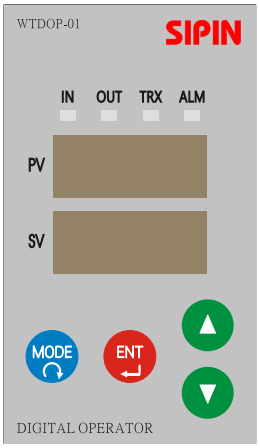
W7

Three-Phase Product Operation and Parameter Description



1.Explanation of indicator lamp：

IN：Input indicator lamp
OUT：Output indicator lamp
TRX：Transmission indicator lamp
ALM：Error indicator lamp

2.Text cross reference table：

1	1	2	2	3	3	4	4	5	5
6	6	7	7	8	8	9	9	0	0
A	A	b	b	C	C	d	d	E	E
F	F	G	G	H	H	i	i	J	J
k	k	L	L	m	m	n	n	o	o
P	P	q	q	r	r	S	S	t	t
u	u	V	V	w	w	X	X	y	y
Z	Z								

3.Description of function keys：

MODE and EXIT key
1.Switch between different layers.
2.Not yet in setting mode: Exit and return to display mode.
3.In setting mode: Exit without saving file.
4.When error happens: Error reset.
5.In setting mode: Press and hold, then press upward cursor to move left, and press downward cursor to move right.

Enter key
1.Not yet in setting mode: Enter parameter setting, SV value blinks.
2.In setting mode: Save value and blinking stops, exit setting mode.

Upward cursor
1. Not yet in setting mode: Switch parameter. (upward)
2. In setting mode: The value increases.

Downward cursor
1.Not yet in setting mode: Switch parameter. (downward)
2.In setting mode: The value decreases.

1-1.Display layer

Parameter Code No.	Description	Unit	Product Type P	D	T	V	F	Keyboard R/W	Register Address	Comm. R/W
in	Input percentage	0.0 %	◉	◉	◉	◉	◉	R	10	R
out	Output percentage	0.0 %	◉	◉	◉	◉	◉	R	11	R
SFS	Soft start	sec	◉	◉	◉	◉	◉	R	12	R
SFd	Soft down	sec	◉	◉	◉	◉	◉	R	13	R
nAHL	Maximum output limit	0.0 %	◉	◉	◉	◉	◉	R	14	R
Uout	Output voltage (RMS)	0.0 V		◉	◉	◉	◉	R	15	R
Ar	R-phase output current (RMS)	0.0 A		◉	◉		◉	R	16	R
AS	S-phase output current (RMS)	0.0 A			◉		◉	R	17	R
At	T-phase output current (RMS)	0.0 A			◉		◉	R	18	R
PU	Output power	0.0 KW		◉	◉		◉	R	19	R
oC	Heat sink temperature	±0.0 ℃	◉	◉	◉	◉	◉	R	20	R
SoC	S-phase heat sink temperature ※1	±0.0 ℃	◉	◉	◉	◉	◉	R	21	R
toC	T-phase heat sink temperature ※1	±0.0 ℃	◉	◉	◉	◉	◉	R	22	R
HZ	Power supply frequency (45~65Hz)	Hz	◉	◉	◉	◉	◉	R	23	R
S1	External analog S1 value	0.0 %	◉	◉	◉	◉	◉	R	24	R
S2	External analog S2 value	0.0 %	◉	◉	◉	◉	◉	R	25	R
dGin	Digital input (Unit is controlled by the Ctnd parameter on the control layer and InSL parameter layer.) (When digital input is selected on the InSL parameter layer, it can be set up from any parameter on the display layer by pressing Enter key.)	0.0 % 0.0 V 0.0 A 0.0 KW	◉	◉	◉	◉	◉	R/W	26	R
oPtt	Operating time (Unit is determined by the P-2u parameter on the control layer, it will be reset to 0 after there is no output for 1 minute)	Min Hr	◉	◉	◉	◉	◉	R	27	R
Aout	Average current of 3 phase supply (RMS)	0.0 A			◉		◉	R	31	R
Lbdf	Percentage of unbalanced load	%					◉	R	32	R
PUH	Load power consumption (The value reset to zero when powered on.)	KWH		◉	◉		◉	R	33	R
oHn	Impedance value	0.00 Ω		◉	◉		◉	R	34	R

※Note 1: Only 450, 580, 750A models have this parameter.

1-2Display Layer (Error record)：On the display layer, press the MODE key for 3 seconds

Parameter Code No.	Description	Product Type P	D	T	V	F	Keyboard R/W	Parameter Address	Comm. R/W
Err 1	Error record 1	◉	◉	◉	◉	◉	R	100	R
Err2	Error record 2	◉	◉	◉	◉	◉	R	101	R
Err3	Error record 3	◉	◉	◉	◉	◉	R	102	R
Err4	Error record 4	◉	◉	◉	◉	◉	R	103	R

2. Parameter Layer： On the display layer, press the MODE key + ENT key

Parameter Code No.	Description	Range			Product Type P	D	T	V	F	Default setting	Keyboard R/W	Parameter Address	Comm. R/W
PGSL	Preset parameter on the Display layer when powered on	Value	Display	Description						out	R/W	128	R/W
		00	in	Input percentage	◉	◉	◉	◉	◉				
		01	out	Output percentage	◉	◉	◉	◉	◉				
		02	SFS	Soft start	◉	◉	◉	◉	◉				
		03	SFd	Soft down	◉	◉	◉	◉	◉				
		04	nAxL	Maximum output limit	◉	◉	◉	◉	◉				
		05	Uout	Output voltage		◉	◉	◉	◉				
		06	Ar	R-phase output current		◉	◉		◉				
		07	AS	S-phase output current			◉		◉				
		08	At	T-phase output current			◉		◉				
		09	Pu	Output power		◉	◉		◉				
		10	°C	Heat sink temperature	◉	◉	◉	◉	◉				
		11	S°C	S-phase heat sink temperature ※2	◉	◉	◉	◉	◉				
		12	t°C	T-phase heat sink temperature ※2	◉	◉	◉	◉	◉				
		13	HZ	Power supply frequency	◉	◉	◉	◉	◉				
		14	S1	External analog S1 value	◉	◉	◉	◉	◉				
		15	S2	External analog S2 value	◉	◉	◉	◉	◉				
		16	dIn	Digital input	◉	◉	◉	◉	◉				
		17	oPt	Operating time	◉	◉	◉	◉	◉				
		18	Aout	Average current of 3 phase supply			◉		◉				
		19	Lbdf	Percentage of unbalanced load					◉				
		20	PUH	Load power consumption		◉	◉		◉				
		21	oHn	Impedance value		◉	◉		◉				
SFS	Soft start	0~30sec			◉	◉	◉	◉	◉	10	R/W	129	R/W
SFd	Soft down	0~30sec			◉	◉	◉	◉	◉	0	R/W	130	R/W
nAn	Maximum output value	0~100%			◉	◉	◉	◉	◉	100	R/W	131	R/W
bASE	Basic output value	0~50%			◉	◉	◉	◉	◉	0	R/W	132	R/W
A.F	Function selection for external analog terminal	Value	S1 terminal function	S2 terminal function						00	R/W	133	R/W
		00	Not in use	Closed: Error reset	◉	◉	◉	◉	◉				
		01	Maximum output limit	Closed: Error reset	◉	◉	◉	◉	◉				
		02	Maximum output limit	Basic output amount 0~50%	◉	◉	◉	◉	◉				
		03	Manual setting	Closed: Error reset	◉	◉	◉	◉	◉				
		04	Manual setting	Basic output amount 0~50%	◉	◉	◉	◉	◉				
		05	Manual setting (Invalid when automatic)	Open: Automatic Closed: Manual	◉	◉	◉	◉	◉				
		06	Manual setting (Restricted when automatic)	Open: Automatic Closed: Manual	◉	◉	◉	◉	◉				
		07	Maximum output limit	Zero crossing cycle sampling	◉	◉	◉	◉	◉				
		08	Maximum output limit	Zero crossing time sampling	◉	◉	◉	◉	◉				
		09	Maximum output limit	Open: Stop Closed: Run	◉	◉	◉	◉	◉				
		10	Open: Automatic Closed: Digital input	Closed: Error reset	◉	◉	◉	◉	◉				
		12	Voltage limit	Closed: Error reset				◉	◉				
		13	Current limit	Closed: Error reset					◉				
		14	Voltage limit	Current limit					◉				

※Note 2: Only 450, 580, 750A models have this parameter.

Parameter Code No.	Description	Range			Product Type					Default setting	Keyboard R/W	Parameter Address	Comm. R/W
FbES	Fuse breaking up, output continued	Value	Display	Description of function	P	D	T	V	F	no	R/W	134	R/W
		0	no	No	◉	◉	◉	◉	◉				
		1	YES	Yes	◉	◉	◉	◉	◉				
Sbnd	Breaking out detecting for SCR module	Value	Description of function		P	D	T	V	F	3	R/W	135	R/W
		0	When detected, continue output, dry contact operation						◉				
		1	When detected, stop output, dry contact operation						◉				
		2	When detected, continue output, no dry contact operation						◉				
		3	No detection						◉				
LCPE	Percentage setting for low current detection	0~80% (None detecting in 0 setting, multiply with toSt parameter)							◉	0	R/W	136	R/W
CrFd	Current detection	0.0~toSt (Set 0 for no detection)							◉	0.0	R/W	137	R/W
LbPE	Percentage setting for load unbalance detection	0~80% (Set 0 for no detection)							◉	0	R/W	138	R/W
Lbnd	Dry contact for load unbalance or low current detection	Value	Description of function		P	D	T	V	F	0	R/W	139	R/W
		0	When detected, continue output, dry contact operation						◉				
		1	When detected, stop output, dry contact operation						◉				
		2	When detected, continue output, no dry contact operation						◉				
ALSL	Multi-function dry contact	Value	Display	Description of function	P	D	T	V	F	no	R/W	140	R/W
		0	no	Abnormal dry contact, normally open	◉	◉	◉	◉	◉				
		1	nC	Abnormal dry contact, normally closed	◉	◉	◉	◉	◉				
		2	run	Operation output contact	◉	◉	◉	◉	◉				
		3	CrFd	Current detection contact					◉				
InSL	Input signal selection	Value	Display	Description of function	P	D	T	V	F	AI.In	R/W	141	R/W
		0	AI.In	External terminal analog input	◉	◉	◉	◉	◉				
		1	dGPE	Digital input percentage	◉	◉	◉	◉	◉				
		2	dGrL	Digital input actual value setting				◉	◉				
dGIn	Digital input value	It is 0.0~100.0(%) when **IN.SL = DG.PE**. It changes according to the selection of control mode when **IN.SL = DG.RL**, there are 0.0~100.0(%), 0.0~VO.ST(V), 0.0~IO.ST(A), 0.0~KW.ST (KW)			◉	◉	◉	◉	◉	0.0	R/W	142	R/W
ALdt	Detection lag time setting for power supply	0~250sec			◉	◉	◉	◉	◉	0	R/W	143	R/W
dAIt	Time to return to display layer during non-operation	10~250sec			◉	◉	◉	◉	◉	30	R/W	144	R/W
tHrS	Overheating reset selection	Value	Display	Description of function	P	D	T	V	F	Auto	R/W	145	R/W
		0	Auto	Automatic reset （80℃）	◉	◉	◉	◉	◉				
		1	nAnL	Manual reset (Press Mode key to reset)	◉	◉	◉	◉	◉				
Lond	Operating mode select in case of open load circuit or when the load output is lower then 10% of rated current	Value	Description of function		P	D	T	V	F	3	R/W	146	R/W
		0	When detected, continue output, dry contact operation						◉				
		1	When detected, stop output, dry contact operation						◉				
		2	When detected, continue output, dry contact no operation						◉				
		3	No detection						◉				
LoCt	Parameter protection level	Value	Description of function		P	D	T	V	F	0	R/W	147	R
		0	Open all parameters		◉	◉	◉	◉	◉				
		1	Lock the control layer		◉	◉	◉	◉	◉				
		2	Lock the control layer and communication layer		◉	◉	◉	◉	◉				
		3	Lock all parameters, only LoCt parameter remains unlocked		◉	◉	◉	◉	◉				
		4	Adjusting level for engineer commissioning		◉	◉	◉	◉	◉				

3-1 Communication Layer：On the display layer, press MODE + ▼ keys for 3 seconds

Parameter Code No.	Description	Range	Product Type P	D	T	V	F	Default setting	Keyboard R/W	Parameter Address	Comm. R/W
Addr	Address	1~250	◉	◉	◉	◉	◉	1	R/W	256	R/W
bAud	Baud rate	Value 0 / Display 4.8E / Description of function: 4800bps	◉	◉	◉	◉	◉	9.6E	R/W	257	R/W
		Value 1 / Display 9.6E / 9600bps	◉	◉	◉	◉	◉				
		Value 2 / Display 19.2E / 19200bps	◉	◉	◉	◉	◉				
		Value 3 / Display 38.4E / 38400bps	◉	◉	◉	◉	◉				
Conn	Communication protocol MODBUS RTU	Value 0 / Display 8n1 / 8 bits, no parity, 1 stop bit	◉	◉	◉	◉	◉	8n1	R/W	258	R/W
		Value 1 / Display 8n2 / 8 bits, no parity, 2 stop bits	◉	◉	◉	◉	◉				
		Value 2 / Display 8o1 / 8 bits, odd parity, 1 stop bit	◉	◉	◉	◉	◉				
		Value 3 / Display 8E1 / 8 bits, even parity, 1 stop bit	◉	◉	◉	◉	◉				
rnSL	Communication operation control selection	Value 0 / Display no / Not in use	◉	◉	◉	◉	◉	no	R/W	259	R/W
		Value 1 / Display YES / In use	◉	◉	◉	◉	◉				
CCnd	Communication operation control command	Value 0 / Display StoP / Stop	◉	◉	◉	◉	◉	StoP	R	260	R/W
		Value 1 / Display run / In operation	◉	◉	◉	◉	◉				
CrEr	Clear error record	Value 0 / Display no / Doesn't clear error record	◉	◉	◉	◉	◉	no	R/W	261	R/W
		Value 1 / Display YES / Clear error record	◉	◉	◉	◉	◉				
rESt	Reset to default value (When in parameter protection mode or in output mode, it cannot be reset to default value)	Value 0 / Display no / Doesn't reset to default value	◉	◉	◉	◉	◉	no	R/W	262	R/W
		Value 1 / Display YES / Reset to default value	◉	◉	◉	◉	◉				
UEr	Controller firmware version	0.001~9.999	◉	◉	◉	◉	◉	×	R	263	R
tUEr	Digital control box firmware version	00.01~09.99	◉	◉	◉	◉	◉	×	R	264	R
FILE	Load/save of user's parameter setting (Press ENT key for 3 seconds to confirm the execution)	Value 0 / Display nonE / None	◉	◉	◉	◉	◉	nonE	R/W	265	R
		Value 1 / Display LduS / Load saved parameter (nodt displayed in case of no setting data)	◉	◉	◉	◉	◉				
		Value 2 / Display St.uS / Save current parameters	◉	◉	◉	◉	◉				

AoSL	Analog output selection (Connect to 1 unit only. Vmax: 5VDC)	Display 4-20 / 4~20mA	◉	◉	◉	◉	◉	4-20	R/W	×	×
		Display 0-20 / 0~20mA	◉	◉	◉	◉	◉				
AoF	Analog output corresponding values	Display in / Input percentage	◉	◉	◉	◉	◉	out	R/W	×	×
		Display out / Output percentage	◉	◉	◉	◉	◉				
		Display Ui / Output voltage corresponding Uin percentage (Uout÷Uin)				◉	◉				
		Display Uo / Output voltage corresponding UoSt percentage (Uout÷UoSt)				◉	◉				
		Display Aout / Output current percentage (Aout÷AoSt)		◉	◉		◉				
		Display yU / Output power percentage (yU÷yUSt)					◉				
AoZr	Analog output ZERO adjustment	-10~10%	◉	◉	◉	◉	◉	0	R/W	×	×
AoSP	Analog output SPAN adjustment	70~115%	◉	◉	◉	◉	◉	100	R/W	×	×

doSL	Multi-functional electronic contacts	Display no / Abnormal dry contact, normally open	◉	◉	◉	◉	◉	run	R/W	×	×
		Display nC / Abnormal dry contact, normally closed	◉	◉	◉	◉	◉				
		Display run / Operating output contact	◉	◉	◉	◉	◉				
		Display Cr.Fd / Current detection contact					◉				

※Communication interval must be greater then 10ms.
※Support MODBUS communication function 03H, 06H,10H.
※MODBUS communication function 03H can be read at most 20 times, 10H can be writen at most 10 times.

3-2 Reading area of continuous 20 communications customized parameter layer：

On the communication layer, press MODE + ▼ keys

Parameter Code No.	Description	Range	Product Type					Default setting	Keyboard R/W	Parameter Address	Comm. R/W
			P	D	T	V	F				
ud01	Parameter reading address of customized DATA 01	0~639	◉	◉	◉	◉	◉	0	R/W	512	R/W
ud02	Parameter reading address of customized DATA 02	0~639	◉	◉	◉	◉	◉	0	R/W	513	R/W
ud03	Parameter reading address of customized DATA 03	0~639	◉	◉	◉	◉	◉	0	R/W	514	R/W
ud04	Parameter reading address of customized DATA 04	0~639	◉	◉	◉	◉	◉	0	R/W	515	R/W
ud05	Parameter reading address of customized DATA 05	0~639	◉	◉	◉	◉	◉	0	R/W	516	R/W
ud06	Parameter reading address of customized DATA 06	0~639	◉	◉	◉	◉	◉	0	R/W	517	R/W
ud07	Parameter reading address of customized DATA 07	0~639	◉	◉	◉	◉	◉	0	R/W	518	R/W
ud08	Parameter reading address of customized DATA 08	0~639	◉	◉	◉	◉	◉	0	R/W	519	R/W
ud09	Parameter reading address of customized DATA 09	0~639	◉	◉	◉	◉	◉	0	R/W	520	R/W
ud 10	Parameter reading address of customized DATA 10	0~639	◉	◉	◉	◉	◉	0	R/W	521	R/W
ud 11	Parameter reading address of customized DATA 11	0~639	◉	◉	◉	◉	◉	0	R/W	522	R/W
ud 12	Parameter reading address of customized DATA 12	0~639	◉	◉	◉	◉	◉	0	R/W	523	R/W
ud 13	Parameter reading address of customized DATA 13	0~639	◉	◉	◉	◉	◉	0	R/W	524	R/W
ud 14	Parameter reading address of customized DATA 14	0~639	◉	◉	◉	◉	◉	0	R/W	525	R/W
ud 15	Parameter reading address of customized DATA 15	0~639	◉	◉	◉	◉	◉	0	R/W	526	R/W
ud 16	Parameter reading address of customized DATA 16	0~639	◉	◉	◉	◉	◉	0	R/W	527	R/W
ud 17	Parameter reading address of customized DATA17	0~639	◉	◉	◉	◉	◉	0	R/W	528	R/W
ud 18	Parameter reading address of customized DATA 18	0~639	◉	◉	◉	◉	◉	0	R/W	529	R/W
ud 19	Parameter reading address of customized DATA19	0~639	◉	◉	◉	◉	◉	0	R/W	530	R/W
ud20	Parameter reading address of customized DATA 20	0~639	◉	◉	◉	◉	◉	0	R/W	531	R/W

Reading area of continuous 20 communications

Parameter Code No.	Description	Range	Product Type					Default setting	Keyboard R/W	Parameter Address	Comm. R/W
			P	D	T	V	F				
DATA01	Read the parameter address data set by ud01	The same as the data range for the parameter address set for ud01	◉	◉	◉	◉	◉	×	×	640	R
DATA02	Read the parameter address data set by ud02	The same as the data range for the parameter address set for ud02	◉	◉	◉	◉	◉	×	×	641	R
DATA03	Read the parameter address data set by ud03	The same as the data range for the parameter address set for ud03	◉	◉	◉	◉	◉	×	×	642	R
DATA04	Read the parameter address data set by ud04	The same as the data range for the parameter address set for ud04	◉	◉	◉	◉	◉	×	×	643	R
DATA05	Read the parameter address data set by ud05	The same as the data range for the parameter address set for ud05	◉	◉	◉	◉	◉	×	×	644	R
DATA06	Read the parameter address data set by ud06	The same as the data range for the parameter address set for ud06	◉	◉	◉	◉	◉	×	×	645	R
DATA07	Read the parameter address data set by ud07	The same as the data range for the parameter address set for ud07	◉	◉	◉	◉	◉	×	×	646	R
DATA08	Read the parameter address data set by ud08	The same as the data range for the parameter address set for ud08	◉	◉	◉	◉	◉	×	×	647	R
DATA09	Read the parameter address data set by ud09	The same as the data range for the parameter address set for ud09	◉	◉	◉	◉	◉	×	×	648	R
DATA10	Read the parameter address data set by ud10	The same as the data range for the parameter address set for ud10	◉	◉	◉	◉	◉	×	×	649	R
DATA11	Read the parameter address data set by ud11	The same as the data range for the parameter address set for ud11	◉	◉	◉	◉	◉	×	×	650	R
DATA12	Read the parameter address data set by ud12	The same as the data range for the parameter address set for ud12	◉	◉	◉	◉	◉	×	×	651	R
DATA13	Read the parameter address data set by ud13	The same as the data range for the parameter address set for ud13	◉	◉	◉	◉	◉	×	×	652	R
DATA14	Read the parameter address data set by ud14	The same as the data range for the parameter address set for ud14	◉	◉	◉	◉	◉	×	×	653	R
DATA15	Read the parameter address data set by ud15	The same as the data range for the parameter address set for ud15	◉	◉	◉	◉	◉	×	×	654	R
DATA16	Read the parameter address data set by ud16	The same as the data range for the parameter address set for ud16	◉	◉	◉	◉	◉	×	×	655	R
DATA17	Read the parameter address data set by ud17	The same as the data range for the parameter address set for ud17	◉	◉	◉	◉	◉	×	×	656	R
DATA18	Read the parameter address data set by ud18	The same as the data range for the parameter address set for ud18	◉	◉	◉	◉	◉	×	×	657	R
DATA19	Read the parameter address data set by ud19	The same as the data range for the parameter address set for ud19	◉	◉	◉	◉	◉	×	×	658	R
DATA20	Read the parameter address data set by ud20	The same as the data range for the parameter address set for ud20	◉	◉	◉	◉	◉	×	×	659	R

4. Control Layer：On the display layer, press MODE + ▲ keys for 3 seconds

Parameter Code No.	Description	Range	Product Type	Default setting	Keyboard R/W	Parameter Address	Comm. R/W
Ctrd	Control mode	Value / Display / Description of function / P D T V F 0 / tP-P / Phase control proportional output ◉ ◉ ◉ ◉ ◉ 1 / tZ-A / Zero crossing cycle sampling ◉ ◉ ◉ ◉ ◉ 2 / tZ-S / Zero crossing time sampling ◉ ◉ ◉ ◉ ◉ 3 / tP.ZA / Phase start for cycle sampling ◉ ◉ ◉ ◉ ◉ 4 / tP.ZS / Phase start for time sampling ◉ ◉ ◉ ◉ ◉ 5 / tP.CU / Phase constant voltage ◉ ◉ 6 / tP.CL / Phase limit current ◉ 7 / tP.CC / Phase constant current ◉ 8 / tP.CW / Phase constant power ◉	Standard V,A Indicating tP-P Voltage feedback tP.CU Full-function tP.CL	R/W	384	R/W
3P4W	3 phase 4 wire control (Load connected to Y, neutral point connected to N-phase)	Value / Display / Description of function / P D T V F 0 / no / No ◉ ◉ ◉ ◉ ◉ 1 / YES / Yes ◉ ◉ ◉ ◉ ◉	no	R/W	385	R/W
St.Tn	Sampling time ※3	1~10sec ◉ ◉ ◉ ◉ ◉	2	R/W	386	R/W
P-Pt	Phase operation time ※4	1~250minutes or hours (Unit will refer to the setting of P-Pu) ◉ ◉ ◉ ◉ ◉	1	R/W	387	R/W
P-Pu	Time unit of phase operation ※4	Value / Display / Description of function / P D T V F 0 / Min / Minute ◉ ◉ ◉ ◉ ◉ 1 / Hr / Hour ◉ ◉ ◉ ◉ ◉	Min	R/W	388	R/W
Vin	Input power supply voltage	Product main power supply voltage specification 1V：40~120VAC 4V：180~480VAC 6V：460~690VAC ◉ ◉	1V:110 4V:380 6V:660	R/W	389	R/W
Vo.St	Output voltage setting	0~Input power supply voltage ◉ ◉	1V:110 4V:380 6V:660	R/W	390	R/W
Io.St	Output current setting	0~Rated current ◉ ◉ ◉	Rated current	R/W	391	R/W
oC.St	Over current setting	0~150% (Set 0 for no detection) ◉	120	R/W	392	R/W
KW.St	Power setting ※5	0.0~Rated power ◉	※6	R/W	393	R/W
PASL	Phase control proportional output , Zero crossing cycle sampling and Zero crossing time sampling possess current limit function	Value / Display / Description of function / P D T V F 0 / no / Current unlimited ◉ ◉ ◉ 1 / YES / Current limited ◉ ◉ ◉	no	R/W	394	R/W

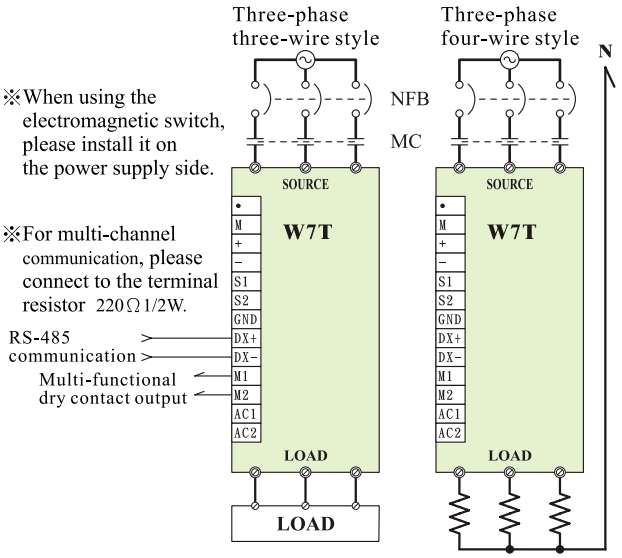
※Note 3: Shall be needed when TZ-S or TP.ZS is selected.
※Note 4: Shall be needed when TP.ZA or TP.ZS is selected.
※Note 5: Shall be needed when TP.CW is selected.
※Note 6: Default value of KW.ST＝Vin × Io.ST × $\sqrt{3}$ ÷ 1000 (KW)

5. Description of transmission and error codes：

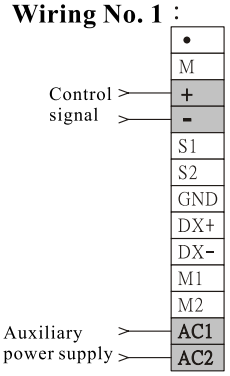
Parameter Code No.	Description	Range				Product Type					Parameter Address	Comm. R/W
		Value	Error Code	Description	With multi-functional dry contact output	P	D	T	V	F		
Er.HP	Error message	0	nonE	No error		◉	◉	◉	◉	◉	8	R
		1	Fb-r	R-phase fuse is blown	◎	◉	◉	◉	◉	◉		
		2	Fb-S	S-phase fuse is blown	◎	◉	◉	◉	◉	◉		
		3	Fb-t	T-phase fuse is blown	◎	◉	◉	◉	◉	◉		
		4	Fb	No power transmission or fuse is blown	◎	◉	◉	◉	◉	◉		
		5	oC	Over current	◎					◉		
		6	oH	Overheat （85℃）	◎	◉	◉	◉	◉	◉		
		7	tHEr	Temperature sensor error	◎	◉	◉	◉	◉	◉		
		8	r oH	R-phase overheat （85℃） ※7	◎	◉	◉	◉	◉	◉		
		9	trEr	R-phase temperature sensor error ※7	◎	◉	◉	◉	◉	◉		
		10	S oH	S-phase overheat （85℃） ※7	◎	◉	◉	◉	◉	◉		
		11	tSEr	S-phase temperature sensor error ※7	◎	◉	◉	◉	◉	◉		
		12	t oH	T-phase overheat （85℃） ※7	◎	◉	◉	◉	◉	◉		
		13	ttEr	T-phase temperature sensor error ※7	◎	◉	◉	◉	◉	◉		
		14	AF	Current detection	◎					◉		
		15	LC	Low current detection	◎					◉		
		16	Lb	Three-phase load imbalance	◎					◉		
		17	Lo	Open load or output load lower than 10%	◎					◉		
		18	UFEr	Voltage feedback error	◎				◉	◉		
		19	SCr.b	SCR module breakdown	◎					◉		
		31	EPEr	EEPROM error		◉	◉	◉	◉	◉		
		32	Er 1	Communication function code error		◉	◉	◉	◉	◉		
		33	Er2	Communication address out of range		◉	◉	◉	◉	◉		
		34	Er3	Communication data value out of range		◉	◉	◉	◉	◉		
		35	Er4	Attempt to change read only or locked data during communication		◉	◉	◉	◉	◉		
		36	Er5	Communication read and write excess ※8		◉	◉	◉	◉	◉		
		37	LinE	Linkage error of slave		◉	◉	◉	◉	◉		
ERRS	Error reset	0, 1 (Write 1 for error reset)				◉	◉	◉	◉	◉	9	R/W
SEC	Operation time second	0~59 seconds ※9				◉	◉	◉	◉	◉	28	R
MIN	Operation time minute	0~59 minutes ※9				◉	◉	◉	◉	◉	29	R
HR	Operation time hour	0~255 hours ※9				◉	◉	◉	◉	◉	30	R
OUT.S	Output status	0, 1 (0:Without output ,1:With Output)				◉	◉	◉	◉	◉	50	R

※Note 7: Only 450, 580, 750A models have this parameter.
※Note 8: MODBUS communication function 03H can be read at most 20 times, 10H can be writen at most 10 times.
※Note 9: Operation time will be reset to 0 after there is no output for 1 minute.

Main circuit wiring diagram：



Wiring No. 1：

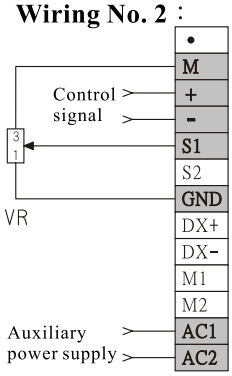


A.F	
00	+ Control signal input

Input Signal Selection (SW1)

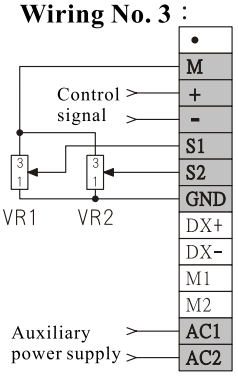
4~20mA Input Impedance 249Ω S1：ON S2：OFF S3：OFF	**0~20mA** Input Impedance 249Ω S1：ON S2：OFF S3：ON
1~5VDC Input Impedance 200KΩ S1：OFF S2：OFF S3：OFF	**0~5VDC** Input Impedance 200KΩ S1：OFF S2：OFF S3：ON
2~10VDC Input Impedance 18KΩ S1：OFF S2：ON S3：OFF	**0~10VDC** Input Impedance 18KΩ S1：OFF S2：ON S3：ON

Wiring No. 2：



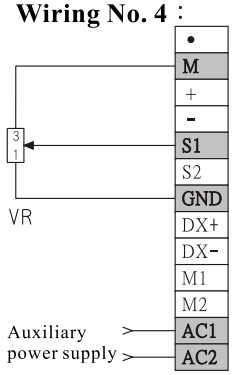
A.F	
01	+ Control signal input S1 Maximum output limit setting
12	+ Control signal input S1 Voltage limit setting
13	+ Control signal input S1 Current limit setting

Wiring No. 3：



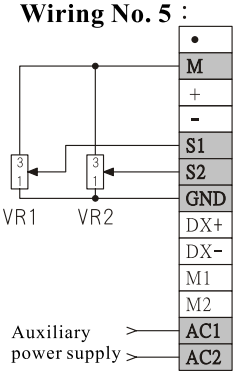
A.F	
02	+ Control signal input S1 Maximum output limit setting S2 Basic output value setting
14	+ Control signal input S1 Voltage limit setting S2 Current limit setting

Wiring No. 4：



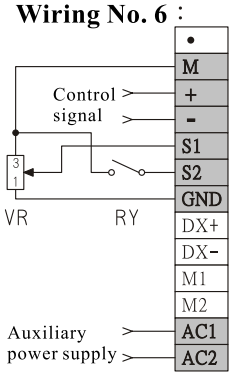
A.F	
03	S1 Manual setting

Wiring No. 5：



A.F	
04	S1 Manual setting S2 Basic output value setting

Wiring No. 6：

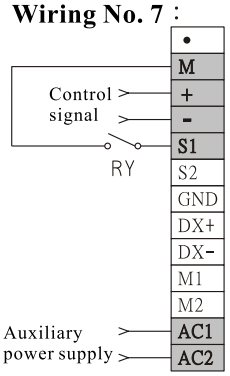


A.F	
05	+ Control signal input S1 Manual setting (Invalid at automatic setting) S2 Open: Automatic, Closed: Manual
06	+ Control signal input S1 Manual setting (Output limited at automatic setting) S2 Open: Automatic, Closed: Manual
07	+ Control signal input S1 Maximum output limit setting ※2 S2 Open:※1 , Closed: Zero crossing cycle sampling
08	+ Control signal input S1 Maximum output limit setting ※2 S2 Open: ※1 , Closed: Zero crossing time sampling
09	+ Control signal input S1 Maximum output limit setting ※2 S2 Open: Stop,Closed: Run

※Note 1: When the contact is disconnected output will be according to CT.MD control mode.

※Note 2: Maximum output limit setting, when VR is not used please connect M & S1 with short circuit.

Wiring No. 7：



A.F	
10	+ Control signal input S1 Open: Automatic Closed: Digital input ※3

※Note 3: Digital input

CT.MD =0~4 Input percentage setting

CT.MD =5~8 Input actual value setting