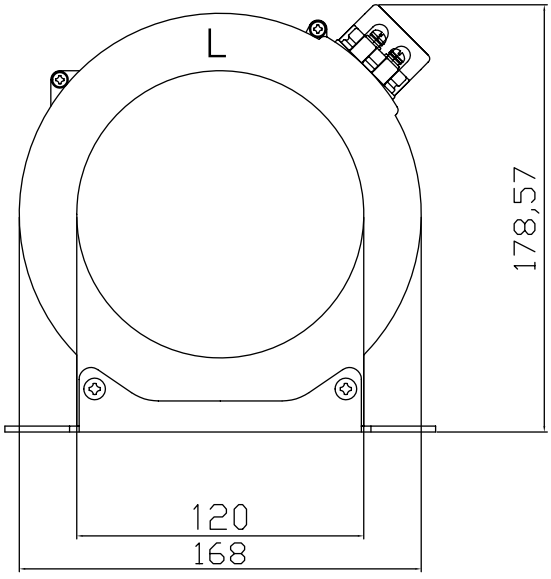
Item	Inner Diameter (mm)	Reference Code
ZCT	30	DSP-ZCT-30N
	50	DSP-ZCT-50N
	80	DSP-ZCT-80N
	120	DSP-ZCT-120N

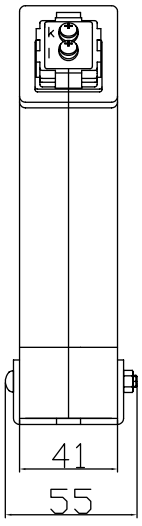


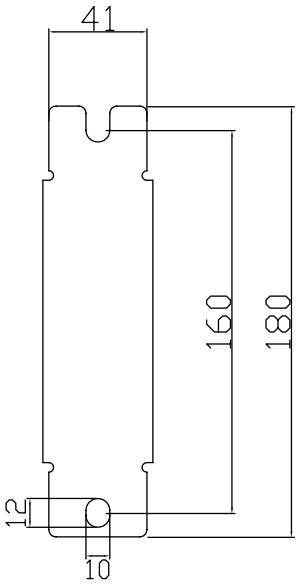
DSP-ZCT

Zero Phase Current Transformer

(120 ϕ)











"New Leader !!"

Optimized Preventive Maintenance Solution!!

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