

# **Remote Terminal Unit**

# **PZ-M32**

## (32 analog inputs)

Version: 20100524



#### Shanghai Acrel Ltd.

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#### 1. General

The PZ-M32 is applicable in intelligent systems remotely measuring analog signals, like current, voltage, power, temperature, pressure and humidity etc.. The PZ-M32 unit allows the simultaneous collection of 32 ways AC/DC 0-20mA or 0-5V AC/DC analog signals. The unit is connected to the upper computer by RS485 communication, and utilizes Polling for data exchange to reflect the value of the metered object on a real-time basis.

#### 2. Norms

IEC61000-4-2	(EN61000-4-2)
IEC61000-4-3	(EN61000-4-3)
IEC61000-4-4	(EN61000-4-4)
IEC61000-4-5	(EN61000-4-5)
IEC61000-4-6	(EN61000-4-6)
EN55011	
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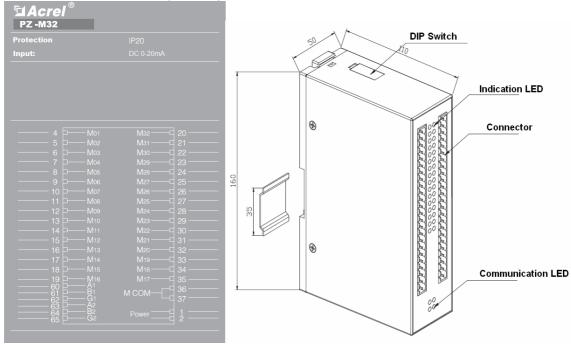
Personnel Electrostatic Discharge Immunity Testing and measurement techniques - Radiated Electrical fast transient burst immunity test Combination wave and surge impulse test Measurement Uncertainty In Immunity Test Measuring radiated emissions

#### 3. Technical Feature

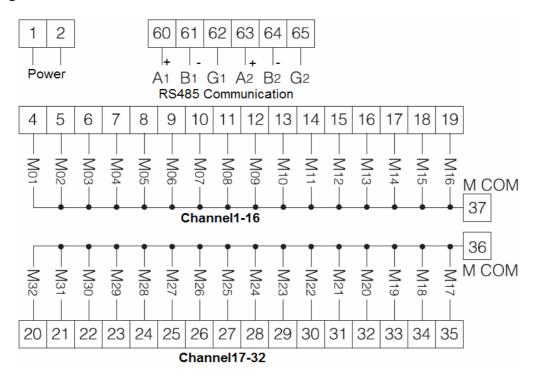
	eature	Value	
	32 Signals	AC/DC 0-20mA or 0-5V AC/DC analog signals	
Input	Response time	< 2ms	
	Scanning time	1ms	
Power Supply	Voltage range	24 VDC(18-36VDC) or AC/DC 80-270V	
Fower Suppry	Consumption	≤ 5W	
	Bus Mode	2-wires half-duplex RS485/Modbus protocol	
Communication	Bus Capacity	≤ 32	
Communication	Response Time	20ms	
	Baud rate	9600 / 4800 / 2400 / 1200 bps	
	Degree of Protection	IP40, Terminal IP20	
	Accuracy	0.5%	
	Isolation	2Kv/1min,50Hz (inputs, output and supplier)	
Others	Work Temperature	-5℃ - 55℃	
	Storage Temperature	-25℃ - 85℃	
	Mounting	TS35 Standard DIN rail	
	Dimension	160 × 50 ×110mm	

#### 4. Fix and wire

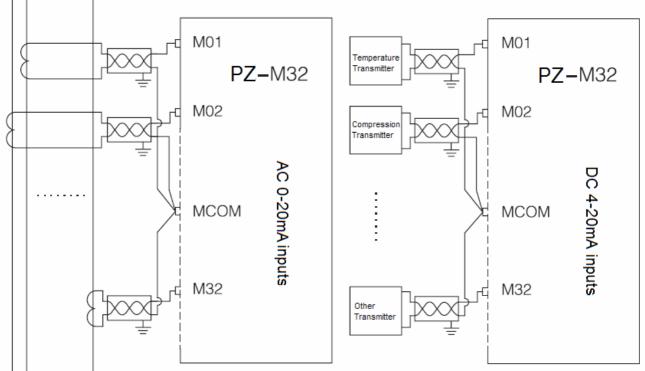
#### 4.1 Size: 160 × 50 ×110mm (L\*W\*H)



#### 4.2 Fixing: standard DIN TS35



4.3 The application example:



#### Note:

- 1. To avoid the error from the resistance of input wire, the negative poles of 1-16 analog inputs connect MCOM point 37; and the negative poles of 17-32 analog inputs connect MCOM point 36.
- 2. We propose that the wire is STP and its shielding layer should be connect to earth.

#### 4.4 The description of LED for analog input alarm

PZ-M32 can indicate the states of all the analog inputs. By 2 Rs485 communications, we can set maximal and minimal values alarms as well as the delay of alarms. It has 32 LED with 3 colors to match each analog input.

Description LED:

OFF: no input

Green: work well, the analog input value is between maximal and minimal alarms.

Red: on the state of maximal value.

Orange: on the state of minimal value.

#### 5. RS485 Communication

#### 5.1 The list of registers

Register Code	Items	R/W	Remark	Format
00	Meter code	R	203 (PZ-M32)	Unsigned int
01	Software version	R		Unsigned int
02	Slave device address	R/W	1-247	Unsigned int
03	Baud rate	R/W	1200,2400,4800,9600,19200, 38400	Unsigned int
04	Parity mode (Note1)	R/W	DIP switch 0,1,2,3	Unsigned int
05		Rese		
06	The state of alarm of 16 <sup>th</sup> – 1 <sup>st</sup> way	R	Bit15=16 <sup>th</sup> ; bit0= 1 <sup>st</sup> (1=on, 0=off)	Unsigned int
07	The state of alarm of 32 <sup>nd</sup> – 17 <sup>th</sup> way	R	Bit15=32 <sup>nd</sup> ; bit0= 17 <sup>th</sup> (1=on, 0=off)	Unsigned int
08	The state of 8 <sup>th</sup> – 1 <sup>st</sup> way	R	Register08: bit1, bit0 for 1 <sup>st</sup> way	Unsigned int
09	The state of 16 <sup>th</sup> – 9 <sup>th</sup> way	R	Bit3, bit4 for 2 <sup>nd</sup> way Bit5, bit6 for 3 <sup>rd</sup> way	Unsigned int
10	The state of 24 <sup>th</sup> – 17 <sup>th</sup> way	R	Bit7, bit8 for 4 <sup>th</sup> way  1,1= no signal	Unsigned int
11	The state of 32 <sup>nd</sup> – 25 <sup>th</sup> way	R	0,1= alarm of maximal value 1,0= good work without alarm 0,0= alarm of minimal value	Unsigned int
12		Rese	rved	
13	Input value of 1 <sup>st</sup> way	R	Their value (-32768~32767).	int
14	Input value of 2 <sup>nd</sup> way	R	It is the value of current or	int
15	Input value of 3 <sup>rd</sup> way	R	voltage. If the input is 0-20mA,	Int
16	Input value of 4 <sup>th</sup> way	R	the read value is 20000, it	Int
17	Input value of 5 <sup>th</sup> way	R	signs 20.000mA. If the input is	int
18	Input value of 6 <sup>th</sup> way	R	0-5V, the read value is 5000, it	int
19	Input value of 7 <sup>th</sup> way	R	signs 5.000V	int
20	Input value of 8 <sup>th</sup> way	R		Int
21	Input value of 9 <sup>th</sup> way	R		Int
22	Input value of 10 <sup>th</sup> way	R		int
23	Input value of 11 <sup>th</sup> way	R	_	int
24	Input value of 12 <sup>th</sup> way	R	_	int
25	Input value of 13 <sup>th</sup> way	R		Int
26	Input value of 14 <sup>th</sup> way	R		Int
27	Input value of 15 <sup>th</sup> way	R		int
28	Input value of 16 <sup>th</sup> way	R		int
29	Input value of 17 <sup>th</sup> way	R		int
30	Input value of 18 <sup>th</sup> way	R		Int
31	Input value of 19 <sup>th</sup> way	R		Int
32	Input value of 20 <sup>th</sup> way	R		int

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33	Input value of 21 <sup>st</sup> way	R		int
34	Input value of 22 <sup>nd</sup> way	R		int
35	Input value of 23 <sup>rd</sup> way	R		Int
36	Input value of 24 <sup>th</sup> way	R		Int
37	Input value of 25 <sup>th</sup> way	R		int
38	Input value of 26 <sup>th</sup> way	R		int
39	Input value of 27 <sup>th</sup> way	R		int
40	Input value of 28 <sup>th</sup> way	R		Int
41	Input value of 29 <sup>th</sup> way	R		Int
42	Input value of 30 <sup>th</sup> way	R		int
43	Input value of 31 <sup>st</sup> way	R		int
44	Input value of 32 <sup>nd</sup> way	R		int
45	Maximal value of alarm of 1 <sup>st</sup> way	R/W		Int
46	Maximal value of alarm of 2 <sup>nd</sup> way	R/W		Int
47	Maximal value of alarm of 3 <sup>rd</sup> way	R/W		int
48	Maximal value of alarm of 4 <sup>th</sup> way	R/W		int
49	Maximal value of alarm of 5 <sup>th</sup> way	R/W		int
50	Maximal value of alarm of 6 <sup>th</sup> way	R/W	]	Int
51	Maximal value of alarm of 7 <sup>th</sup> way	R/W		Int
52	Maximal value of alarm of 8 <sup>th</sup> way	R/W		int
53	Maximal value of alarm of 9 <sup>th</sup> way	R/W		int
54	Maximal value of alarm of 10 <sup>th</sup> way	R/W		int
55	Maximal value of alarm of 11 <sup>th</sup> way	R/W		Int
56	Maximal value of alarm of 12 <sup>th</sup> way	R/W		Int
57	Maximal value of alarm of 13 <sup>th</sup> way	R/W	Their value (-32768~32767).	int
58	Maximal value of alarm of 14 <sup>th</sup> way	R/W	When the input value passes	int
59	Maximal value of alarm of 15 <sup>th</sup> way	R/W	this value and the time passes	int
60	Maximal value of alarm of 16 <sup>th</sup> way	R/W	the delay of alarm, the alarm	Int
61	Maximal value of alarm of 17 <sup>th</sup> way	R/W	LED will turn on.	Int
62	Maximal value of alarm of 18 <sup>th</sup> way	R/W	If you needn't the alarm on this	int
63	Maximal value of alarm of 19 <sup>th</sup> way	R/W	channel, please its set value is	int
64	Maximal value of alarm of 20 <sup>th</sup> way	R/W	32767.	int
65	Maximal value of alarm of 21 <sup>st</sup> way	R/W	•	Int
66	Maximal value of alarm of 22 <sup>nd</sup> way	R/W	•	Int
67	Maximal value of alarm of 23 <sup>rd</sup> way	R/W	-	int
68	Maximal value of alarm of 24 <sup>th</sup> way	R/W	•	int
69	Maximal value of alarm of 25 <sup>th</sup> way	R/W	•	int
70	Maximal value of alarm of 26 <sup>th</sup> way	R/W	•	Int
71	Maximal value of alarm of 27 <sup>th</sup> way	R/W	•	Int
72	Maximal value of alarm of 28 <sup>th</sup> way	R/W		int
73	Maximal value of alarm of 29 <sup>th</sup> way	R/W	1	int
74	Maximal value of alarm of 30 <sup>th</sup> way	R/W	1	int
75	Maximal value of alarm of 31 <sup>st</sup> way	R/W	1	Int
76	Maximal value of alarm of 32 <sup>nd</sup> way	R/W	1	Int
77	Minimal value of alarm of 1 <sup>st</sup> way	R/W	Their value (-32768~32767).	int
78	Minimal value of alarm of 2 <sup>nd</sup> way	R/W	When the input value lowers	int
79	Minimal value of alarm of 3 <sup>rd</sup> way	R/W	this value and the time passes	int
80	Minimal value of alarm of 4 <sup>th</sup> way	R/W	the delay of alarm, the alarm	Int
81	Minimal value of alarm of 5 <sup>th</sup> way	R/W	LED will turn on.	Int
82	Minimal value of alarm of 6 <sup>th</sup> way	R/W	If you needn't the alarm on this	int
83	Minimal value of alarm of 7 <sup>th</sup> way	R/W	channel, please its set value is	int
84	Minimal value of alarm of 8 <sup>th</sup> way	R/W	-32767.	int
85	Minimal value of alarm of 9 <sup>th</sup> way	R/W		Int
86	Minimal value of alarm of 10 <sup>th</sup> way	R/W	1	Int
00	within a value of alarm of to way	1////		

87       Minimal value of alarm of 1 <sup>th</sup> way, RW       int         88       Minimal value of alarm of 13 <sup>th</sup> way, RW       int         90       Minimal value of alarm of 13 <sup>th</sup> way, RW       int         91       Minimal value of alarm of 15 <sup>th</sup> way, RW       Int         92       Minimal value of alarm of 15 <sup>th</sup> way, RW       Int         93       Minimal value of alarm of 15 <sup>th</sup> way, RW       Int         94       Minimal value of alarm of 15 <sup>th</sup> way, RW       Int         95       Minimal value of alarm of 15 <sup>th</sup> way, RW       Int         96       Minimal value of alarm of 25 <sup>th</sup> way, RW       Int         97       Minimal value of alarm of 25 <sup>th</sup> way, RW       Int         98       Minimal value of alarm of 25 <sup>th</sup> way, RW       Int         99       Minimal value of alarm of 25 <sup>th</sup> way, RW       Int         101       Minimal value of alarm of 25 <sup>th</sup> way, RW       Int         102       Minimal value of alarm of 25 <sup>th</sup> way, RW       Int         103       Minimal value of alarm of 25 <sup>th</sup> way, RW       Int         104       Minimal value of alarm of 25 <sup>th</sup> way, RW       Int         105       Minimal value of alarm of 25 <sup>th</sup> way, RW       Int         106       Minimal value of alarm of 25 <sup>th</sup> way, RW       Int	Acrel			Shangha	i Acrel Ltd.
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127Delay of alarm of 19 <sup>th</sup> wayR/W128Delay of alarm of 20 <sup>th</sup> wayR/W129Delay of alarm of 21 <sup>st</sup> wayR/W130Delay of alarm of 22 <sup>nd</sup> wayR/W131Delay of alarm of 23 <sup>rd</sup> wayR/W132Delay of alarm of 24 <sup>th</sup> wayR/W133Delay of alarm of 25 <sup>th</sup> wayR/W134Delay of alarm of 26 <sup>th</sup> wayR/W135Delay of alarm of 27 <sup>th</sup> wayR/W136Delay of alarm of 28 <sup>th</sup> wayR/W137Delay of alarm of 30 <sup>th</sup> wayR/W138Delay of alarm of 30 <sup>th</sup> wayR/W139Delay of alarm of 31 <sup>st</sup> wayR/W					
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138Delay of alarm of 30 <sup>th</sup> wayR/WUnsigned int139Delay of alarm of 31 <sup>st</sup> wayR/WUnsigned int					
139 Delay of alarm of 31 <sup>st</sup> way R/W Unsigned int					
	140	Delay of alarm of 32 <sup>nd</sup> way	R/W		Unsigned int

Note:

- 1. Read register: by order 03/04
- Write each register: by order 06
   Write multi registers by order 16 (10H)
- 4. Read and write operation can be done by COMM1 and COMM2.

## 5.2 Read 32 states of alarm. (read by order 01 or order 02 and by COMM1)

Register	Content	Format	R/W	Order	Value
0000	Alarm1	bit	R	01/02	1=ON 0=OFF
0001	Alarm2	bit	R	01/02	1=ON 0=OFF
0002	Alarm3	bit	R	01/02	1=ON 0=OFF
0003	Alarm4	bit	R	01/02	1=ON 0=OFF
0004	Alarm5	bit	R	01/02	1=ON 0=OFF
0005	Alarm6	bit	R	01/02	1=ON 0=OFF
0006	Alarm7	bit	R	01/02	1=ON 0=OFF
0007	Alarm8	bit	R	01/02	1=ON 0=OFF
8000	Alarm9	bit	R	01/02	1=ON 0=OFF
0009	Alarm10	bit	R	01/02	1=ON 0=OFF
0010	Alarm11	bit	R	01/02	1=ON 0=OFF
0011	Alarm12	bit	R	01/02	1=ON 0=OFF
0012	Alarm13	bit	R	01/02	1=ON 0=OFF
0013	Alarm14	bit	R	01/02	1=ON 0=OFF
0014	Alarm15	bit	R	01/02	1=ON 0=OFF
0015	Alarm16	bit	R	01/02	1=ON 0=OFF
0016	Alarm17	bit	R	01/02	1=ON 0=OFF
0017	Alarm18	bit	R	01/02	1=ON 0=OFF
0018	Alarm19	bit	R	01/02	1=ON 0=OFF
0019	Alarm20	bit	R	01/02	1=ON 0=OFF
0020	Alarm21	bit	R	01/02	1=ON 0=OFF
0021	Alarm22	bit	R	01/02	1=ON 0=OFF
0022	Alarm23	bit	R	01/02	1=ON 0=OFF
0023	Alarm24	bit	R	01/02	1=ON 0=OFF
0024	Alarm25	bit	R	01/02	1=ON 0=OFF
0025	Alarm26	bit	R	01/02	1=ON 0=OFF
0026	Alarm27	bit	R	01/02	1=ON 0=OFF
0027	Alarm28	bit	R	01/02	1=ON 0=OFF
0028	Alarm29	bit	R	01/02	1=ON 0=OFF
0029	Alarm30	bit	R	01/02	1=ON 0=OFF
0030	Alarm31	bit	R	01/02	1=ON 0=OFF
0031	Alarm32	bit	R	01/02	1=ON 0=OFF

Note:

1=ON (With alarm); 0=OFF (Without alarm)

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53	Im	perative	ələrm
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Register	Content	Format	R/W	Order	Value
0000	Alarm1	bit	W	05	0xff00=ON 0x0000=OFF
0001	Alarm2	bit	W	05	0xff00=ON 0x0000=OFF
0002	Alarm3	bit	W	05	0xff00=ON 0x0000=OFF
0003	Alarm4	bit	W	05	0xff00=ON 0x0000=OFF
0004	Alarm5	bit	W	05	0xff00=ON 0x0000=OFF
0005	Alarm6	bit	W	05	0xff00=ON 0x0000=OFF
0006	Alarm7	bit	W	05	0xff00=ON 0x0000=OFF
0007	Alarm8	bit	W	05	0xff00=ON 0x0000=OFF
8000	Alarm9	bit	W	05	0xff00=ON 0x0000=OFF
0009	Alarm10	bit	W	05	0xff00=ON 0x0000=OFF
0010	Alarm11	bit	W	05	0xff00=ON 0x0000=OFF
0011	Alarm12	bit	W	05	0xff00=ON 0x0000=OFF
0012	Alarm13	bit	W	05	0xff00=ON 0x0000=OFF
0013	Alarm14	bit	W	05	0xff00=ON 0x0000=OFF
0014	Alarm15	bit	W	05	0xff00=ON 0x0000=OFF
0015	Alarm16	bit	W	05	0xff00=ON 0x0000=OFF
0016	Alarm17	bit	W	05	0xff00=ON 0x0000=OFF
0017	Alarm18	bit	W	05	0xff00=ON 0x0000=OFF
0018	Alarm19	bit	W	05	0xff00=ON 0x0000=OFF
0019	Alarm20	bit	W	05	0xff00=ON 0x0000=OFF
0020	Alarm21	bit	W	05	0xff00=ON 0x0000=OFF
0021	Alarm22	bit	W	05	0xff00=ON 0x0000=OFF
0022	Alarm23	bit	W	05	0xff00=ON 0x0000=OFF
0023	Alarm24	bit	W	05	0xff00=ON 0x0000=OFF
0024	Alarm25	bit	W	05	0xff00=ON 0x0000=OFF
0025	Alarm26	bit	W	05	0xff00=ON 0x0000=OFF
0026	Alarm27	bit	W	05	0xff00=ON 0x0000=OFF
0027	Alarm28	bit	W	05	0xff00=ON 0x0000=OFF
0028	Alarm29	bit	W	05	0xff00=ON 0x0000=OFF
0029	Alarm30	bit	W	05	0xff00=ON 0x0000=OFF
0030	Alarm31	bit	W	05	0xff00=ON 0x0000=OFF
0031	Alarm32	bit	W	05	0xff00=ON 0x0000=OFF

#### 5.4 Examples Examples1

Read  $1^{st}$  channel analog value on device02 (by order 03H) Request: 0x02,0x03,0x00,0x0D,0x00,0x01,0x15,0Xc9Reply: 0x02,0x03,0x02,0x13,0x00,0Xb5,0x74Explanation: On device02, its  $1^{st}$  analog input value is 4.864.

#### Examples2

Set the maximal value of 1st alarm on device01 (by order 06H) Request: 0x01,0x06,0x00,0x2D,0x3E,0x80,0x09,0xC9 Reply: 0x01,0x06,0x00,0x2D,0x3E,0x80,0x09,0xC9 Explanation: set the maximal value of 1st alarm as 16.000

#### Examples3

Read the states from 1<sup>st</sup> channel to 5<sup>th</sup> channel on device01 (by order 02H) Request: 0x01,0x02,0x00,0x00,0x00,0x05,0xFC,0x09 Reply: 0x01,0x02,0x01,0x0C,0x51,0x8D Explanation: 0C to binary is 01100. That's to say that there are 2 alarms, channel 3<sup>rd</sup>, 4<sup>th</sup>. Others work normally.

#### 6. Others 6.1 DIP Switch setting

#### 6.1.1 DIP definition

1	2	3	4	5	6	7	8	9	10
	Address setting Baud rate setting		Mode setting	commu	nication				
1	0	0	0	0	0	0	0	0	0

#### 6.2.1 Address setting

DIP1	DIP2	DIP3	DIP4	DIP5	Address
1	0	0	0	0	1
0	1	0	0	0	2
		3	31		
1	1	1	1	1	31
0	0	0	0	0	32

#### 6.1.3 Baud rate setting

Baud rate	DIP6	DIP7
9600 bps	0	0
4800 bps	1	0
2400 bps	0	1
1200 bps	1	1

#### 6.1.4 Mode setting

	DIP8	Note: when reset DIP8, have to reset address and baud
Setting address and baud rate locally	0	rate, then the PZ-K32 can work under new mode.
Setting address and baud rate by PC	1	Tate, then the FZ-N32 can work under new mode.

#### 6.1.5 Data format setting

10 bits: 1 start, 8 data, 1 stop	0	0
11bits: 1 start, 8 data, 2 stop	1	0
11bits: 1 start, 8 data, even parity, 1 stop	0	1
11bits: 1 start, 8 data, odd parity, 1 stop	1	1

Note: the explanation of DIP: 1(off), 0(on)

#### 6.2 Function data

#### 6.2.1 The reply format when receiving error order

PC read (MODBUS 01H/02H)					
Address Error function Error data CRC					
Byte Byte Byte Word					
XX XX(Demand code + 08H) 01H, 02H, 03H, 04H XXXX (CRC value)					

Definition of error code 01 error function code 02 error position of data 03 error value 04 the rupture of slave

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6.2.2 The 01H/02H order code

	PC master request (MODBUS 01H/02H)					
Code	Function	Address	Data	CRC		
Byte	Byte	Word	Word	Word		
XX	XX(01H/02H)	XXXX	XXXX	XXXX (CRC value)		

Slave reply (MODBUS 01H/02H)					
Code	Function	Data length	Data	CRC	
Byte	Byte	Byte	N Byte	Word	
XX	XX(01H/02H)	XX	XXXX	XXXX (CRC value)	

Error slave reply (MODBUS 81H/82H)				
Code Error function Error Data CRC				
Byte Byte Byte Word				
XX XX(81H/82H) XX(02H error address, 03H error data) XXXX (CRC values of the second se				

#### 6.2.3 The 03H/04H order code

PC master request (MODBUS 03H/04H)					
Code Function Start address Data CRC				CRC	
Byte	Byte	Word	Word	Word	
XX	XX(03H/04H)	XXXX	XXXX (N)	XXXX (CRC value)	

Slave reply (MODBUS 03H/04H)					
Code	Function	Data length	Data	CRC	
Byte	Byte	Byte	2*N Byte	Word	
XX	XX(03H/04H)	XX (2*N)	XXXX	XXXX (CRC value)	

Error slave reply (MODBUS 83H/84H)				
Code Error function Error Data CRC				
Byte Byte Byte Word			Word	
XX XX(83H/84H) XX(02H error address, 03H error data) XXXX (CRC values of the second se				

#### 6.2.4 The 05H order code

PC master request (MODBUS 05H)					
Code Function Address Data CRC					
Byte	Byte	Word	Word	Word	
XX	XX(05H)	XXXX	OFF00H or 000H	XXXX (CRC value)	

Slave reply (MODBUS 05H)				
Code Function Data length Data CRC				CRC
Byte	Byte	Byte	2*N Byte	Word
XX	XX(05H)	XX (as PC read)	XXXX(as PC read)	XXXX (CRC value)

Error slave reply (MODBUS 85H)				
Code Error function Error Data CRC				
Byte Byte Byte Word			Word	
XX XX(85H) XX(02H error address, 03H error data) XXXX (CRC value)				

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### 6.2.5 The 06H order code

	PC write one data (MODBUS 06H)					
Code	Function	Start Address	Data	CRC		
Byte	Byte	Word	Word	Word		
XX	XX(06H)	XXXX	XXXX	XXXX (CRC value)		
	Error	Slave reply (MODBUS	S 06H)			
Code	Function	Start Address	Data	CRC		
Byte	Byte	Word	Word	Word		
XX	XX(06H)	XXXX	XXXX	XXXX (CRC value)		

Error slave reply (MODBUS 86H)				
Code	Error function	Error Data CRC		
Byte	Byte	Byte	Word	
XX	XX(86H)	XX(02H error address, 03H error data,	XXXX (CRC value)	
		04H no wrote)		

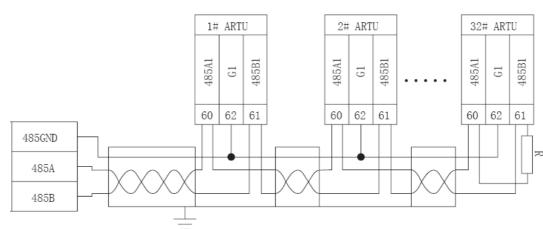
#### 6.2.6 The 10H order code

PC write multi data (MODBUS 16(10H))						
Code	Function	Start Address	Data number	Data length	Data	CRC
Byte	Byte	Word	Word	Byte	2*N bytes	Word
XX	XX(06H)	XXXX	XXXX(n)	XX (2*N)	XXXX	XXXX (CRC
						value)

Slave reply (MODBUS 16(10H))					
Code	Function	Start Address	Data number	CRC	
Byte	Byte	Word	Word	Word	
XX	XX(10H)	XXXX	XXXX	XXXX (CRC value)	

Error slave reply (MODBUS 90H)				
Code	Error function	Error Data	CRC	
Byte	Byte	Byte	Word	
XX	XX(90H)	XX(02H error address, 03H error data,	XXXX (CRC value)	
		04H no wrote)		

## Acrel 6.3 Connection mode:



Note: When in a network, there are several PZ-K32, the connectors A and B of last PZ-K32 have to parallel one terminal R (120ohm~10kohm) to assure suitable communication resistance. According to the wiring, the terminal R is different.

In the schema above, use 3 cores cable, Shield connects GND; the connect G1 of each equipment parallel.

## 6.4 Adjustment and maintenance 6.4.1 Adjustment

Check whether the wiring is OK; After powered, the power LED is ON, the running LED is glittering, and the interval is 1s. Setting communication Wire RS485 cable and to PC After PC read the slave according to its address and baud rate, the communication LED glitters. The communication has realized.

### 6.4.1 Maintenance

Check power cable Check the power LED on Check the running LED on. If off, the unit doesn't work Check the communication LED on. Set the PC read interval. Because the bus is half-duplex, the PC should be set the suitable read interval, which is defined by the length of demand / answer order and baud rate. If the interval is not good, the communication maybe is not realized.