PNC PAC-P200 保護電驛中文操作手冊

一、前言:

此保護電驛具有 CO+LCO 四相一體及 3OV+3UV 六相一體的保護功能,所以稱之為十相一體保護電驛,除了以上保護功能之外,還具有 59G、47、46、49、48/51L、66/68、67NS、、、、等功能,其保護電驛曲線具有 IEC(NI、VI、EI、LI)及 ANSI/IEEE(ANSI_I、ANSI_SI、ANSI_LI、ANSI_MI、ANSI_VI、ANSI_EI、ANSI_DI)和 KEPCO(KNI、KVI、KDNI)及 P&C 曲線共有 15 種曲線,Z;方便規劃者靈活運用.

二、保護電驛功能說明:

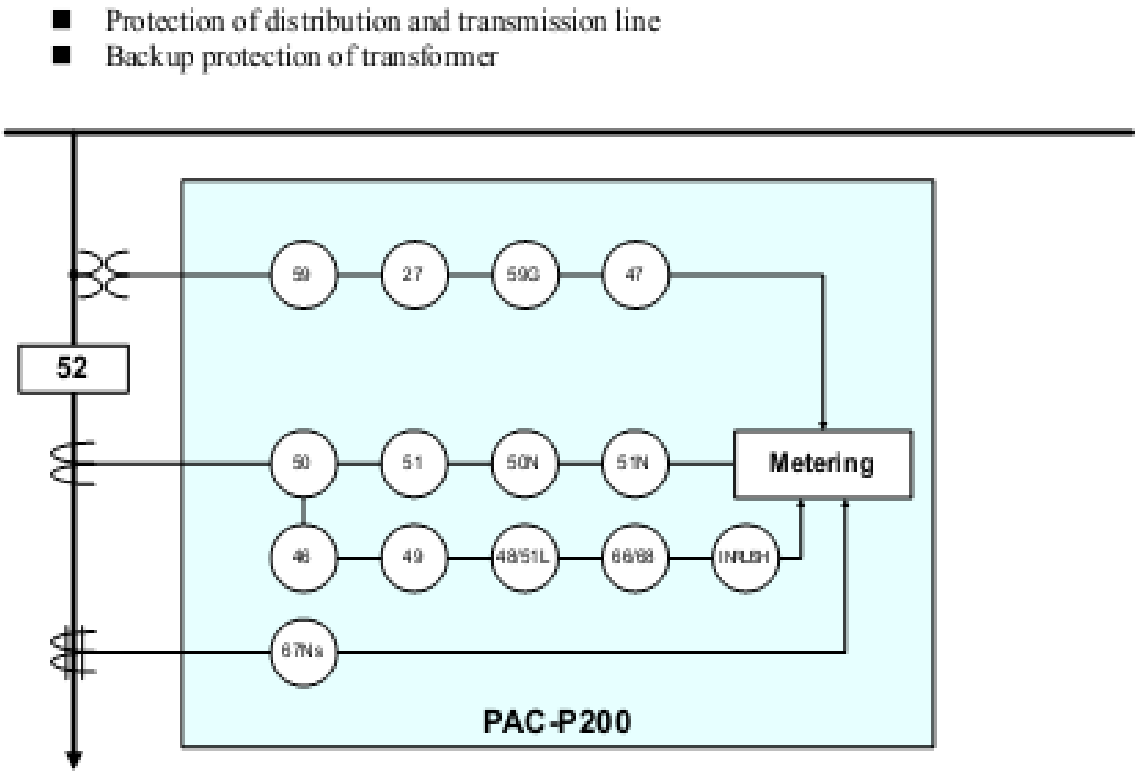


Table 1-1 Device Number/Function表1-1設備編號/功能

ANSI Device Number	Function
59	Phase overvoltage Protection(59_1, 59_2) 過電壓保護（59_1，59_2）
27	Phase undervoltage Protection(27_1, 27_2) 低電壓保護（27_1,27_2,27_3）
59G	Residual / Ground overvoltage Protection 接地過電壓保護
47	Negative phase sequence overvoltage Protection 負相序過電壓保護
50	Instantaneous/Definite time phase overcurrent Protection(50_1, 50_2) 瞬時過流保護（50_1，50_2）
51	Inverse phase overcurrent Protection 反時曲線過流保護
50N	Instantaneous/Definite time ground overcurrent Protection（50N_1,50N_2） 瞬時/定時限接地過流保護（50N_1,50N_2）
51N	Inverse ground overcurrent Protection反時曲線接地過電流保護
46	Instantaneous/Definite time negative phase sequence overcurrent Protection 瞬時/定時限負序過電流保護
49	Thermal overload Protection 熱過載保護
48/51L	Motor starting Protection 馬達起動保護
66/68	Start Inhibit for Motor 馬達啟動鎖定
INRUSH	Inrush Detection 突波檢測
67Ns	Sensitive directional ground overcurrent Protection 方向性接地過流保護

三、保護電驛面板說明:

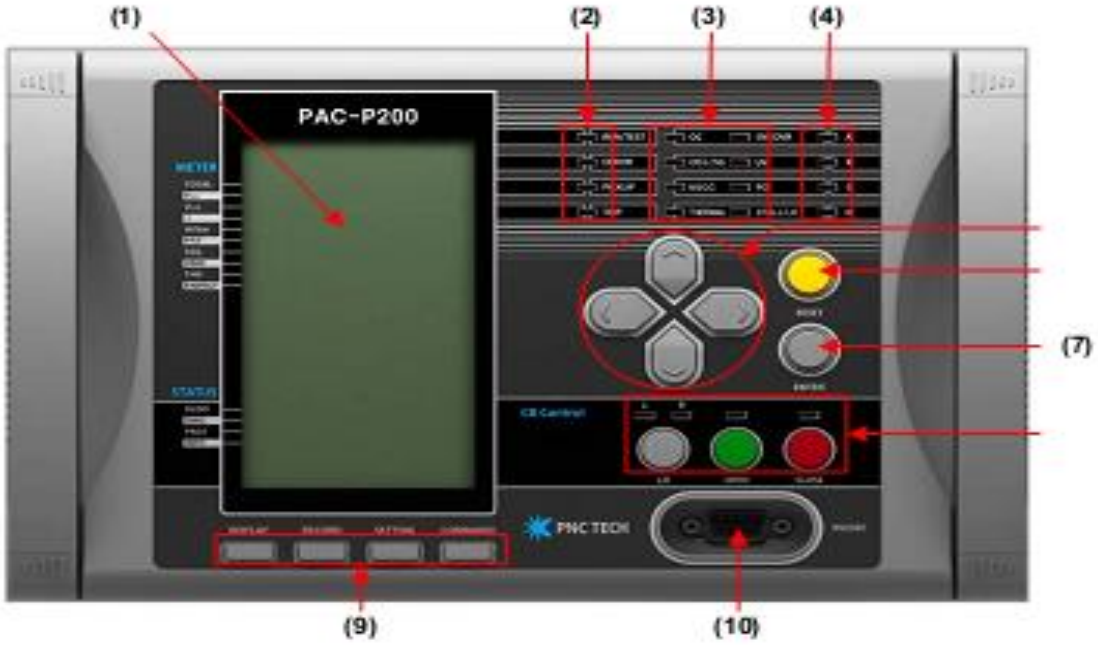


Figure 2-1 Front Panel View

(1) LCD :保護電驛顯示幕

(2) Operating:
- (a) RUN/TEST:綠燈亮為電驛運轉指示燈/綠燈閃爍為測試指示燈.
- (b) ERROR :紅燈亮表示系統發生故障,按 RESET 鍵則復歸.
- (c) PICKUP :黃燈亮表示達到設定的始動值.
- (d) TRIP :紅燈亮表示保護電驛動作跳脫,按 RESET 鍵則復歸.

(3) Protection:
- (a) OC :紅燈亮表示(50_1/50_2/51)電驛動作,按 RESET 鍵則復歸.
- (b) OCG/SG :紅燈亮表示(50N_1/50N_2/51N)電驛動作或是 SG (67Ns)電驛動作,按 RESET 鍵則復歸.
- (c) NSOC :紅燈亮表示(46)電驛動作跳脫,按 RESET 鍵則復

歸.

(d)THERMAL :紅燈亮表示(49)電驛動作跳脫,按 RESET 鍵則復歸.

(e) OV/OVG :紅燈亮表示 OV(59_1/59_2) or OVG(59G_1/59G_2)電驛動作跳脫,按 RESET 鍵則復歸.

(f) UV :紅燈亮表示 UV(27_1/27_2)電驛動作跳脫,按 RESET 鍵則復歸.

(g) PO :紅燈亮表示 PO(47)電驛動作跳脫,按 RESET 鍵則復歸.

(h) STALL/LK:紅燈亮表示 STALL(48/51L)電驛動作跳脫,按 RESET 鍵則復歸.

(4) Phase :

(a) A :紅燈亮表示系統的 A 相(CO/UV/OV)發生異常電驛動作跳脫,按 RESET 鍵則復歸.

(b) B :紅燈亮表示系統的 B 相(CO/UV/OV)發生異常電驛動作跳脫,按 RESET 鍵則復歸.

(c) C :紅燈亮表示系統的 C 相(CO/UV/OV)發生異常電驛動作跳脫,按 RESET 鍵則復歸.

(d) N :紅燈亮表示系統的 N 相(CO/UV/OV)發生異常電驛動作跳脫,按 RESET 鍵則復歸.

(5) Direction :

(a) ＜ ＞ 鍵 :上下移位鍵及設定值改變及測量值選擇.

(b) 》 :選擇菜單項目鍵進入下一階層.

(c) 《 :跳回上一階層,持續按則跳回主畫面.

(6) Reset :電驛復歸鈕.

(7) Enter :要儲存設定值 Yes/No.

(8) Control :

(a) L :有開放功能使用時,在現場操作紅色指示燈.

(b) R :有開放功能使用時,在遙控操作綠色指示燈.

(C) OPEN :綠色指示燈及按鈕將 CB 跳脫.(必須要有規劃)

(d) CLOSE :紅色指示燈及按鈕將 CB 投入.（必須要有規劃）

(9) Menu :

(a) DISPLAY :按此鈕螢幕轉會至測量值/狀態顯示.

(b) RECORD :按此鈕螢幕轉會至事件紀錄顯示.

(C) SETTING :按此鈕螢幕轉會至系統/保護電驛顯示設定

(d) COMMAND :按此鈕螢幕轉會至 COMMAND 項目.

四、電驛設定操作:

(一)要進行設定則按面板上 SETTING 鍵,可以切換選擇 SYSTEM 設定或 PROTECTION 設定保護功能資料,有此兩種大綱及如何更改設定值方法.

(a) 選擇 SYSTEM 設定,此項共有 15 種內容可供設定,可利用﹀鍵選擇要更改的項目時,再按》鍵為進入此項內容,若要跳出則按《鍵回到上一階層.

(b) 選擇 PROTECTION 設定,此項共有 19 種內容可供設定, 可利用﹀鍵選擇要更改的項目時,再按》鍵為進入此項內容,若要跳出則按鍵回到上一階層.

(c) 進入要更改 SYSTEM 設定或 PROTECTION 設定項目之後,可利用﹀鍵選擇要更改的內容細項,再按》鍵為進行設定,電驛會要求提供密碼(0000)也可以直接按 ENTER 鍵(若密碼有被更新後則必需輸入新密碼),密碼正確則數值會出現閃爍就可進行設定,否則就無法更改設定值.

(d) 更改設定值可利用﹀鍵,**設定後必需先按 ENTER 鍵後**,才能再進行其他內容設定或回上一階層則按《鍵尋找要設定項目,否則會回復為原來數值.

(e) 若提供過密碼後,只要沒有跳出 SETTING 項目外,就還可以更改其他數據,否則必須重新提供密碼.

(二)選擇 SETTING 中的 SYSTEM 項目,可利用﹀鍵選擇要更改的項目,再按》鍵為進入此項內容,若要跳出則按《鍵回到上一階層.針對此項內容分述如下:

（a） POWER SYSTEM 設定

SETTING/SYSTEM/POWER SYSTEM/POWER SYSTEM

Setting Item	Range(Step)	Unit	Description	
1. FREQUENCY	60Hz, 50Hz		Rated frequency	頻率設定
2. PT CONNECT	NONE/WYE/DELTA		PT connection	PT 接線方式
3. PHS PT PRI	0.01 ~ 600.00 (0.01)	kV	Phase PT Primary	PT 一次側電壓
4. PHS PT SEC	50.0 ~ 250.0 (0.1)	V	Phase PT Secondary	PT 二次側電壓
5. GND PT PRI	0.01 ~ 600.00 (0.01)	kV	Ground PT Primary	接地 PT 一次側電壓
6. GND PT SEC	50.0 ~ 250.0 (0.1)	V	Ground PT Secondary	接地 PT 一次側電壓
7. PHS CT RATIO	5 ~ 50000 : 5 (1 or 5)		Phase CT Ratio	CT 一次側電流值
8. GND CT RATIO	5 ~ 50000 : 5 (1 or 5)		Ground CT Ratio	LCO 一次側電流值
9. START CURR	1.00~50.00 (0.01)	A	Motor start detection current	馬達啟動設定值
10. STOP CURR	0.10~1.00 (0.01)	A	Motor stop detection current	馬達停止設定值
11. TRIP RELAY	CONT OUT#01 ~ #12		CB trip relay	CB 跳脫接點
12. METER ROTATE	YES/NO		Measurement display screen change	測量螢幕是否變化

（b）CB CONTROL 設定

SETTING/SYSTEM/CB CONTROL

Setting Item	Range(Step)	Unit	Description	
1. TRIP PULSE	0.1 ~ 5.0(0.1)	sec	CB Trip control minimum pulse width	CB 跳脫持續時間
2. CLOSE PULSE	0.1 ~ 5.0(0.1)	sec	CB Close control minimum pulse width	CB 投入持續時間

（C）RTC 設定

SETTING/SYSTEM/RTC

Setting Item	Range(Step)	Unit	Description	
YYYY	2000 ~ 2100(1)		Year	年
MM	01~12(1)		Month	月
DD	01~31(1)		Date	日
HH	00~23(1)		Hour	時
MM	00~59(1)		Minute	分
SS	00~59(1)		Second	秒

(D) WAVEFORM 設定

SETTING/ SYSTEM/ WAVEFORM

Setting Item	Range(Step)	Unit	Description
1. TYPE	8*50, 4*100, 2*200	Cycle	Waveform save number and capacity 8*50 : 8 Number, 50cycle
2. TRIGGER SRC	EasyLogic operand		Trigger source setting
3. TIRGGER POS	.0 ~ 99% (1)	%	Trigger position setting

(E) DATALOGGER 設定

SETTING/ SYSTEM/ DATALOGGER

Setting Item	Range(Step)	Unit	Description
1. MODE	ONE TIME/CONTINEOUS		Record save MODE setting
2. RECORD TIME	4~12000 (1)	min	Record time
3. DIGIT CH#1~ 18. DIGIT CH#16	Datalogger operand		Digital source setting

(F) COM 設定

SETTING/ SYSTEM/ COM

Setting Item	Range(Step)	Unit	Description
1. FUNCTION	ENABLED, DISABLED		Usage of the port
2. BPS	300, 1200, 2400, 4800, 9600, 19200, 38400, 57600		Bit/sec
3. SLAVE ADDR	1~65534(1)		Slave address Modbus, IEC60870-5-103 : 1~254
4. PROTOCOL	ModBus, DNP3.0 or Modbus, IEC60870-5-103		Communication protocol According to ordering option

(G)

SETTING/ SYSTEM/ DNP3.0

Setting Item	Range(Step)	Unit	Description
1. TX DELAY	0 ~ 65000(1)	msec	Tx delay time
2. LINK CONFIRM	NEVER, ALWAYS, SOMETIMES		Link layer confirm
3. LINK RETRY	0~5(1)		Link layer retry count
4. LINK TIMEOUT	1 ~ 65000(1)	msec	Link layer timeout
5. SBO TIMEOUT	1 ~ 65000(1)	msec	SBO timeout
6. WR TIME INT	1 ~ 65000(1)	min	Time sync request period setting
7. COLD RESTART	ENABLED, DISABLED	sec	Cold restart. Response for DNP Master's cold restart command. (ENABLED : Restart only DNP Process)

(H)TCP/IP 設定

SETTING/SYSTEM/TCP/IP

Setting Item	Range(Step)	Unit	Description
1. IP	0.0.0.0~255.255.255.255		IP address setting
2. NMASK	0.0.0.0~255.255.255.255		Network Mask setting
3. GATEWAY	0.0.0.0~255.255.255.255		Gateway setting
4. PORT	1 ~ 65535(1)		Remote port setting
5. MODE	MODBUS TCP, TRANSPARENT		Data Mode setting MODBUS TCP : For MODBUS protocol TRANSPARENT : For DNP3.0 protocol

(I) CURRENT SUM 設定

SETTING/ SYSTEM/ CURRENT SUM

Setting Item	Range(Step)	Unit	Description
1. FUNCTION	ENABLED, DISABLED		Usage of the function
2. THRESHOLD	0.10 ~ 10.00(0.01)	A	Threshold current setting
3. FACTOR	0.10 ~ 0.90(0.01)		Factor setting
4. DELAY	0.00 ~ 60.00(0.01)	sec	Operation delay time

(J)VOLTBALANCE 設定

SETTING/ SYSTEM/ VOLT.BALANCE

Setting Item	Range(Step)	Unit	Description
1. FUNCTION	ENABLED, DISABLED		Usage of the function
2. THRESHOLD	10 ~ 450(1)	V	Threshold voltage setting
3. FACTOR	0.10 ~ 0.90(0.01)		Factor setting
4. DELAY	0.00 ~ 60.00(0.01)	sec	Operation delay time

(K)CURRBALANCE 設定

SETTING/ SYSTEM/ CURR.BALANCE

Setting Item	Range(Step)	Unit	Description
1. FUNCTION	ENABLED, DISABLED		Usage of the function
2. THRESHOLD	0.10 ~ 10.00(0.01)	A	Threshold current setting
3. FACTOR	0.10 ~ 0.90(0.01)		Factor setting
4. DELAY	0.00 ~ 60.00(0.01)	sec	Operation delay time

(L)PT FUSE FAIL 設定

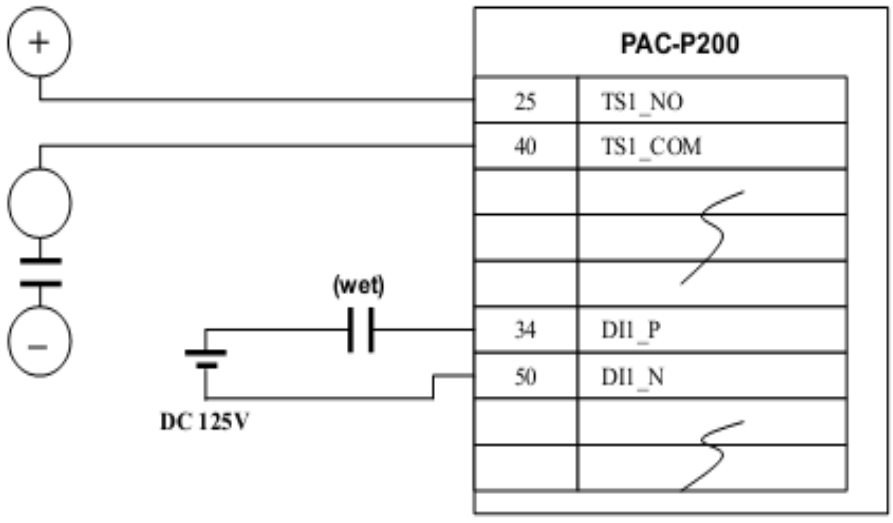
SETTING/ SYSTEM/ PT FUSE FAIL

Setting Item	Range(Step)	Unit	Description
1. FUNCTION	ENABLED, DISABLED		Usage of the function
2. 3V0 PICKUP	10 ~ 450(1)	V	3V0 Pickup setting
3. 3I0 PICKUP	0.10 ~ 5.00(0.01)	A	3I0 Pickup setting
4. DELAY	0.00 ~ 60.00(0.01)	sec	Operation delay time

(M)CONTACT INPUT 設定:共有 4 組輸入接點,每一組接點可以設定為下列狀態,原廠出廠都設定為 NOT CONNECTED 狀態,其輸入接點為 D11_P D11_N、D12_P D12_N、D13_P D14_P D13_4_N 共四組,其接線圖如下:
(不做電驛面板上控制 CB 投入,此功能都設置 NOT CONNECTED 狀態)

Setting	Description
NOT_CONNECTED	Status is not used
CB_OPENED	CB is recognized as opened when the input is logic '1'
CB_CLOSED	CB is recognized as closeed when the input is logic '1'
ANN_RESET	Used as announciator reset when input logic status changed '0'→'1'
TCS_INPUT	Used for TCS input. TCS will operate when the input is logic '1' for more than 5 minutes.
GENEREAL_INPUT	Normal contact input

5.3.2 Contact Input/Output connection



此為輸出接點接線方式

此為輸入接點接線方式

Figure 5-4 Input/Output contact connection

(N)CONTACT OUT 設定: PAC-P200 保護電具有 12 組輸出接點,可供規劃使用,除了 TS1、TS2 為獨立接點,其餘 TS3～TS122 都有 COM 共點請參考電驛的線路圖使用,**本公司為了客戶使用方便,有做初步規劃,將 TS1(25、40)設定為(27/59/50/51/50n/51n)保護功能動作且接點自動復歸以及 TS2(26、41)設定為(50/51/50n/51n)保護功能動作接點鎖住手動復歸,因此跳脫 CB 的接點請使用 TS1 與 TS2 並接 Trip.** 其餘 TS3～TS4 設定為(50/51/50n/51n)保護功能動作接點鎖住手動復歸,另外 TS5～TS6 設定為(27/59)保護功能動作且接點自動復歸,其餘 TS7～TS12 沒有做接點規劃.此接點也可由客戶自行規劃使用.

Table 3-3 EasyLogic Operator

Operator	Description
OR8	OR gate with non inverting input 8
HALF_OR8	OR gate with non inverting input 4 & inverting input 4
AND8	AND gate with non inverting input 8
HALF_AND8	AND gate with non inverting input 4 & inverting input 4

8 或閘輸入(此為選擇)
4 反或閘,4 或閘輸入.
8 及閘輸入
4 反及閘,4 及閘輸入

每組接點動作可由下方 8 種狀態輸入來決定是否動作.**通常是選擇 OR8 表示只要 8 種輸入其中一個輸入成立,則接點動作,在邏輯概念為或閘.** 若 AND8 為及閘表示只要 8 種輸入必須全部成立,接點才會動作.

輸入的 8 種保護功能由下方表格選取模式,模式中 PKP 表示達到始動值立即輸出訊號沒延遲動作,**模式中 OP 表示達到始動值按曲線延遲間時動作,另外模式中 OR 就是或閘其中一相動作則成立,其他 A、B、C 為單獨各相.**

我們電驛出廠所設定參數有標示部份如下:

Protection	PROT_PKP_OR	Operation logic OR of all enabled protection elements
	PROT_OP_OR	Pickup logic OR of all enabled protection elements
	50_1_PKP_OR	3 phase pickup logic OR of 50_1
	50_1_PKP_A	Pickup of phase A 50_1
	50_1_PKP_B	Pickup of phase B 50_1
	50_1_PKP_C	Pickup of phase C 50_1
	50_1_OP_OR	3 phase operate logic OR of 50_1
	50_1_OP_A	Operation of phase A 50_1
	50_1_OP_B	Operation of phase B 50_1
	50_1_OP_C	Operation of phase C 50_1

瞬時過電流使用參數

50_2_PKP_OR	3 phase pickup logic OR of 50_2
50_2_PKP_A	Pickup of phase A 50_2
50_2_PKP_B	Pickup of phase B 50_2
50_2_PKP_C	Pickup of phase C 50_2
50_2_OP_OR	3 phase operate logic OR of 50_2
50_2_OP_A	Operation of phase A 50_2
50_2_OP_B	Operation of phase 50_2
50_2_OP_C	Operation of phase C 50_2
51_PKP_OR	3 phase pickup logic OR of 51

51_PKP_A	Pickup of phase A 51	
51_PKP_B	Pickup of phase B 51	
51_PKP_C	Pickup of phase C 51	
51_OP_OR	3 phase operate logic OR of 51	51 過電流使用參數
51_OP_A	Operation of phase A 51	
51_OP_B	Operation of phase B 51	
51_OP_C	Operation of phase C 51	
50N_1_PKP	Pickup of 50N_1	
50N_1_OP	Operation of 50N_1	接地瞬時過電流參數
50N_2_PKP	Pickup of 50N_2	
50N_2_OP	Operation of 50N_2	
51N_PKP	Pickup of 51N	
51N_OP	Operation of 51N	51N 接地過電流參數
46_PKP	Instantaneous/definite time negative sequence overcurrent protection Pickup	
46_OP	Instantaneous/definite time negative sequence overcurrent protection operation	
49_ALARM	Thermal overload protection is reached alarm level	
49_TRIP	Thermal overload protection is operated(tripped)	
48/51L_PKP	Motor starting protection pickup	
48_OP	Motor starting protection operation	
51L_LOCK	Rotor lock operation	
66/68ING	66/68 in progress	
66/68_OP	66/68 operation(motor start is inhibited)	
67Ns_PKP	67Ns pickup	
67Ns_OP	67Ns operation	
59_1_PKP_OR	3 phase pickup logic OR 59_1	
59_1_PKP_A	Pickup of phase A 59_1	
59_1_PKP_B	Pickup of phase B 59_1	
59_1_PKP_C	Pickup of phase C 59_1	
59_1_OP_OR	3 phase operate logic OR of 59_1	59_1 過電壓使用參數
59_1_OP_A	Operation of phase A 59_1	
59_1_OP_B	Operation of phase B 59_1	
59_1_OP_C	Operation of phase C 59_1	
59_2_PKP_OR	3 phase pickup logic OR of 59_1	
59_2_PKP_A	Pickup of phase A 59_1	

	59_2_PKP_B	Pickup of phase B 59_1
	59_2_PKP_C	Pickup of phase C 59_1
	59_2_OP_OR	3 phase operate logic OR of 59_2
	59_2_OP_A	Operation of phase A 59_2
	59_2_OP_B	Operation of phase B 59_2
	59_2_OP_C	Operation of phase C 59_2
	27_1_PKP_OR	3 phase pickup logic OR 27_1

59_2 過電壓使用參數

	27_1_PKP_A	Pickup of phase A 27_1
	27_1_PKP_B	Pickup of phase B 27_1
	27_1_PKP_C	Pickup of phase C 27_1
	27_1_OP_OR	3 phase operate logic OR of 27_1
	27_1_OP_A	Operation of phase A 27_1
	27_1_OP_B	Operation of phase B 27_1
	27_1_OP_C	Operation of phase C 27_1
	27_2_PKP_OR	3 phase pickup logic OR of 27_1
	27_2_PKP_A	Pickup of phase A 27_1
	27_2_PKP_B	Pickup of phase B 27_1
	27_2_PKP_C	Pickup of phase C 27_1
	27_2_OP_OR	3 phase operate logic OR of 27_2
	27_2_OP_A	Operation of phase A 27_2
	27_2_OP_B	Operation of phase B 27_2
	27_2_OP_C	Operation of phase C 27_2
	59G_1_PKP	59G_1 pickup
	59G_1_OP	59G_1 operation
	59G_2_PKP	59G_2 pickup
	59G_2_OP	59G_2 operation
	47_PKP	47 pickup
	47_OP	47 operation
	I2f/I1f_OP	Operation of Inrush detection

27_1 低電壓使用參數

27_2 低電壓使用參數

(0) **3.1.2 PASSWORD**

Password is needed for changing settings and CB control. The password has 4 digit number with the range of '0' to '9'. Factory setting of the password is '0000'.

(三)選擇 SETTING 中的 PROTECTION 項目,可利用﹀鍵選擇要更改的項目,再按》鍵為進入此項內容,若要跳出則按《鍵回到上一階層.針對此項內容分述如下:

(a) IOC1(50_1)設定

(b) IOC2(50_2)設定

SETTING/ PROTECTION/ IOC1(50_1), IOC2(50_2)

Setting Item	Range(Step)	Unit	Description	
1. FUNCTION	ENABLED, DISABLED		Usage of the function	選擇功能開啟與否
2. PICKUP	0.50 ~ 200.00 (0.01)	A	Pickup current	設定跳脫電流值
3. DELAY	0.00 ~ 60.00 (0.01)	sec	Operating delay time	延遲時間
4. BLOCK	EasyLogic operand		Protection blocking condition	邏輯圖塊

(c) TOC(51)設定

SETTING/ PROTECTION/ TOC(51)

Setting Item	Range(Step)	Unit	Description	
1. FUNCTION	ENABLED, DISABLED		Usage of the function	選擇功能開啟與否
2. CURVE	IEC_NI, ..., KDNI		Inverse curve setting IEC_NI : IEC Normal Inverse IEC_VI : IEC Very Inverse IEC_EI : IEC Extremely Inverse IEC_LI : IEC Long Inverse ANSI_I : ANSI Inverse ANSI_SI: ANSI Short Inverse ANSI_LI: ANSI Long Inverse ANSI_MI: ANSI Moderately Inverse ANSI_VI: ANSI Very Inverse ANSI_EI :ANSI Extremely Inverse ANSI_DI : ANSI Definite Inverse KNI : KEPCO Normal Inverse KVI : KEPCO Very Inverse KDNI:KEPCO Definite Normal Inverse	曲線種類
3. PICKUP	0.50 ~ 200.00 (0.01)	A	Pickup current	設定跳脫電流值
4. MULTIPLIER	0.01 ~ 10.00 (0.01)		Time multiplier	TP 參考時間
5. BLOCK	EasyLogic operand		Protection blocking condition	邏輯圖塊

(d) IOCG1(50N_1)設定

(e) IOCG2(50N_2)設定

SETTING/ PROTECTION/ IOCG1(50N_1), IOCG2(50N_2)

Setting Item	Range(Step)	Unit	Description
1. FUNCTION	ENABLED, DISABLED		Usage of the function
2. PICKUP	0.10 ~ 200.00 (0.01)	A	Pickup current
3. DELAY	0.00 ~ 60.00 (0.01)	sec	Operating delay time
4. BLOCK	EasyLogic operand		Protection blocking condition

(f) TOCG(51N)設定

SETTING/ PROTECTION/ TOCG(51N)

Setting Item	Range(Step)	Unit	Description
1. FUNCTION	ENABLED, DISABLED		Usage of the function
2. CURVE	IEC_NI, ..., KDNI		Inverse curve setting. The same setting as TOC(51) curve.
3. PICKUP	0.10 ~ 200.00 (0.01)	A	Pickup current
4. MULTIPLIER	0.01 ~ 10.00 (0.01)		Time multiplier
5. BLOCK	EasyLogic operand		Protection blocking condition

(g) NSOC(46)設定

SETTING/ PROTECTION/ NSOC(46)

Setting Item	Step	Unit	Description
1. FUNCTION	ENABLED, DISABLED		Usage of the function
2. Ineg/Ipos	2~80 (1)	%	I2/I1 ratio
3. Min Ipos	0.50 ~5.00 (0.01)	A	Pickup I1
4. DELAY	0.00 ~ 180.00 (0.01)	sec	Operating delay time
5. BLOCK	EasyLogic operand		Protection blocking condition

(h) THERMAL(49)設定

SETTING/ PROTECTION/ THERMAL(49)

Setting Item	Range(Step)	Unit	Description
1. FUNCTION	ENABLED, DISABLED		Usage of the function
2. k-FACTOR	0.10~4.00 (0.01)		k-FACTOR
3. TIME CONST	1.0 ~999.9 (0.1)	min	Time constant(τ)
4. COOL FACTOR	1.0~10.0 (0.1)		Cooling factor
5. ALARM	50 ~ 100 (1)	%	Alarm level
6. BLOCK	EasyLogic operand		Protection blocking condition

(i) STALL(48/51L)設定

SETTING/ PROTECTION/ STALL(48/51L)

Setting Item	Range(Step)	Unit	Description
1. FUNCTION	ENABLED, DISABLED		Usage of the function
2.I Start-Up	50.00~90.00 (0.01)	A	Motor start-up current pickup
3. T Start-Up	1.0 ~180.0 (0.1)	sec	Motor start-up delay time
4. T Rotor Lock	0.5~180.0 (0.1)	sec	Motor rotor lock delay time
5. SPEED SWITCH	NONE, CONT IN#1~#4		Speed switch contact input
6. BLOCK	EasyLogic operand		Protection blocking condition

(j) START(66/68)設定

SETTING/ PROTECTION/ START(66/68)

Setting Item	Range(Step)	Unit	Description
1. FUNCTION	ENABLED, DISABLED		Usage of the function
2.T Start MON	5~120 (1)	min	Start monitoring time
3. COLD START	1~5 (1)		Cold start number
4. HOT START	0~5 (1)		Hot start number
5. dT START	1~120 (1)	min	Consecutive start interval
6. START SWITCH	NONE, CONT IN#1~#4		Emergency start switch input contact
7. BLOCK	EasyLogic operand		Protection blocking condition

(k) SG(67Ns)設定

SETTING/ PROTECTION/ SG(67Ns)

Setting Item	Range(Step)	Unit	Description
1. FUNCTION	ENABLED, DISABLED		Usage of the function
2. DIRECTION	NONE,..,REVERSE		Direction NONE FORWARD REVERSE
3. VOLT PICKUP	10 ~ 450(1)	V	Pickup voltage
4. CURR PICKUP	0.9 ~ 1000.0(0.1)	mA	Pickup current
5. DELAY	0.00 ~ 60.00(0.01)	sec	Operation time delay
6. MTA	-90 ~ +90	°	MTA setting
7. BLOCK	EasyLogic operand		Protection blocking condition

(l) OV1(59_1)設定
(m) UV1(27_1)設定

SETTING/ PROTECTION/ OV1(59_1)
SETTING/ PROTECTION/ UV1(27_1)

Setting Item	Range(Step)	Unit	Description
1. FUNCTION	ENABLED, DISABLED		Usage of the function
2. PICKUP	10 ~ 450 (1)	V	Voltage Pickup
3. DELAY	0.00 ~ 60.00	Sec	Operation delay time
4. BLOCK	EasyLogic operand		Protection blocking condition

(n) OV2(59_2)設定
(o) UV2(27_2)設定

SETTING/ PROTECTION/ OV2(59_2)
SETTING/ PROTECTION/ UV2(27_2)

Setting Item	Range(Step)	Unit	Description
1. FUNCTION	ENABLED, DISABLED		Usage of the function
2. MODE	DT, INVERSE		Operating Mode setting DT : Definite time INVERSE : Inverse time
3. PICKUP	10 ~ 450 (1)	V	Voltage Pickup
4. DELAY	0.00 ~ 60.00	sec	Operation delay time
4. MULTIPLIER	0.01 ~ 10.00(0.01)		Time Multiplier
5. BLOCK	EasyLogic operand		Protection blocking condition

(p) OVG1(59G_1)設定

SETTING/ PROTECTION/ OVG1(59G_1)

Setting Item	Range(Step)	Unit	Description
1. FUNCTION	ENABLED, DISABLED		Usage of the function
2. VOLT. SRC	3VO, VG		Ground voltage source setting 3VO : Zero phase sequence voltage VG : N Phase voltage
3. PICKUP	10 ~ 450 (1)	V	Voltage Pickup
4. DELAY	0.00 ~ 60.00	sec	Operation delay time
5. BLOCK	EasyLogic operand		Protection blocking condition

(q) OVG2(59G_2)設定

SETTING/ PROTECTION/ OVG2(59G_2)

Setting Item	Range(Step)	Unit	Description
1. FUNCTION	ENABLED, DISABLED		Usage of the function
2. VOLT SRC	3V0, VG		Ground voltage source setting 3V0 : Zero phase sequence voltage VG : N Phase voltage
3. MODE	DT,..., INV_ALARM		Operating Mode setting DT : Definite time INV_TRIP : Trip inverse time INV_ALARM : Alarm inverse time
4. PICKUP	10 ~ 450 (1)	V	Voltage Pickup
5. DELAY	0.00 ~ 60.00	sec	Operation delay time
5. MULTIPLIER	0.01 ~ 10.00(0.01)		Time Multiplier
6. BLOCK	EasyLogic operand		Protection blocking condition

(r) PO(47)設定

SETTING/ PROTECTION/ PO(47)

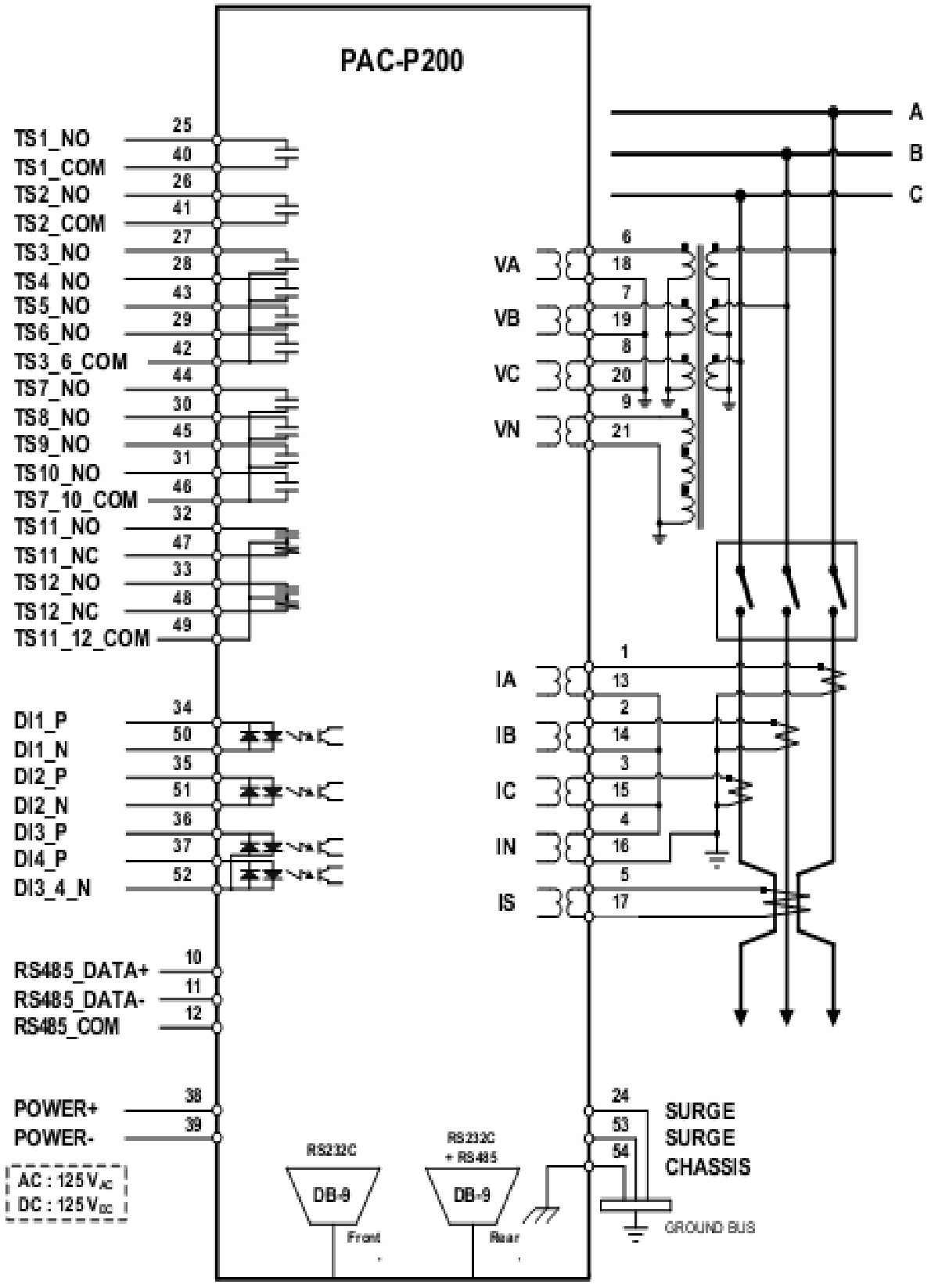
Setting Item	Range(Step)	Unit	Description
1. FUNCTION	ENABLED, DISABLED		Usage of the function
2. Vneg/Vpos	5 ~ 100 (1)	%	(Vneg/Vpos)*100
3. Min Vpos	10 ~ 450 (1)	V	Minimum Vpos for operating
4. DELAY	0.00 ~ 60.00	sec	Operation delay time
5. BLOCK	EasyLogic operand		Protection blocking condition

(s) INRUSH 設定.

SETTING/ PROTECT#1~#4/ INRUSH

Setting Item	Range(Step)	Unit	Description
1. FUNCTION	ENABLED, DISABLED		Usage of the function
2. I2f/I1f	10 ~ 100% (1)	%	(2 harmonics current / fundamental wave current)*100
3. Min I1f	0.10 ~ 2.50(0.01)	A	fundamental wave minimum operating current
4. DELAY	0.00 ~ 60.00(0.01)	sec	Operating time delay
5. BLOCK	EasyLogic operand		Protection blocking condition

五、接線圖


PAC-P200
TS1_NO
TS1_COM
TS2_NO
TS2_COM
TS3_NO
TS4_NO
TS5_NO
TS6_NO
TS3_6_COM
TS7_NO
TS8_NO
TS9_NO
TS10_NO
TS7_10_COM
TS11_NO
TS11_NC
TS12_NO
TS12_NC
TS11_12_COM
DI1_P
DI1_N
DI2_P
DI2_N
DI3_P
DI4_P
DI3_4_N
RS485_DATA+
RS485_DATA-
RS485_COM
POWER+
POWER-
AC : 125V
DC : 125V
VA
VB
VC
VN
IA
IB
IC
IN
IS
A
B
C
SURGE
SURGE
CHASSIS
GROUND BUS
RS232C
DB-9
Front
RS232C
+ RS485
DB-9
Rear

5.3 External Connections

5.3.1 PAC-P200 CT/PT connection

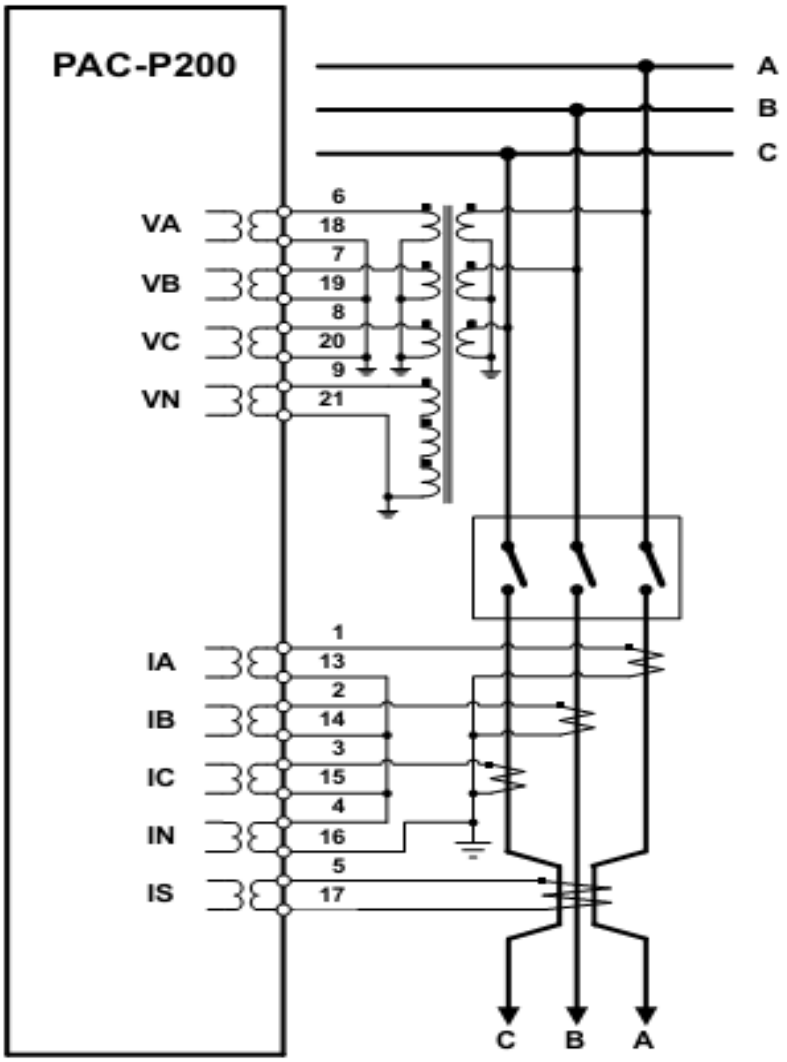
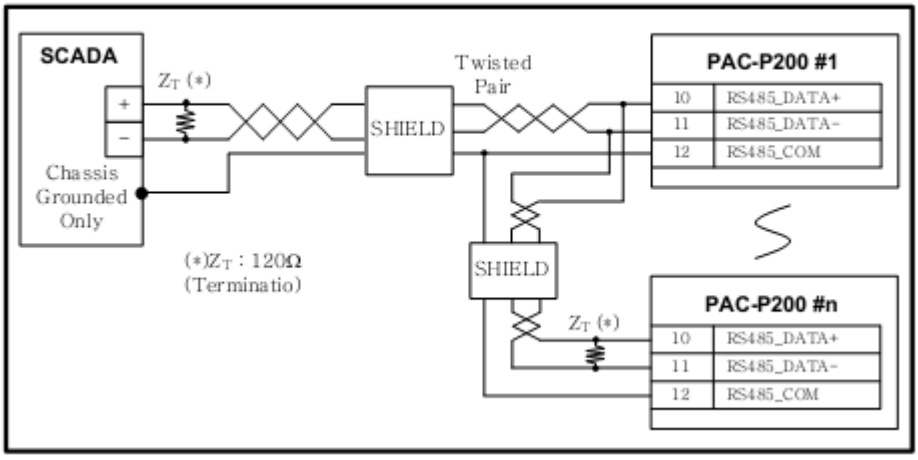


Figure 5-3 PAC-P200 CT/PT connection

5.3.4 RS485 Port Connection



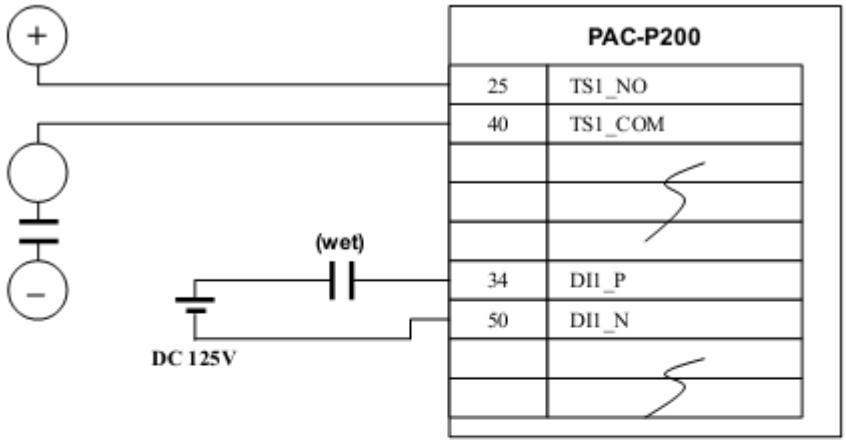
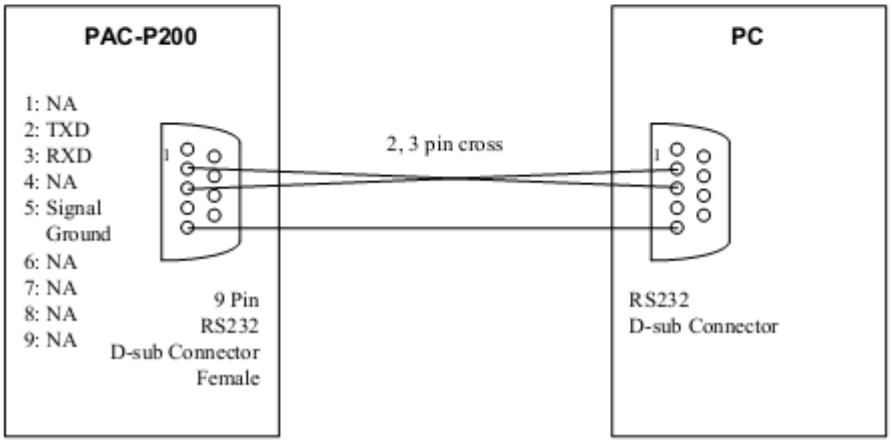


Figure 5-4 Input/Output contact connection

5.3.3 Front RS232 Port Connection



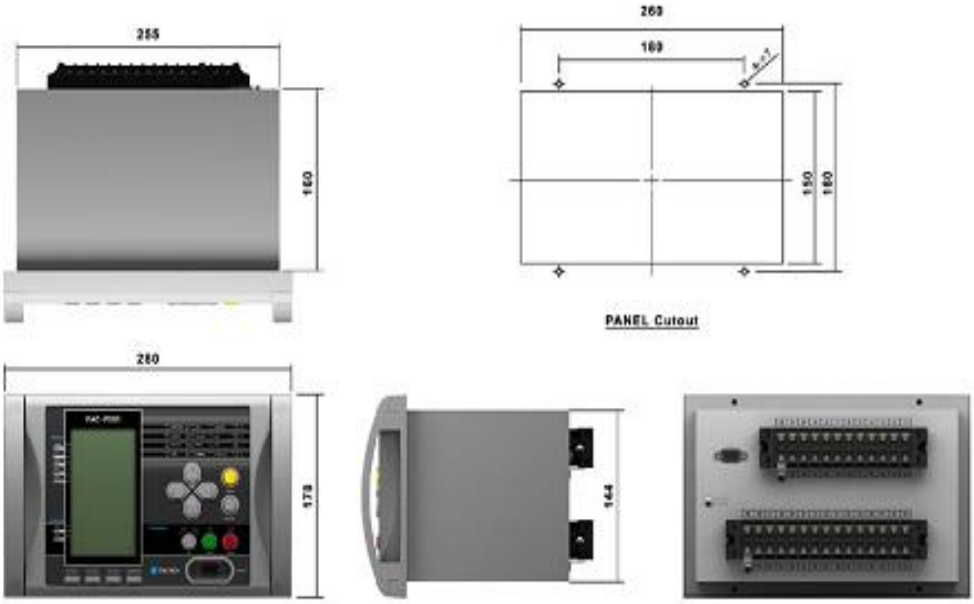


Figure 5-2 PAC-P200 Rear view

Table 5-1 Terminal arrangement

Num	Description	Num	Description	Num	Description	Num	Description
1	IA+	13	IA-	25	TS1_NO	40	TS1_COM
2	IB+	14	IB-	26	TS2_NO	41	TS2_COM
3	IC+	15	IC-	27	TS3_NO	42	TS3_6_COM
4	IN+	16	IN-	28	TS4_NO	43	TS5_NO
5	IS+	17	IS-	29	TS6_NO	44	TS7_NO
6	VA+	18	VA-	30	TS8_NO	45	TS9_NO
7	VB+	19	VB-	31	TS10_NO	46	TS7_10_COM
8	VC+	20	VC-	32	TS11_NO	47	TS11_NC
9	VN+	21	VN-	33	TS12_NO	48	TS12_NC
10	RS485_DATA+	22	--	34	DI1_P	49	TS11_12_COM
11	RS485_DATA-	23	--	35	DI2_P	50	DI1_N
12	RS485_COM	24	SURGE	36	DI3_P	51	DI2_N
				37	DI4_P	52	DI3_4_N
				38	PWR+	53	SURGE
				39	PWR-	54	CHASSIS

DB9