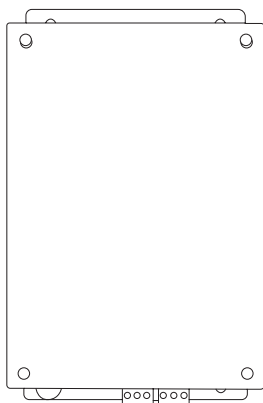


CONTROL

S E R I E S

BMS MODULE



SERVICE MANUAL

MODEL:

Bramka BMS Modbus 64
BMS Modbus 64 gateway

BMS MODBUS

Instrukcja serwisowa

Spis treści

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ŚRODKI OSTROŻNOŚCI



OSTRZEŻENIE

Tylko wykwalifikowane osoby powinny instalować i serwisować sprzęt. Instalacja, rozruch i serwis urządzeń może być niebezpieczny i wymaga specjalistycznej wiedzy i przeszkolenia. Nieprawidłowo zainstalowany, przygotowany lub wymieniony sprzęt przez niewykwalifikowane osoby może spowodować poważne obrażenia ciała, a nawet śmierć. Podczas pracy przy urządzeniu należy przestrzegać wszelkich środków ostrożności zawartej w niniejszej instrukcji, na naklejkach i etykietach urządzenia.

UTYLIZACJA:

Nie wyrzucaj urządzenia razem z niesortowanymi odpadami komunalnymi.

Konieczne jest przekazanie tego typu odpadów do specjalnego przetworzenia.

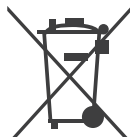
Wyrzucanie urządzenia razem z innymi odpadami z gospodarstwa domowego jest nielegalne.

Istnieje kilka sposobów pozbycia się sprzętów tego typu:

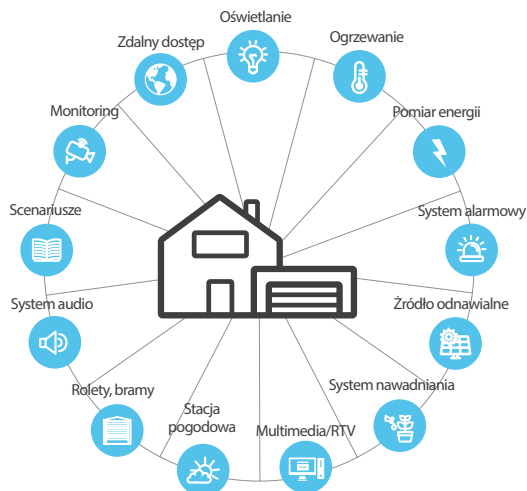
- A. Miasto organizuje zbiórki odpadów elektronicznych, podczas których można przekazać urządzenie bez ponoszenia kosztów.
- B. Podczas kupowania nowego urządzenia sprzedawca przyjmie nasze stare urządzenie bez żadnej opłaty.
- C. Producent odbierze od klienta produkt bez obciążania go kosztami.
- D. Produkty tego typu, zawierające cenne elementy, mogą zostać sprzedane na skupie metali.

Wyrzucenie urządzenia „na dziko” naraża Ciebie oraz Twoich najbliższych na ryzyko utraty zdrowia.

Niebezpieczne substancje z urządzenia mogą przeniknąć do wód gruntowych stwarzając niebezpieczeństwo przedostania się do łańcucha pokarmowego ludzi.



BMS MODBUS – Inteligentne zarządzanie



BMS MODBUS dla modeli: Mirai, Versu Mirror R15, Versu Pure, Versu Cloth, Revio, Imoto oraz Tenji, Jato, Nevo, Aneru.

Powyższe klimatyzatory Rotenso® mają możliwość integracji z systemem BMS–MODBUS zarówno w systemie Split oraz Multi.

Do realizacji tej funkcji niezbędne jest dodatkowe wyposażenie:

- Bramka BMS MODBUS
- Moduł MFBR dla każdej jednostki RAC

Pojedyncza bramka BMS Modbus obsługuje do 64 szt. jednostek wewnętrznych.

Jeśli chcesz podłączyć większą ilość urządzeń, należy dokupić kolejne bramki.

Tenji / Jato / Nevo: posiadają zintegrowane wyjście "XYE" w PCB jednostki wewnętrznej

Mirai: należy doposażyć w moduł MFBR Mirai

Revio: należy doposażyć w moduł MFBR Revio

Imoto: należy doposażyć w moduł MFBR Imoto (w zestawie z terminalem)

Versu Mirror R15 / Versu Pure / Versu Cloth: należy doposażyć w moduł MFBR Versu

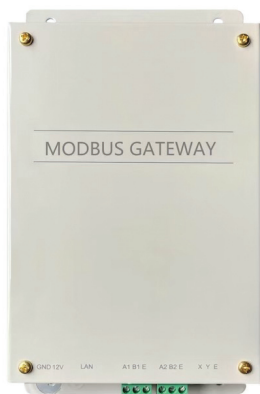
Aneru: należy doposażyć w moduł MFBR Aneru

MODBUS BMS BRAMA

Bramka BMS obsługuje sieć protokołów Modbus, komunikuje jednostki wewnętrzne z BMS.

Wyjaśnienie:

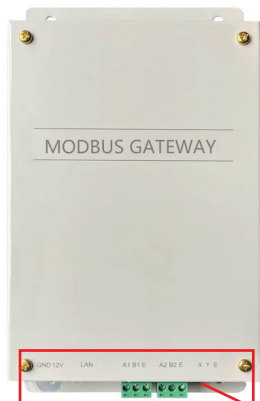
- Dla wejścia dyskretnego
Adres = (Wartość adresu Modbus dla rejestrów) - 10001
- Dla rejestru wejściowego
Adres = (Wartość adresu Modbus dla rejestrów) - 30001
- Dla Rejestru wstrzymania/przechowywania
Adres = (Wartość adresu Modbus dla rejestrów) - 40001



- Obsługa sieci protokołu Modbus
- Każda brama może obsłużyć do 64 jednostek wewnętrznych

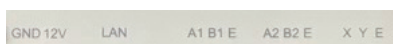
1. CECHY GŁÓWNE

- Może bezpośrednio łączyć się z jednostkami wewnętrznymi
- Może sterować jednostkami wewn., konfigurować bramę za pomocą funkcji internetowej w sieci LAN.
- Może łączyć się z systemem BMS poprzez TCP/IP lub RTU.
- System BMS może kontrolować i uzyskać dane o pracy w czasie rzeczywistym
- Można podłączyć do 64 jednostek wewnętrznych.



2. INSTRUKCJA PORTÓW

Port LAN:	Ethernet RJ45 do komputer/router - obsługa web serwera.
Port A1B1E:	Modbus System RTU
Port A2B2E:	Rezerwacja
Port XYE:	Podłącz do portu XYE jednostki wewnętrzne / MFBR.
Port POWER:	Port zasilania DC 12V.
Przycisk Reset:	Przywracanie ustawień fabrycznych.



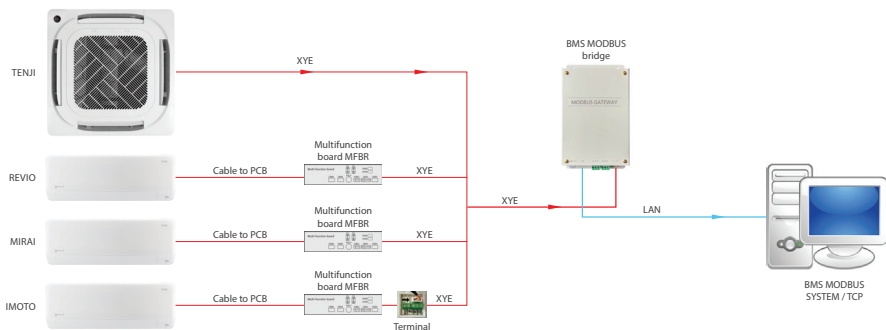
3. STRUKTURA SIECI

Możliwość sterowania urządzeniem i konfiguracją poprzez tryb TCP/IP lub RTU.

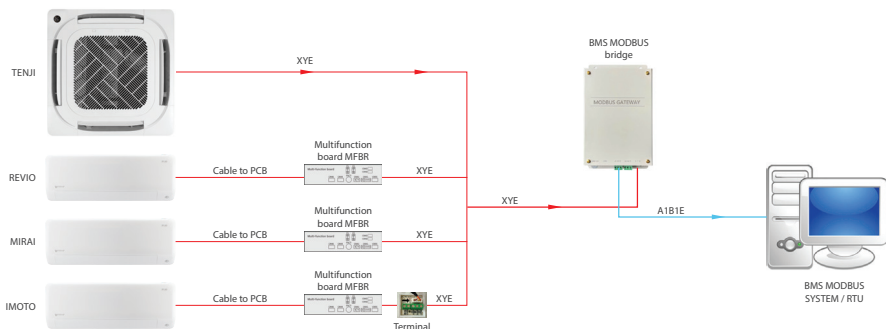
4. PRZYKŁAD SIECI

1. System PC protokołu Modbus może komunikować się z bramką po przez TCP/IP (RJ45) w celu sterowania i monitorowania jednostek.
2. System PC protokołu Modbus może komunikować się z bramką metodą RTU w celu sterowania i monitorowania jednostek.

1) Metoda połączenia TCP/IP:



2) Metoda połączenia RTU:



Uwagi:

- Komunikacja XYE musi być połączona równolegle,
- Obsługuje dwa rodzaje transmisji (600 i 4800),
- Adresy jednostek wewnętrznych nie mogą się powtarzać.

5. WPROWADZENIE DO OPERACJI

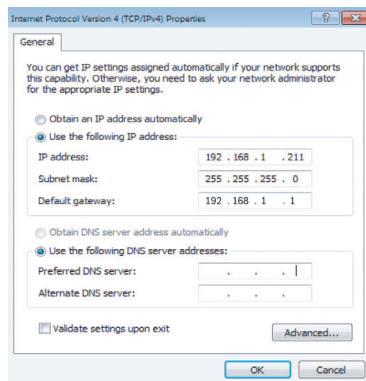
5.1. Konfiguracja IP

Domyślny adres IP Bramki Modbus to 192.168.1.200 używany do odwiedzania stron internetowych musi znajdować się w tym samym segmencie podsieci, 192.168.1.xxx (xxx w przedziale od 2 do 254). Istnieją 2 metody konfigurowania adresu IP: konfigurowanie jednego adresu IP i konfigurowanie kilku adresów IP.

Konfigurowanie pojedynczego adresu IP

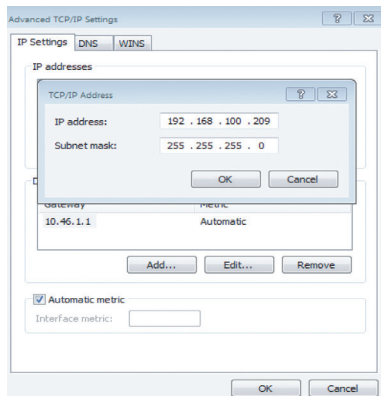
Otwórz okno dialogowe protokołu IPv4, skonfiguruj adres IP i maskę podsieci, na przykład: adres IP 192.168.1.211, a maska podsieci 255.255.255.0

Po ustawieniu zatwierdź klikając przycisk "OK".



Konfigurowanie kilku adresów IP

Przed skonfigurowaniem kilku adresów IP należy skonfigurować statystyczny adres IP. Otwórz okno dialogowe właściwości, wybierz "Zaawansowane", a wyświetli się okno dialogowe ustawień TCP / IP. Kliknij przycisk "Dodaj" na pasku adresu IP, aby dodać adres IP, który znajduje się w tej samej puli co "192.168.1.200", na przykład adres IP to 192.168.1.209, maska podsieci 255.255.255.0, wprowadź, a następnie wybierz "OK".



5.2. Konfiguracja bramy

Wprowadź "http://192.168.1.200" w pasku adresu w przeglądarce internetowej i naciśnij przycisk Enter, aby wejść na stronę WEB bramy Modbus. Możesz kliknąć przycisk "Configuration" i wyświetli się następujące okno dialogowe.

Ustawienie parametrów:

Parametr	Opis
Adres Modbus	Identyfikator Modbus służy do rozróżniania wielu bram protokołu Modbus w tym samym segmencie podsięci. Identyfikator nie może się powtarzać i może być zmieniony.
Ustawienie komunikacji Modbus	Szybkość transmisji: sugerowana 9600; Check bit: brak sprawdzania domyślnie Stop bit: domyślnie 1 Bit stopu
Adres IP	Adres IP bramy Modbus, adresy IP nie mogą się powtarzać.
Maska podsięci	Wartość domyślna: 255.255.255.0
Brama	Adres bramy lokalnej
Szybkość transmisji jednostki zewnętrznej	Szybkość transmisji komunikacji zewnętrznej, która jest podłączona do bramki Modbus

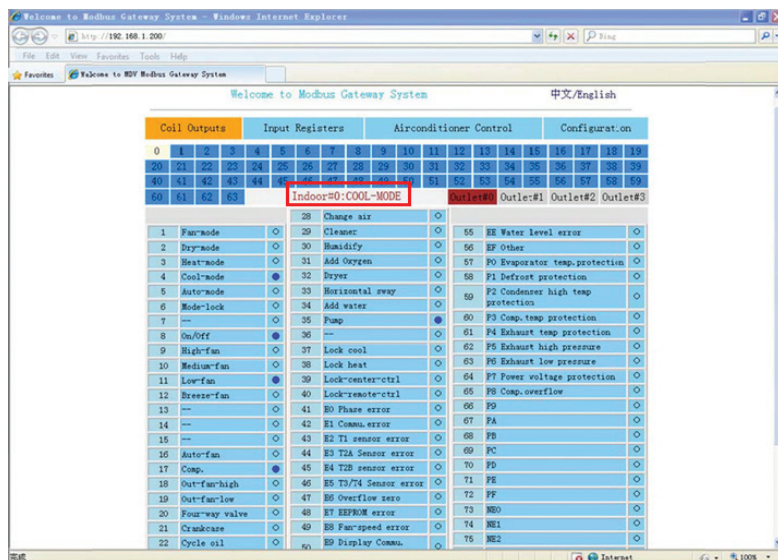
Kliknij "Ustawienia aplikacji" po zmianie odpowiednich parametrów. Jeśli chcesz użyć zaktualizowanego ustawienia kliknij przycisk "Pobierz ustawienia".

Brama Modbus uruchomi się ponownie automatycznie po zmianie ustawień, a sieć zostanie automatycznie zerwana i ponownie połączona

5.3. Zapytanie informacyjne dotyczące jednostki wewnętrznej klimatyzacji

- Wybierz "Ustawienie mocy" lub "rejestr wejściowy" na stronie internetowej, aby zapytać o informacje o klimatyzatorze.

Po wybraniu opcji "Ustawienie mocy" zostanie wyświetlone następujące okno dialogowe:



Po kliknięciu numeru adresu jednostki wewnętrznej lub zewnętrznej wyświetlone zostaną odpowiednie informacje o działaniu klimatyzatora. Wybrane urządzenie wyświetli się w czerwonej ramce.

Po kliknięciu "rejestrów wejściowych" wyświetli się następujące okno dialogowe:

Welcome to Modbus Gateway System

中文/English

Coil Outputs				Input Registers				Airconditioner Control								Configuration							
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19				
20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39				
40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59				
60	61	62	63	Indoor#0:Error/Protect								Outlet#0 Outlet#1 Outlet#2 Outlet#3											
30001	System status				2/0002				30017	Protection status				0/0000									
30002	UnitStyle-1				224/00E0				30018	Outlet 0~3 online status				0/0000									
30003	UnitStyle-2				20/0014				30019	AC 0~15 online status				1/0001									
30004	Set temp.Ts				17/0011				30020	AC 16~31 online status				65280/FF00									
30005	Room temp.T1				90/005A				30021	AC 32~47 online status				65535/FFFF									
30006	Evaporator-temp.T2s				92/005C				30022	AC 48~63 online status				4091/0FFB									
30007	Evaporator-temp.T2s				90/005A				30023	Outlet 0~3 error status				0/0000									
30008	Condenser temp.T3				255/00FF				30024	Outlet 0~3 run status				0/0000									
30009	---				0/0000				30025	AC 0~15 error status				1/0001									
30010	---				0/0000				30026	AC 16~31 error status				0/0000									
30011	Timer-on				0/0000				30027	AC 32~47 error status				0/0000									
30012	Timer-off				0/0000				30028	AC 48~63 error status				58/003A									
30013	Power				10/000A				30029	AC 0~15 run status				0/0000									
30014	---				0/0000				30030	AC 16~31 run status				0/0000									
30015	---				0/0000				30031	AC 32~47 run status				0/0000									
30016	Error status				128/0080				30032	AC 48~63 run status				0/0000									

Adresy

Zawartość

Wartość wyświetlana

Adresy

Zawartość

Wartość wyświetlana

Adresy

Zawartość

Wartość wyświetlana

Adresy

Zawartość

Wartość wyświetlana

5.4. Sterowanie klimatyzatorem

Po kliknięciu "Sterowanie klimatyzatorem" na stronie internetowej wyświetli się następujące okno dialogowe:

WELCOME TO MODBUS GATEWAY SYSTEM 中文/English

Coil Outputs Input Registers **Airconditioner Control** Configuration

Airconditioner Control: 08

RIN MODE	COOL	HEAT	FAN	STOP
FAN SPEED	HIGH	MEDIUM	LOW	AUTO
	17°C	18°C	19°C	20°C
	21°C	22°C	23°C	24°C
SET TEMP.	25°C	26°C	27°C	28°C
	29°C	30°C		

Apply

System Control TURN OFF ALL

SUMMER MODE	COOL, 17°C, LOW FAN	COOL, 24°C, MEDIUM FAN	COOL, 26°C, HIGH FAN
WINTER MODE	HEAT, 30°C, HIGH FAN	HEAT, 26°C, MEDIUM FAN	HEAT, 24°C, LOW FAN

Pojedynczy obszar kontrolny:

Możesz sterować pojedynczym klimatyzatorem, trybem ustawienia, prędkością wentylatora, ustawieniem temperatury i kliknąć przycisk "Zastosuj", aby wykonać jedną funkcję sterowania

Obszar sterowania grupą:

Wybierz odpowiedni przycisk sterowania grupą, wszystkie jednostki wewnętrzne pod kontrolą bramy Modbus zostaną włączone lub wyłączone.

5.5. Instalacja Modbus Poll i debugowanie oprogramowania

- Połączenie przez TCP/IP

Wybierz "Connection" -> "Connection" na rys. 4.3, wejdzie w okno dialogowe, a następnie wybierz TCP / IP:

Wybierz metodę połączenia TCP/IP

Mode: **TCP/IP** Mode: RTU ASCII

9600 Baud Response Timeout: 1000 [ms]

8 Data bits Delay Between Polls: 10 [ms]

None Parity Advanced...

1 Stop Bit

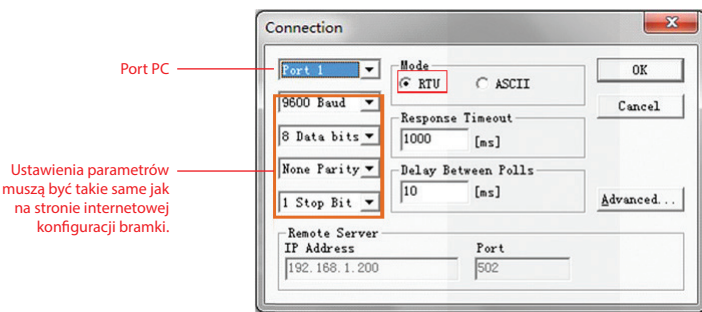
Remote Server IP Address: 192.168.1.200 Port: 502

Adres IP bramy do połączenia

Port połączenia: OK 502

Połączenie przez Modbus/RTU

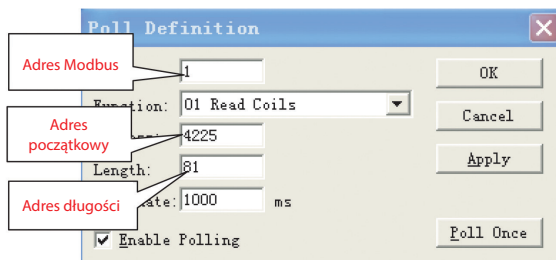
Wybierz RTU, aby się połączyć, wyświetli się w następujący sposób i możesz ustawić odpowiednie parametry.



• Test

Oprogramowanie Modbus Poll może odczytywać/zapisywać zawartość odpowiedniego adresu w tabeli mapowania. Weźmy na przykład zawartość cewki do czytania:

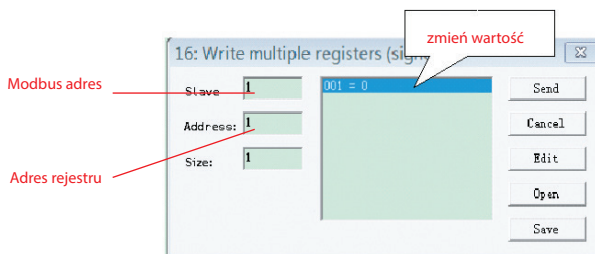
Wybierać "Poll Definition" under "Setup", wyświetli się następujące okno dialogowe.



Kliknij przycisk "OK", wyświetli treść czytania. Jeśli treść czytania jest taka sama jak wartość strony internetowej, która ma ten sam adres, oznacza to że debugowanie oprogramowania odniosło sukces.

Weźmy na przykład spisanie rejestru:

Wybierz okno dialogowe, jak pokazano poniżej:



Po zmianie wartości kliknij przycisk "wyślij", aby zakończyć operację pisania.

• Resetowanie oprogramowania

Naciśnij przycisk "RESET" na bramie przez 3 sekundy i włącz ponownie, konfiguracja oprogramowania powróci do pierwotnego ustawienia.

6. KOD FUNKCJI

Kod funkcyny	Nazwa funkcji	Funkcja
0x02	Wejście dyskretne	Odczyt
0x03	Odczyt rejestru wytrzymywania	Odczyt
0x04	Odczyt rejestru wejściowego	Odczyt
0x10	Zapisz rejestr wstrzymywania	Zapisz

7. NIEPRAWIDŁOWA ODPOWIEDŹ

Jednostka główna wysyła żądania i czeka na odpowiedź od jednostki podrzędnej (SLAVE). Gdy nie ma błędu, jednostka podrzędna (SLAVE) odpowie normalnie, ale jeśli występuje błąd sprawdzania danych to SLAVE nie odpowiada. Gdy jednostka MASTER wysyła nieprawidłowe dane (z wyjątkiem sprawdzania błędów), jednostka SLAVE odpowie normalnie..

Kod	Nazwa	Opis
0x01	Illegal function code	Kod funkcji odebrany przez urządzenie SLAVE nie może zostać wykonany.
0x02	Illegal data address	Odebrany adres danych jest niedozwolony.
0x03	Illegal data	Wartość w polu danych zapytania nie jest dozwolona przez urządzenie SLAVE
0x06	Slave busy	SLAVE jest zajęty poleceniem programu. Zapytaj MASTER do wysyłania wiadomości, gdy SLAVE jest wolny.

8. TABELA MAPOWANIA

8.1. Tabela mapowania zmiennych jednostek wewnętrznych

Modbus description	Indoor address number	Modbus register address	Data name	Length	Octet Order	Explanation
Discrete input(R)	0	10001	Fan mode	1 Octet	1	1: Yes; 0: No
		10002	Dry mode			1: Yes; 0: No
		10003	Heat mode			1: Yes; 0: No
		10004	Cool mode			1: Yes; 0: No
		10005	Auto mode			1: Yes; 0: No
		10006	Mode locking			-
		10007	Reserve			Reserve, stay 0
		10008	On/Off			1= on; 0=off
	10009-10016		High fan speed	1 Octet	2	1= on; 0=off
			Mid fan speed			1= on; 0=off
			Low fan speed			1= on; 0=off
			Low fan speed			1= on; 0=off
			Reserve			Reserve, stay 0
			Reserve			Reserve, stay 0
			Reserve			Reserve, stay 0

Modbus description	Indoor address number	Modbus register address	Data name	Length	Octet Order	Explanation
Discrete input(R)	0	10009-10016	Auto(fixed)fan	1 Octet	2	1= on; 0=off
		10017-10024	Compressor	1 Octet	3	1= on; 0=off
			ODU high fan speed			1= on; 0=off
			ODU low fan speed			1= on; 0=off
			4-way valve			1= on; 0=off
			Crankcase			1= on; 0=off
			Oil return			Reserve, stay 0
			Reserve			Reserve, stay 0
			Reserve			Reserve, stay 0
		10025-10032	ECO operation	1 Octet	4	1= on; 0=off
			Electric auxiliary heating			1= on; 0=off
			Swing			1= on; 0=off
			Reserve			Reserve
			Reserve			Reserve
			Reserve			Reserve
			Reserve			Reserve
			Reserve			Reserve
		10033-10040	Horizontal swing	1 Octet	5	1= on ;0=off
			Add water			1= on ;0=off
			Water drain pump			1= on ;0=off
			Reserve			Reserve, stay 0
			Locking cool mode			1: Yes; 0:No
			Locking heat mode			1: Yes; 0:No
			Locking centralized controller			1: Yes; 0:No
			Locking remotecontroller			1: Yes; 0:No
		10041-10048	E0 Phase sequence error or no phase	1 Octet	6	1:Error; 0:Normal
			E1 communication error			1:Error; 0:Normal
			E2 T1 sensor error			1:Error; 0:Normal
			E3 T2A sensor error			1:Error; 0:Normal
			E4 T2B sensor error			1:Error; 0:Normal
			E5 T3/T4/Digital compressor discharge temp. sensor error			1:Error; 0:Normal
			E6 Zero crossing detection error			1:Error; 0:Normal
			E7 EEPROM error			1:Error; 0:Normal
		10049-10056	E8 Fan speed detection error	1 Octet	7	1:Error; 0:Normal
			E9 Mainboard and display board communication error			1:Error; 0:Normal
			EA Compressor over current (4 times)			1:Error; 0:Normal
			EB Inverter module protection			1:Error; 0:Normal
			EC Flesh error			1:Error; 0:Normal
			ED Outdoor unit error protection			1:Error; 0:Normal
			EE Water level detection error			1:Error; 0:Normal
			EF Other errors			1:Error; 0:Normal

Modbus description	Indoor address number	Modbus register address	Data name	Length	Octet Order	Explanation
Discrete input(R)	0	10057-10064	P0 Evaporator temp. protection	1 Octet	8	1:Protection; 0:Normal
			P1 The cold wind or frostprotection			1:Protection; 0:Normal
			P2 Condenser high temp. protection			1:Protection; 0:Normal
			P3 Compressor temp. protection			1:Protection; 0:Normal
			P4 Discharge pipe temp. protection			1:Protection; 0:Normal
			P5 Discharge high pressure protection			1:Protection; 0:Normal
			P6 Discharge low pressure protection			1:Protection; 0:Normal
			P7 Power supply undervoltage protection			1:Protection; 0:Normal
		10065-10072	P8 Compressor over current protection	1 Octet	9	1:Protection; 0:Normal
			P9			Reserve, stay 0
			PA			Reserve, stay 0
			PB			Reserve, stay 0
			PC			Reserve, stay 0
			PD			Reserve, stay 0
			PE			Reserve, stay 0
			PF Other protections			1:Protection; 0:Normal
		10073-10080	0# Network connection module and mainboard communication error	1 Octet	10	1:Error; 0:Normal
			1# Centralized controller and network module error			1:Error; 0:Normal
			2# Centralized controller and function module communication error			1:Error; 0:Normal
			3# Centralized controller and computer (gateway) communication error			1:Error; 0:Normal
			4# Order limit execution			1:Error; 0:Normal
			5# Order timeout, not execution			1:Error; 0:Normal
			6# Destination address not exist			1:Error; 0:Normal
			7# Error (unsupported) order			1:Error; 0:Normal
		10081-10128	Reserve	6 Octet	11~16	Reserve, stay 0
	1	10129	Fan mode	1 Octet	17	1: Yes; 0:No
		10130	Dry mode			1: Yes; 0:No
		10131	Heat mode			1: Yes; 0:No
		10132	Cool mode			1: Yes; 0:No
		10133	Auto mode			1: Yes; 0:No
		10134	Mode locking state			-
		10135	Reserve			Reserve, stay 0
		10136	On/Off state			1: on; 0:off
		10137-10144	High fan speed	1 Octet	18	1: Yes; 0:No
			Mid fan speed			1: Yes; 0:No
			Low fan speed			1: Yes; 0:No
			Soft fan speed			1: Yes; 0:No
			Reserve			Reserve, stay 0
			Reserve			Reserve, stay 0
			Reserve			Reserve, stay 0
			Auto(fixed)fan			1: Yes; 0:No

Modbus description	Indoor address number	Modbus register address	Data name	Length	Octet Order	Explanation
Discrete input(R)	1	10145-10152	Compresso	1 Octet	19	1= on; 0=off
			Outside draught fan high fan speed			1= on; 0=off
			Outside draught fan low fan speed			1= on; 0=off
			4-way valve			1= on; 0=off
			Crankcase			1= on; 0=off
			Oil return			1= on; 0=off
			Reserve			Reserve, stay 0
			Reserve			Reserve, stay 0
		10153-10160	Eco operation	1 Octet	20	1= on; 0=off
			Electric auxiliary heating			1= on; 0=off
			Swing			1= on; 0=off
			Reserve			Reserve, stay 0
			Reserve			Reserve, stay 0
			Reserve			Reserve, stay 0
			Reserve			Reserve, stay 0
			Reserve			Reserve, stay 0
		10161-10168	Horizontal swing	1 Octet	21	1= on; 0=off
			Add water			1= on; 0=off
			Water drain pump			1= on; 0=off
			Reserve			Reserve, stay 0
			Locking cool mode			1: Yes; 0:No
			Locking heat mode			1: Yes; 0:No
			Centralized controller lock			1: Yes; 0:No
			Remote controller lock			1: Yes; 0:No
		10169-10176	E0 Phase sequency error or no phase	1 Octet	22	1:Error; 0:Normal
			E1 communication error			1:Error; 0:Normal
			E2 T1 sensor error			1:Error; 0:Normal
			E3 T2A sensor error			1:Error; 0:Normal
			E4 T2B sensor error			1:Error; 0: Normal
			E5 T3/T4/Digital compressor discharge temp. sensor error			1:Error; 0:Normal
			E6 Zero crossing detection error			1:Error; 0: Normal
			E7 EEPROM error			1:Error; 0:Normal
		10177-10184	E8 Fan speed detection error	1 Octet	23	1:Error; 0:Normal
			E9 Mainboard and display board communication error			1:Error; 0:Normal
			EA Compressor over current (4 times)			1:Error; 0:Normal
			EB Inverter module protection			1:Error; 0:Normal
			EC Clearance error			1:Error; 0:Normal
			ED Outdoor unit error protection			1:Error; 0:Normal
			EE Water level detection error			1:Error; 0:Normal
			EF Other errors			1:Error; 0:Normal

Modbus description	Indoor address number	Modbus register address	Data name	Length	Octet Order	Explanation
Discrete input(R)	1	10185-10192	P0 Evaporator temp. protection	1 Octet	24	1:Error; 0:Normal
			P1 The cold wind or frost protection			1:Error; 0:Normal
			P2 Condenser high temp. protection			1:Error; 0:Normal
			P3 Compressor temp. protection			1:Error; 0:Normal
			P4 Discharge pipe temp. protection			1:Error; 0:Normal
			P5 Discharge high pressure protection			1:Error; 0:Normal
			P6 Discharge low pressure protection			1:Error; 0:Normal
			P7 Power supply over or under voltage protection			1:Error; 0:Normal
		10193-10200	P8 Compressor over current protection	1 Octet	25	1:Protection; 0:Normal
			P9			Reserve, stay 0
			PA			Reserve, stay 0
			PB			Reserve, stay 0
			PC			Reserve, stay 0
			PD			Reserve, stay 0
			PE			Reserve, stay 0
			PF Other protections			1:Protection; 0:Normal
		10201-10208	0# Network connection module and mainboard communication error	1 Octet	26	1:Error; 0:Normal
			1# Centralized controller and network module error			1:Error; 0: Normal
			2# Centralized controller and function module communication error			1:Error; 0: Normal
			3# Centralized controller and computer (gateway) communication error			1:Error; 0: Normal
			4# Order limit execution			1:Error; 0:Normal
			5# Order timeout, no execution			1:Error; 0: Normal
			6# Destination address not exist			1:Error; 0:Normal
			7# Error (unsupported) order			1:Error; 0:Normal
		10209-10256	Reserve	6 Octet	27 ~ 32	Reserve, stay 0
	n	(128*n+10001) (128*n+10008)	As 1# indoor	1 Octet	n*16+1	As 1# indoor
		(128*n+10009) (128*n+10016)			n*16+2	
		(128*n+10017) (128*n+10024)			n*16+3	
		(128*n+10025) (128*n+10031)			n*16+4	
		(128*n+10032) (128*n+10040)			n*16+5	
		(128*n+10041) (128*n+10048)			n*16+6	
		(128*n+10049) (128*n+10056)			n*16+7	
		(128*n+10057) (128*n+10064)			n*16+8	
		(128*n+10065) (128*n+10072)			n*16+9	
		(128*n+10073) (128*n+10080)			n*16+10	

Modbus description	Indoor address number	Modbus register address	Data name	Length	Octet Order	Explanation
Discrete input(R)	n	(128*n+10081) (128*n+10128)	As 1# indoor	6 Octet	(n*16+11) ~ (n*16+16)	As 1# indoor
	63	18065-18072	As 1# indoor	1 Octet	1009	As 1# indoor
		18073-18080		1 Octet	1010	
		18081-18088		1 Octet	1011	
		18089-18096		1 Octet	1012	
		18097-18104		1 Octet	1013	
		18105-18112		1 Octet	1014	
		18113-18120		1 Octet	1015	
		18121-18128		1 Octet	1016	
		18129-18136		1 Octet	1017	
		18137-18144		1 Octet	1018	
		18145-18192		6 Octet	1019~1024	

Modbus description	Indoor address number	Modbus register address	Data name	Length	Explanation
Input Register (R)	0	30001	System state	2 Octet	bit0: the running state of the system 1:running, 0:stop; bit1: the error state of the system, 1:error,0:normal; bit2: local/remote, 1:remote, 0:local
		30002	Model message 1	2 Octet	-
		30003	Model message 2	2 Octet	-
		30004	Setting temp Ts	2 Octet	17~30 means the temperature range is 17 to 30°C
		30005	Indoor temp T1	2 Octet	0~240 means - 20 to 100°C (T*2+40)
		30006	Evaporator pipe temp T2A	2 Octet	0~240 means the temperature range is from - 20 to 100°C
		30007	Evaporator medium pipe temp. T2B	2 Octet	0~240 means - 20 to 100°C (T*2+40)
		30008	Condenser pipe temp T3	2 Octet	0~240 means - 20 to 100°C (T*2+40) 0xFF is invalid
		30009	Reserve	-	-
		30010	Reserve	-	-
		30011	Timing on hour	2 Octet	0~96 means no timer ~ 24 hours timer
		30012	Timing off hour	2 Octet	0~96 means no timer ~ 24 hours timer
		30013	Electric consumption power	2 Octet	Unit: 0.1HP
		30014 ~ 30015	Reserve	4 Octet	Reserve, stay 0
		30016	Error state	2 Octet	bit0: means E0 error, 1:Yes, 0:No bit1: means E1 error, 1:Yes, 0:No bit15: means EF error, 1:Yes, 0:No
		30017	Protection state	2 Octet	bit0: means P0 protection, 1: Yes, 0: No bit1: means P1 protection, 1: Yes, 0: No bit15: means PF protection , 1: Yes, 0: No
		30018	0~3 outdoor unit online state	2 Octet	bit0: means 0# outdoor unit online, 1: Yes, 0: No bit1: means 1# outdoor unit online, 1: Yes, 0: No bit2: means 2# outdoor unit online, 1: Yes, 0: No bit3: means 3# outdoor unit online, 1: Yes, 0: No

Modbus description	Indoor address number	Modbus register address	Data name	Length	Explanation
Input Register (R)	0	30019	0~15 indoor unit online state	2 Octet	bit0: means 0# indoor unit online, 1: Yes, 0: No bit1: means 1# indoor unit online, 1: Yes, 0: No bit15: means 15# indoor unit online, 1: Yes, 0: No
		30020	16~31# indoor unit online state	2 Octet	bit0: means 16# indoor unit online, 1: Yes, 0: No bit1: means 17# indoor unit online, 1: Yes, 0: No bit15: means 31# indoor unit online, 1: Yes, 0: No
		30021	32~47# indoor unit online state	2 Octet	bit0: means 32# indoor unit online, 1: Yes, 0: No bit1: means 33# indoor unit online, 1: Yes, 0: No bit15: means 47# indoor unit online, 1: Yes, 0: No
		30022	48~63# indoor unit online state	2 Octet	bit0: means 48# indoor unit online, 1: Yes, 0: No bit1: means 49# indoor unit online, 1: Yes, 0: No bit1: means 63# indoor unit online, 1: Yes, 0: No
		30023	0~3 #outdoor unit error state	2 Octet	bit0: means 0# outdoor unit error, 1: Yes, 0: No bit1: means 1# outdoor unit error, 1: Yes, 0: No bit2: means 2# outdoor unit error, 1: Yes, 0: No bit3: means 3# outdoor unit error, 1: Yes, 0: No
		30024	0~3# outdoor unit running state	2 Octet	bit0: means 0# outdoor unit running state, 1: Yes, 0: No bit1: means 1# outdoor unit running state, 1: Yes, 0: No bit2: means 2# outdoor unit running state, 1: Yes, 0: No bit3: means 3# outdoor unit running state, 1: Yes, 0: No
		30025	0~15# indoor unit error state	2 Octet	bit0: means 0# indoor unit error state, 1: Yes, 0: No bit1: means 1# indoor unit error state, 1: Yes, 0: No bit15: means 15# indoor unit error state, 1: Yes, 0: No
		30026	16~31# indoor unit error state	2 Octet	bit0: means 16# indoor unit error state, 1: Yes, 0: No bit1: means 17# indoor unit error state, 1: Yes, 0: No bit15: means 31# indoor unit error state, 1: Yes, 0: No
		30027	32~47# indoor unit error state	2 Octet	bit0: means 32# indoor unit error state, 1: Yes, 0: No bit1: means 33# indoor unit error state, 1: Yes, 0: No bit15: means 47# indoor unit error state, 1: Yes, 0: No
		30028	48~63# indoor unit error state	2 Octet	bit0: means 48# indoor unit error state, 1: Yes, 0: No bit1: means 49# indoor unit error state, 1: Yes, 0: No bit15: means 63# indoor unit error state, 1: Yes, 0: No
		30029	0~15# indoor unit running state	2 Octet	bit0: means 0# indoor unit running state, 1: Yes, 0: No bit1: means 1# indoor unit running state, 1: Yes, 0: No bit15: means 15# indoor unit running state, 1: Yes, 0: No
		30030	16~31# indoor unit running state	2 Octet	bit0: means 16# indoor unit running state, 1: Yes, 0: No bit1: means 17# indoor unit running state, 1: Yes, 0: No bit15: means 31# indoor unit running state, 1: Yes, 0: No
		30031	32~47# indoor unit running state	2 Octet	bit0: means 32# indoor unit running state, 1: Yes, 0: No bit1: means 33# indoor unit running state, 1: Yes, 0: No bit15: means 47# indoor unit running state, 1: Yes, 0: No
		30032	48~63# indoor unit running state	2 Octet	bit0: means 48# indoor unit error state, 1: Yes, 0: No bit1: means 49# indoor unit error state, 1: Yes, 0: No bit15: means 63# indoor unit error state, 1: Yes, 0: No
	1	30033	Reserve		Reserve, stay 0
		30034	Model message 1	2 Octet	-
		30035	Model message 2	2 Octet	-

Modbus description	Indoor address number	Modbus register address	Data name	Length	Explanation
Input Register (R)	1	30036	Setting temp. Ts	2 Octet	17~30 means the temperature range is 17 to 30°C
		30037	Indoor temp T1	2 Octet	0~240 means - 20 to 100°C (T*2+40)
		30038	Evaporator pipe temp. T2A	2 Octet	0~240 means - 20 to 100°C (T*2+40)
		30039	Evaporator medium pipe temp. T2B	2 Octet	0~240 means - 20 to 100°C (T*2+40)
		30040	Condenser pipe temp. T3	2 Octet	0~240 means - 20 to 100°C (T*2+40) 0xFF is invalid
		30041	Reserve	-	-
		30042	Reserve	-	-
		30043	Timing on hour	2 Octet	0~96 means no timer ~ 24 hours Time=N*15 minutE, N=0~96
		30044	Timing off hour	2 Octet	0~96 means no timer ~ 24 hours Time=N*15 minutE, N=0~96
		30045	Electric consumption power	2 Octet	Unit:0.1HP
		30046 ~ 30047	Reserve	4 Octet	Reserve, stay 0
		30048	Error state	2 Octet	As 1# indoor unit
		30049	Protection state	2 Octet	
		30050	0~3 outdoor unit online state	2 Octet	
		30051	0~15 indoor unit online state	2 Octet	
		30052	16~31 indoor unit online state	2 Octet	
		30053	32~47 indoor unit online state	2 Octet	
		30054	48~63 indoor unit online state	2 Octet	
		30055	0~3 outdoor unit error state	2 Octet	
		30056	0~3 outdoor unit running state	2 Octet	
		30057	0~15 indoor unit error state	2 Octet	
		30058	16~31 indoor unit error state	2 Octet	
		30059	32~47 indoor unit error state	2 Octet	
		30060	48~63 indoor unit error state	2 Octet	
		30061	0~15 indoor unit running state	2 Octet	
		30062	16~31 indoor unit running state	2 Octet	
		30063	32~47 indoor unit running state	2 Octet	
		30064	48~63 indoor unit running state	2 Octet	
	n	30000+n*32+1	Reserve	-	As 0# indoor unit
		30000+n*32+2	Model message 1	2 Octet	
		30000+n*32+3	Model message 2	2 Octet	
		30000+n*32+4	Setting temp. Ts	2 Octet	
		30000+n*32+5	Indoor temp T1	2 Octet	
		30000+n*32+6	Evaporator pipe temp. T2A	2 Octet	
		30000+n*32+7	Evaporator medium pipe temp. T2B	2 Octet	
		30000+n*32+8	Condenser pipe temp. T3	2 Octet	
		30000+n*32+9	Reserve	-	
		30000+n*32+10	Reserve	-	
		30000+n*32+11	Timing on hour	2 Octet	
		30000+n*32+12	Timing off hour	2 Octet	
		30000+n*32+13	Electric consumption power	2 Octet	

Modbus description	Indoor address number	Modbus register address	Data name	Length	Explanation
Input Register (R)	n	(30000+n*32+14) ~ (30000+n*32+32)	As 1# indoor unit	38 Octet	As 1# indoor unit
	63	32017	Reserve	-	As 1# indoor unit
		32018	Model message 1	2 Octet	
		32019	Model message 2	2 Octet	
		32020	Setting temp. Ts	2 Octet	
		32021	Indoor temp. T1	2 Octet	
		32022	Evaporator pipe temp. T2A	2 Octet	
		32023	Evaporator medium pipe temp. T2B	2 Octet	
		32024	Condenser pipe temp. T3	2 Octet	
		32025	Reserve	-	
		32026	Reserve	-	
		32027	Timing on hour	2 Octet	
		32028	Timing off hour	2 Octet	
		32029	Electric consumption power	2 Octet	
		32030~32048	As 1# indoor unit	38 Octet	
Holding register (W)	0	40001	Refrigerant system on/off	2 Octet	0:Close the whole system 1:Open the whole system - The summer mode, cool mode 170 ° C, Low fan speed, no timing, no auxiliary 2: Open the whole system - The summer mod,cool mode 240 ° C medium fan speed, no timing, no auxiliary 3: Open the whole system - The summer mod,cool mode, 260 ° C high fan speed, no timing, no auxiliary 4: Open the whole system - The winter mode, heat mode, 300 ° C, high fan speed, no timing, no auxiliary 5: Open the whole system - The winter mode, heat mode 260 ° C, medium fan speed, no timing, no auxiliary 6: Open the whole system - The winter mode, heat mode 240 ° C, low fan speed, no timing, no auxiliary
		40002	Setting mode	2 Octet	bit15~bit8: reserve, stay 0 bit7: turn On/Off, 1: On, 0: Off bit6: reserve, stay 0 bit5: mode lock bit4: auto mode 1: Yes, 0: No bit3: cool mode 1: Yes, 0: No bit2: heat mode 1: Yes, 0: No bit1: dry mode 1: Yes, 0: No bit0: Fan mode 1: Yes, 0: No bit6~bit0: every bit mutually exclusive.
		40003	Setting fan speed	2 Octet	bit15~bit8: reserve, stay 0 bit7: Auto fan 1: Yes, 0: No bit6~bit3: reserve, stay 0 bit2: Low fan speed 1: Yes, 0: No bit1: Medium fan speed 1: Yes, 0: No bit0: High fan speed 1: Yes, 0: No bit7~bit0: every bit mutually exclusive.
		40004	Setting temperature	2 Octet	16~32 means the temperature range is 16 to 32°C
		40005	Timing on hour	2 Octet	0~96 means no timer ~ 24 hours Time=N*15 minutE, N=0~96

Modbus description	Indoor address number	Modbus register address	Data name	Length	Explanation
Holding register (W)	0	40006	Timing off hour	2 Octet	0~96 means no timer ~ 24 hours Time=N*15 minutE, N=0~96
		40007	Auxiliary function state	2 Octet	bit15~bit4: Reserve, stay 0 bit3: Change of air 1: On, 0: Off bit2: Swing 1: On, 0: Off bit1: Electric auxiliary heating 1: On, 0: Off bit0: Economic operation 1: On, 0: Off
		40008-40032	Reserve	50 Octet	Reserve , cannot write.
	1	40033	Reserve	2 Octet	As 0# indoor Reserve , cannot write.
		40034	Setting mode	2 Octet	
		40035	Setting fan speed	2 Octet	
		40036	Setting temperature	2 Octet	
		40037	Timing on hour	2 Octet	
		40038	Timing off hour	2 Octet	
		40039	Auxiliary function state	2 Octet	
		40040~40064	Reserve	50 Octet	Reserve , cannot write.
	n	40000+n*32+1	Reserve	2 Octet	As 1# indoor
		40000+n*32+2	Setting mode	2 Octet	
		40000+n*32+3	Setting fan speed	2 Octet	
		40000+n*32+4	Setting temperature	2 Octet	
		40000+n*32+5	Timing on hour	2 Octet	
		40000+n*32+6	Timing off hour	2 Octet	
		40000+n*32+7	Auxiliary function state	2 Octet	
		(40000+n*32+8)~(40000+n*32+32)	Reserve	50 Octet	
	63	42017	Reserve	2 Octet	As 1# indoor
		42018	Setting mode	2 Octet	
		42019	Setting fan speed	2 Octet	
		42020	Setting temperature	2 Octet	
		42021	Timing on hour	2 Octet	
		42022	Timing off hour	2 Octet	
		42023	Auxiliary function state	2 Octet	
		42024~42048	Reserve	50 Octet	
	64	-	-	-	Group control 0-7# indoor, format as above
	65	-	-	-	Group control 8-15# indoor, format as above
	66	-	-	-	Group control 16-23# indoor, format as above
	67	-	-	-	Group control 24-31# indoor, format as above
	68	-	-	-	Group control 32-39# indoor, format as above
	69	-	-	-	Group control 40-47# indoor, format as above

Modbus description	Indoor address number	Modbus register address	Data name	Length	Explanation
Holding register (W)	70	-	-	-	Group control 48-55# indoor, format as above
	71	-	-	-	Group control 56-63# indoor, format as above
	72	-	-	-	Group control 0-63# indoor, format as above

8.2. Tabela mapowania zmiennych jednostek zewnętrznych

Modbus description	Outdoor address number	Modbus register address	Data name	Explanation
Discrete input(R)	0	18192+1	Cool mode	1: Yes, 0: No
		18194	Heat mode	1: Yes, 0: No
		18195	Reserve	Reserve, stay 0
		18196	Reserve	Reserve, stay 0
		18197	Reserve	Reserve, stay 0
		18198	Reserve	Reserve, stay 0
		18199	Lock sign	1: Yes, 0: No
		18200	Force locking	1: Yes, 0: No
		18201	Low speed	1: Yes, 0: No
		18202	Medium fan speed	1: Yes, 0: No
		18203	High fan speed	1: Yes, 0: No
		18204	Reserve	Reserve, stay 0
		18205	Reserve	Reserve, stay 0
		18206	Reserve	Reserve, stay 0
		18207	Reserve	Reserve, stay 0
		18208	Reserve	Reserve, stay 0
		18209	4-way valveST1	1: on, 0: off
		18210	Auxiliary 4-way valve ST2	1: on, 0: off
		18211	Solenoid valve SV1	1: on, 0: off
		18212	Solenoid valve SV2	1: on, 0: off
		18213	Solenoid valve SV3	1: on, 0: off
		18214	Solenoid valve SV4	1: on, 0: off

Modbus description	Outdoor address number	Modbus register address	Data name	Explanation
Discrete input(R)	0	18215	Solenoid valve SV5	1: on, 0: off
		18216	Solenoid valve SV6	1: on, 0: off
		18217	Compressor 1	1: on, 0: off
		18218	Compressor 2	1: on, 0: off
		18219	Compressor 3	1: on, 0: off
		18220	Reserve	Reserve, stay 0
		18221	Reserve	Reserve, stay 0
		18222	Reserve	Reserve, stay 0
		18223	Reserve	Reserve, stay 0
		18224	Reserve	Reserve, stay 0
		18225	E0 Outdoor unit communication error	1:Error, 0: Normal
		18226	E1 Phase sequence error or no phase	1:Error, 0: Normal
		18227	E2 Outdoor&indoor unit communication error	1:Error, 0: Normal
		18228	E4 Reserve	Reserve, stay 0
		18229	E3 T3/T4/digital compressor discharge temperature sensor error	1:Error, 0: Normal
		18230	E5 Reserve	Reserve, stay 0
		18231	E6 T6 sensor error	1:Error, 0: Normal
		18232	E7 Reserve	Reserve, stay 0
		18233	E8 Reserve	Reserve, stay 0
		18234	E9 Voltage error	1:Error, 0: Normal
		18235	H1 Network communication error	1:Error, 0: Normal
		18236	H0 DSP communication error	1:Error, 0: Normal
		18237	H2 The outdoor reduce error(the host effective)	1:Error, 0: Normal
		18238	H3 The outdoor increase error(the host effective)	Reserve, stay 0
		18239	EE Reserve	Reserve, stay 0
		18240	EF Other error	-
		18241	P0 Compressor top temp. protection	1:protection, 0: Normal
		18242	P1 Discharge high pressure protection	1:protection, 0: Normal
		18243	P2 Discharge low pressure protection	1:protection, 0: Normal
		18244	P3 Compressor current protection 1	1:protection, 0: Normal
		18245	P4 Discharge pipe temp. protection	1:protection, 0: Normal
		18246	P5 Condenser high temp protection	1:protection, 0: Normal
		18247	P6 Inverter module protection	1:protection, 0: Normal
		18248	P7 Compressor current protection 2	1:protection, 0: Normal
		18249	P8 Compressor current protection 3	1:protection, 0: Normal
		18250	P9 Power supply under-voltageprotection	1:protection, 0: Normal
		18251	PA Defrost protection	1:protection, 0: Normal
		18252	PB Reserve	Reserve, stay 0
		18253	PC Reserve	Reserve, stay 0
		18254	PD Oil return	1:protection, 0: Normal

Modbus description	Outdoor address number	Modbus register address	Data name	Explanation
Discrete input(R)	0	18255	PE Oil equalization	1:protection, 0: Normal
		18256	PF Other error	1:protection, 0: Normal
		18257~18320	Reserve	Reserve, stay 0
	1	18320+1	Cool mode	1: Yes, 0: No
		18322	Heat mode	1: Yes, 0: No
		18323	Reserve	Reserve, stay 0
		18324	Reserve	Reserve, stay 0
		18325	Reserve	Reserve, stay 0
		18326	Reserve	Reserve, stay 0
		18327	Lock sign	1: Yes, 0: No
		18328	Force locking	1: Yes, 0: No
		18329	Low fan speed	1: Yes, 0: No
		18330	Medium fan speed	1: Yes, 0: No
		18331	High fan speed	1: Yes, 0: No
		18332	Reserve	Reserve, stay 0
		18333	Reserve	Reserve, stay 0
		18334	Reserve	Reserve, stay 0
		18335	Reserve	Reserve, stay 0
		18336	Reserve	Reserve, stay 0
		18337	4-way valveST1	1: on, 0: off
		18338	Auxiliary 4-way valve ST2	1: on, 0: off
		18339	Solenoid valve SV1	1: on, 0: off
		18340	Solenoid valve SV2	1: on, 0: off
		18341	Solenoid valve SV3	1: on, 0: off
		18342	Solenoid valve SV4	1: on, 0: off
		18343	Solenoid valve SV5	1: on, 0: off
		18344	Solenoid valve SV6	1: on, 0: off
		18345	Compressor 1	1: on, 0: off
		18346	Compressor 2	1: on, 0: off
		18347	Compressor 3	1: on, 0: off
		18348	Reserve	Reserve, stay 0
		18349	Reserve	Reserve, stay 0
		18350	Reserve	Reserve, stay 0
		18351	Reserve	Reserve, stay 0
		18352	Reserve	Reserve, stay 0
		18353	E0 Outdoor unit communication error	1:Error, 0: Normal
		18354	E1 Phase sequence error or no phase	1:Error, 0: Normal
		18355	E2 Outdoor&indoor unit communication error	1:Error, 0: Normal
		18356	E4 Reserve	Reserve, stay 0
		18357	E3 T3/T4/digital compressor discharge temperature sensor error	1:Error, 0: Normal
		18358	E5 Reserve	Reserve, stay 0

Modbus description	Outdoor address number	Modbus register address	Data name	Explanation
Discrete input(R)	1	18359	E6 DSP communication error	1:Error, 0: Normal
		18360	E7 Reserve	Reserve, stay 0
		18361	E8 Reserve	Reserve, stay 0
		18362	E9 Voltage error	1:Error, 0: Normal
		18363	H1 Network communication error	1:Error, 0: Normal
		18364	H0 DSP communication error	1:Error, 0: Normal
		18365	H2 The outdoor reduce error(the host effective)	1:Error, 0: Normal
		18366	H3 The outdoor increase error(the host effective)	Reserve, stay 0
		18367	EE Reserve	Reserve, stay 0
		18368	EF Other error	-
		18369	P0 Compressor top temp. protection	1:protection, 0: Normal
		18370	P1 Discharge high pressure protection	1:protection, 0: Normal
		18371	P2 Discharge low pressure protection	1:protection, 0: Normal
		18372	P3 Compressor current protection 1	1:protection, 0: Normal
		18373	P4 Discharge pipe temp. protection	1:protection, 0: Normal
		18374	P5 Condenser high temp protection	1:protection, 0: Normal
		18375	P6 Inverter module protection	1:protection, 0: Normal
		18376	P7 Compressor current protection 2	1:protection, 0: Normal
		18377	P8 Compressor current protection 3	1:protection, 0: Normal
		18378	P9 Power supply under-voltage protection	1:protection, 0: Normal
		18379	PA Defrost protection	1:protection, 0: Normal
		18380	PB Reserve	Reserve, stay 0
		18381	PC Reserve	Reserve, stay 0
		18382	PD Oil return	1:protection, 0: Normal
		18383	PE Oil equalization	1:protection, 0: Normal
		18384	PF Other error	1:protection, 0: Normal
		18385~18448	Reserve	Reserve, stay 0
	n	18192+n*128+1	Cool mode	1: Yes, 0: No
		18192+n*128+2	Heat mode	1: Yes, 0: No
		18192+n*128+3	Reserve	Reserve, stay 0
		18192+n*128+4	Reserve	Reserve, stay 0
		18192+n*128+5	Reserve	Reserve, stay 0
		18192+n*128+6	Reserve	Reserve, stay 0
		18192+n*128+7	Lock sign	1: Yes, 0: No
		18192+n*128+8	Force locking	1: Yes, 0: No
		18192+n*128+9	Low speed	1: Yes, 0: No
		18192+n*128+10	Medium speed	1: Yes, 0: No
		18192+n*128+11	High speed	1: Yes, 0: No
		18192+n*128+12	Reserve	Reserve, stay 0
		18192+n*128+13	Reserve	Reserve, stay 0
		18192+n*128+14	Reserve	Reserve, stay 0

Modbus description	Outdoor address number	Modbus register address	Data name	Explanation
Discrete input(R)	n	18192+n*128+15	Reserve	Reserve, stay 0
		18192+n*128+16	Reserve	Reserve, stay 0
		18192+n*128+17	4-way valve ST1	1: on, 0: off
		18192+n*128+18	Auxiliary 4-way valve ST2	1: on, 0: off
		18192+n*128+19	Solenoid valve SV1	1: on, 0: off
		18192+n*128+20	Solenoid valve SV2	1: on, 0: off
		18192+n*128+21	Solenoid valve SV3	1: on, 0: off
		18192+n*128+22	Solenoid valve SV4	1: on, 0: off
		18192+n*128+23	Solenoid valve SV5	1: on, 0: off
		18192+n*128+24	Solenoid valve SV6	1: on, 0: off
		18192+n*128+25	Compressor 1	1: on, 0: off
		18192+n*128+26	Compressor 2	1: on, 0: off
		18192+n*128+27	Compressor 3	1: on, 0: off
		18192+n*128+28	Reserve	Reserve, stay 0
		18192+n*128+29	Reserve	Reserve, stay 0
		18192+n*128+30	Reserve	Reserve, stay 0
		18192+n*128+31	Reserve	Reserve, stay 0
		18192+n*128+32	Reserve	Reserve, stay 0
		18192+n*128+33	E0 Outdoor unit communication error	1:Error, 0: Normal
		18192+n*128+34	E1 Phase sequence error or no phase	1:Error, 0: Normal
		18192+n*128+35	E2 Outdoor&indoor unit communication error	1:Error, 0: Normal
		18192+n*128+36	E4 Reserve	Reserve, stay 0
		18192+n*128+37	E3 T3/T4/digital compressor discharge temperature sensor error	1:Error, 0: Normal
		18192+n*128+38	E5 Reserve	Reserve, stay 0
		18192+n*128+39	E6 T6 sensor error	1:Error, 0: Normal
		18192+n*128+40	E7 Reserve	Reserve, stay 0
		18192+n*128+41	E8 Reserve	Reserve, stay 0
		18192+n*128+42	E9 Voltage error	1:Error, 0: Normal
		18192+n*128+43	H1 Network communication error	1:Error, 0: Normal
		18192+n*128+44	H0 DSP communication error	1:Error, 0: Normal
		18192+n*128+45	H2 The outdoor reduce error(the host effective)	1:Error, 0: Normal
		18192+n*128+46	H3 The outdoor increase error(the host effective)	Reserve, stay 0
		18192+n*128+47	EE Reserve	Reserve, stay 0
		18192+n*128+48	EF Other error	-
		18192+n*128+49	P0 Compressor top temp. protection	1:protection, 0:Normal
		18192+n*128+50	P1 Discharge high pressure protection	1:protection, 0: Normal
		18192+n*128+51	P2 Discharge low pressure protection	1:protection, 0: Normal
		18192+n*128+52	P3 Compressor current protection 1	1:protection, 0: Normal
		18192+n*128+53	P4 Discharge pipe temp. protection	1:protection, 0: Normal
		18192+n*128+54	P5 Condenser high temp protection	1:protection, 0: Normal

Modbus description	Outdoor address number	Modbus register address	Data name	Explanation
Discrete input(R)	n	18192+n*128+55	P6 Inverter module protection	1:protection, 0: Normal
		18192+n*128+56	P7 Compressor current protection 2	1:protection, 0: Normal
		18192+n*128+57	P8 Compressor current protection 3	1:protection, 0: Normal
		18192+n*128+58	P9 Power supply under-voltage protection	1:protection, 0: Normal
		18192+n*128+59	PA Defrost protection	1:protection, 0: Normal
		18192+n*128+60	PB Reserve	Reserve, stay 0
		18192+n*128+61	PC Reserve	Reserve, stay 0
		18192+n*128+62	PD Oil return	1:protection, 0: Normal
		18192+n*128+63	PE Oil equalization	1:protection, 0: Normal
		18192+n*128+64	PF Other error	1:protection, 0: Normal
		(18192+n*128+65)~ (18192+n*128+128)	Reserve	Reserve, stay 0
	3	18577	Cool mode	1: Yes, 0: No
		18578	Heat mode	1: Yes, 0: No
		18579	Reserve	Reserve, stay 0
		18580	Reserve	Reserve, stay 0
		18581	Reserve	Reserve, stay 0
		18582	Reserve	Reserve, stay 0
		18583	Lock sign	1: Yes, 0: No
		18584	Force locking	1: Yes, 0: No
		18585	Low fan speed	1: Yes, 0: No
		18586	Medium fan speed	1: Yes, 0: No
		18587	High fan speed	1: Yes, 0: No
		18588	Reserve	Reserve, stay 0
		18589	Reserve	Reserve, stay 0
		18590	Reserve	Reserve, stay 0
		18591	Reserve	Reserve, stay 0
		18592	Reserve	Reserve, stay 0
		18593	4-way valve ST1	1: on, 0: off
		18594	Auxiliary 4-way valve ST2	1: on, 0: off
		18595	Solenoid valve SV1	1: on, 0: off
		18596	Solenoid valve SV2	1: on, 0: off
		18597	Solenoid valve SV3	1: on, 0: off
		18598	Solenoid valve SV4	1: on, 0: off
		18599	Solenoid valve SV5	1: on, 0: off
		18600	Solenoid valve SV6	1: on, 0: off
		18601	Compressor 1	1: on, 0: off
		18602	Compressor 2	1: on, 0: off
		18603	Compressor 3	1: on, 0: off
		18604	Reserve	Reserve, stay 0
		18605	Reserve	Reserve, stay 0
		18606	Reserve	Reserve, stay 0
		18607	Reserve	Reserve, stay 0

Modbus description	Outdoor address number	Modbus register address	Data name	Explanation
Discrete input(R)	3	18608	Reserve	Reserve, stay 0
		18609	E0 Outdoor unit communication error	1:Error, 0: Normal
		18610	E1 Phase sequence error or no phase	1:Error, 0: Normal
		18611	E2 Outdoor&indoor unit communication error	1:Error, 0: Normal
		18612	E4 Reserve	Reserve, stay 0
		18613	E3 T3/T4/digital compressor discharge temperature sensor error	1:Error, 0: Normal
		18614	E5 Reserve	Reserve, stay 0
		18615	E6 T6 sensor error	1:Error, 0: Normal
		18616	E7 Reserve	Reserve, stay 0
		18617	E8 Reserve	Reserve, stay 0
		18618	E9 Voltage error	1:Error, 0: Normal
		18619	H1 Network communication error	1:Error, 0: Normal
		18620	H0 DSP communication error	1:Error, 0: Normal
		18621	H2 The outdoor reduce error(the host effective)	1:Error, 0: Normal
		18622	H3 The outdoor increase error(the host effective)	Reserve, stay 0
		18623	EE Reserve	Reserve, stay 0
		18624	EF Other error	
		18625	P0 Compressor top temp. protection	1:protection, 0:Normal
		18626	P1 Discharge high pressure protection	1:protection, 0: Normal
		18627	P2 Discharge low pressure protection	1:protection, 0: Normal
		18628	P3 Compressor current protection 1	1:protection, 0: Normal
		18629	P4 Discharge pipe temp. protection	1:protection, 0: Normal
		18630	P5 Condenser high temp. protection	1:protection, 0: Normal
		18631	P6 Inverter module protection	1:protection, 0: Normal
		18632	P7 Compressor current protection 2	1:protection, 0: Normal
		18633	P8 Compressor current protection 3	1:protection, 0: Normal
		18634	P9 Power supply under-voltage protection	1:protection, 0: Normal
		18635	PA Defrost protection	1:protection, 0: Normal
		18636	PB Reserve	Reserve, stay 0
		18637	PC Reserve	Reserve, stay 0
		18638	PD Oil return	1:protection, 0: Normal
		18639	PE Oil equalization	1:protection, 0: Normal
		18640	PF Other error	1:protection, 0: Normal
		18641~18704	Reserve	Reserve, stay 0
Input register (R)	0	32048+1	Reserve	Reserve, stay 0
		32050	First byte of model message	-
		32051	Second byte of model message	-
		32052	Outdoor temp T4	0~240 means -20~100°C (T*2+40) 0xFF is invalid
		32053	Outdoor condenser outlet temp T3	0~240 means -20~100°C (T*2+40) 0xFF is invalid

Modbus description	Outdoor address number	Modbus register address	Data name	Explanation
Input register (R)	0	32054	Outdoor condenser inlet temp T6	0~240 means -20~100°C (T*2+40) 0xFF is invalid
		32055	Compressor 1 discharge temp	0~200 means -20~100°C (T*2+40) 0xFF is invalid
		32056	Compressor 2 discharge temp	0~200 means -20~100°C (T*2+40) 0xFF is invalid
		32057	Compressor 3 discharge temp	0~200 means -20~100°C (T*2+40) 0xFF is invalid
		32058	Compressor 1 current	0~200 means the current range from 0A to 200A
		32059	Compressor 2 current	0~200 means the current range from 0A to 200A
		32060	Compressor 3 current	0~200 means the current range from 0A to 200A
		32061	Current of compressor 3	0~200 means the current range from 0A to 200A
		32062	Inverter compressor frequency	0~250 means 0~250Hz
		32063	EEV 1 opening	00h~07Dh means 0~1000 step open degree and resolution is 8 step; 0FFh means no the data.
		32064	EEV 2 opening	As above
		32065	Outdoor unit running capacity requirement	Each 1 means 1HP, and 0~250 means 0~250 0xFF is invalid
		32066~32080	Reserve	Reserve, stay 0
	1	32081	Reserve	As 0# outdoor
		32082	First byte of model message	
		32083	Second byte of model message	
		32084	Outdoor temp T4	
		32085	Outdoor condenser outlet temp T3	
		32086	Outdoor condenser inlet temp T6	
		32087	Compressor 1 discharge temp	
		32088	Compressor 2 discharge temp	
		32089	Compressor 3 discharge temp	
		32090	Qty.of indoor unit	
		32091	Compressor 1 current	
		32092	Compressor 2 current	
		32093	Compressor 3 current	
		32094	Inverter compressor frequency	
		32095	EEV 1 opening	
		32096	EEV 2 opening	
		32097	Outdoor unit running capacity requirement	
		32098~32112	Reserve	
	2	32113	Reserve	As 1# outdoor
		32114	First byte of model message	
		32115	Second byte of model message	
		32116	Outdoor temp T4	
		32117	Outdoor condenser outlet temp T3	
		32118	Outdoor condenser inlet temp T6	
		32119	Compressor 1 discharge temp	
		32120	Compressor 2 discharge temp	
		32121	Compressor 3 discharge temp	

Modbus description	Outdoor address number	Modbus register address	Data name	Explanation
Input register (R)	2	32122	Qty.of indoor unit	As 1# outdoor
		32123	Compressor 1 current	
		32124	Compressor 2 current	
		32125	Compressor 3 current	
		32126	Inverter compressor frequency	
		32127	EEV 1 opening	
		32128	EEV 2 opening	
		32129	Outdoor unit running capacity requirement	
		32130~32144	Reserve	
	3	32145	Reserve	As 1# outdoor
		32146	First byte of model message	
		32147	Second byte of model message	
		32148	Outdoor temp T4	
		32149	Outdoor condenser outlet temp T3	
		32150	Outdoor condenser inlet temp T6	
		32151	Compressor 1 discharge temp	
		32152	Compressor 2 discharge temp	
		32153	Compressor 3 discharge temp	
		32154	Qty.of indoor unit	
		32155	Compressor 1 current	
		32156	Compressor 2 current	
		32157	Compressor 3 current	
		32158	Inverter compressor frequency	
		32159	EEV 1 opening	
		32160	EEV 2 opening	
		32161	Outdoor unit running capacity requirement	
		32162~32176	Reserve	

Note:

1. Register 40001 can only be controlled separately and cannot be written together with other Holding Register points.
2. To control indoor unit, you need to control the "Setting mode, Setting fan speed, Setting temperature" 3 parameters at the same time(one command). (e.g.:indoor unit address 0, Holding register:40002-Setting mode, 40003-Setting fan speed, 40004-Setting temperature). Writing only one of them will result in a different control result than expected.
3. After the gateway controls the parameters, it takes a certain amount of time to refresh the indoor unit operation state, which takes up to 3 minutes.

NOTES

[illegible]

BMS MODBUS

Service manual

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PRECAUTIONS

WARNING

Only qualified personnel should install and service the equipment. The installation, starting up, and servicing of heating, ventilating, and air-conditioning equipment can be hazardous and requires specific knowledge and training. Improperly installed, adjusted or altered equipment by an unqualified person could result in death or serious injury. When working on the equipment, observe all precautions in the literature and on the tags, stickers, and labels that are attached to the equipment.

Read the following if you use the device in European countries:

The device can not be operated by children over 7 years old, disabled people and oraz people without experience and knowledge. Instructions should include a description of the correct and safe handling of the device and oraz information about possible dangers. Children should not play with the device. Cleaning and servicing should be carried out by authorized persons.

UTILIZATION:

Do not dispose of this product together with unsorted municipal waste.

It's necessary to transfer this type of waste for special processing.

It's illegal to throw the device together with other household waste.

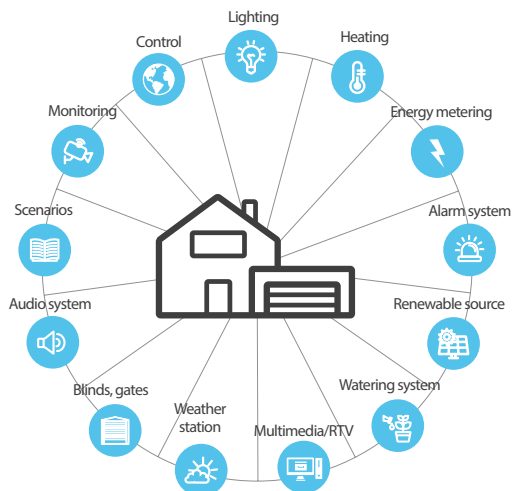
There are several ways to get rid of this type of equipment:w

- A. The city organizes electronic waste collection, you can pass the device without the cost.
- B. When you buy a new device the seller will accept the old device without any fees.
- C. Manufacturer will take the product from buyer produkt without charging it with costs.
- D. Products of this type, contains valuable elements, it can be sold sprzedane on purchase of metals.

Throwing the device „on wild” exposes you to the risk of losing your health. Dangerous substances from the device can penetrate to groundwater screating a danger of getting through to people's food chain.



BMS MODBUS – Intelligent management



BMS MODBUS for models: Mirai, Versu Mirror R15, Versu Pure, Versu Cloth, Revio, Imoto oraz Tenji, Jato, Nevo, Aneru.

The above Rotenso® air conditioners can be integrated with the BMS MODBUS system in both the Split and Multi systems.

To perform this function, additional equipment is required:

- BMS MODBUS gateway
- MFBR module for RAC unit

Single BMS gateway supports up to 64 indoor units.

If you need to connect more indoor units to the BMS you need to buy an adequate number of gates.

Tenji / Jato / Nevo: have an integrated MFBR module in PCB of the indoor unit

Mirai: must be retrofitted with MFBR MIRAI module

Revio: must be retrofitted with MFBR REVIO module

Imoto: must be retrofitted with MFBR IMOTO module (terminal included)

Versu Mirror R15 / Versu Pure / Versu Cloth: must be retrofitted with MFBR VERSU module

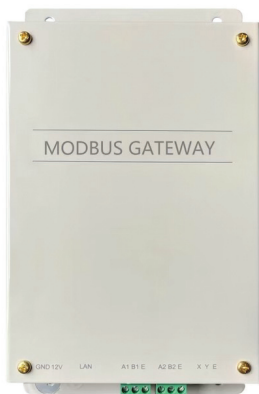
Aneru: must be retrofitted with MFBR ANERU module

MODBUS BMS GATEWAY

BMS gateway support the Modbus protocol network, it communicates the indoor units with the BMS.

Explain:

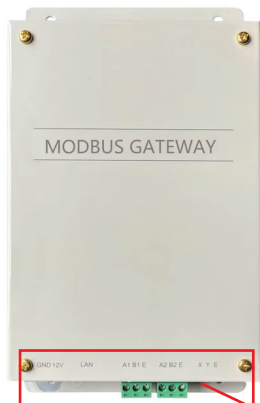
- For Discrete input
Address = (Value of Modbus-address for registers) - 10001
- For Input register
Address = (Value of Modbus-address for registers) - 30001
- For Holding register
Address = (Value of Modbus-address for registers) - 40001



- Support the Modbus protocol network
- Each gateway can be connected up to 64 indoor units

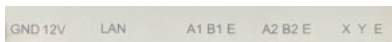
1. MAIN FEATURES

- Can directly connect with indoor units
- Can control indoor units, configure gateway through Web function in the LAN.
- Can connect to the BMS system through TCP/IP or RTU.
- BMS system can control and get the running real-time data
- Can be connected up to 64 indoor units.



2. USER MANUAL FOR DEVICE PORTS

Port LAN:	Provides the Web service for debugging. Modbus settings can be configured on the Web page. Supports the Modbus TCP/IP protocol. Supports Category 5 network cables.
Port A1B1E:	Supports the Modbus RTU protocol.
Port A2B2E:	Reserved
Port XYE:	Connects to port XYE of an IDU or MFBR.
Port POWER:	GND 12V
Przycisk Reset:	Default settings



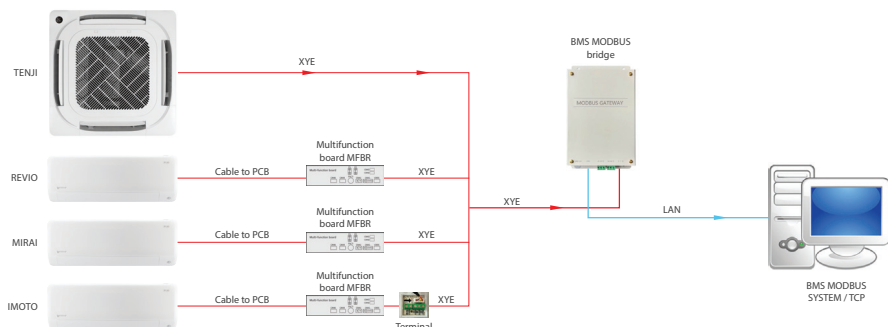
3. NETWORK STRUCTURE

Can control the unit and configuration system through TCP/IP or RTU mode.

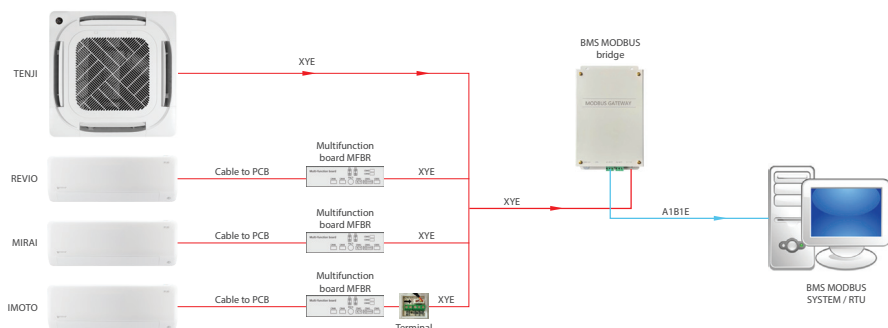
4. NETWORK EXAMPLE

1. One Modbus gateway can connect up to 64 IDUs and one BMS PC system TCP/IP.
2. The PC system with the Modbus protocol port can communicate with bridge through RTU or TCP/IP method to control and monitor units.

1) TCP/IP connection method:



2) RTU connection method:



Notes:

- XYE must be connected hand by hand.
- It supports two kinds of baud rates (600 and 4800).
- Unit unit addresses cannot be repeated

5. OPERATION INTRODUCTION

5.1. IP Configuration

The default IP address of the Modbus gateway is 192.168.1.200. Modbus gateway and the PC which can be used for visiting the websites must be in the same subnet segment, it could be 192.168.1.xxx (xxx must be from 2 to 254). There are 2 methods to configure IP: configure single IP and configure several IP.

Configure single IP

Open protocol dialog, configure the IP address and subnet mask, for example: the IP address 192.168.1.211, and the subnet mask is 255.255.255.0.

After setting, please click "OK" button.

5. OPERATION INTRODUCTION

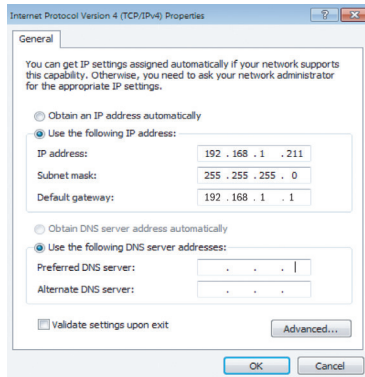
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Configure single IP

Open protocol dialog, configure the IP address and subnet mask, for example: the IP address 192.168.1.211, and the subnet mask is 255.255.255.0.

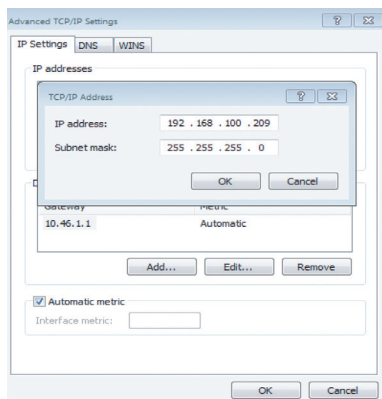
After setting, please click "OK" button.



Configure several IP

Before configuring several IP, it needs to configure a statistic IP address. Open the property dialog, select the "Advanced", and it will display the TCP/IP setting dialog.

Click "Add" button in the IP address bar can add an IP address which is in the same segment as "192.168.1.200", for example ,the IP address is 192.168.1.209, subnet "OK" button will be OK.



5.2. The gateway configuration

Input "http://192.168.1.200" in the address bar in WEB Browser and press Enter button will enter the WEB page of Modbus gateway. You can click the "Configuration" button and will display the following dialog.

Parameters Setting:

Parameter	Description
Modbus address	Modbus ID is used to distinguish multiple gateways which with Modbus prot col in the same subnet segment. The ID must not repeat and can be modified.
Modbus communication setting	Baud rate: suggest 9600 Check bit: no checking by default Stop bit: 1 Stop Bit by default
IP address	IP address of Modbus gateway, multipl IP addresses can't repeat.
Subnet Mask	Default: 255.255.255.0
Gateway	Local gateway address
Baud rate of the outdoor unit	Outdoor communication baud rate which is connected to Modbus gateway

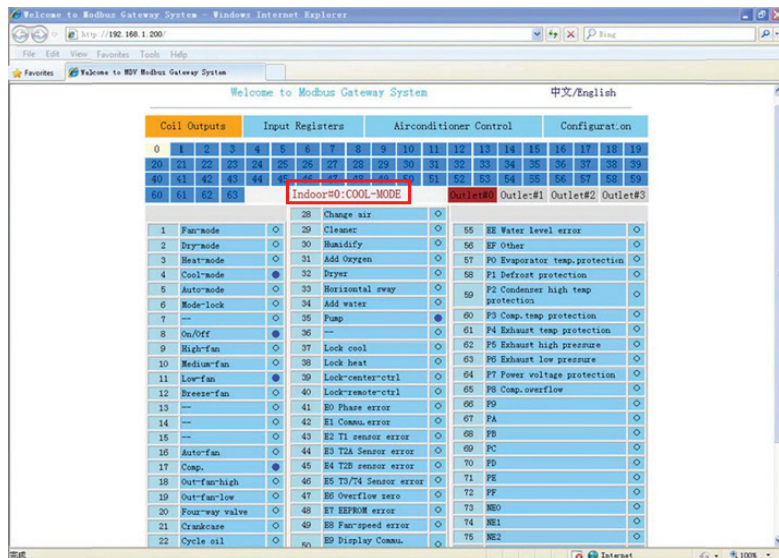
Click "Application Settings" after changing the corresponding parameters. If you want the use the updated setting, please click "Get Settings" button.

Modbus gateway will restart automatically after changing settings, and the network will break and reconnect automatically.

5.3 A/C information query

- Select "Power winding" or "input register" in the web page to query the information of the air conditioner unit.

When select “power winding”, it will display the following dialog.



When click the address number of the indoor or outdoor unit, it will display corresponding operation information of the air conditioner. The chosen device will display in the red frame.

When click “input register”, it will display as following dialog:

Welcome to Modbus Gateway System																		中文/English	
Coil Outputs						Input Registers						Airconditioner Control						Configuration	
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59
60	61	62	63	Indoor#0:Error/Protect						Outlet#0 Outlet#1 Outlet#2 Outlet#3									
30001	System status					2/0002					30017	Protection status					0/0000		
30002	UnitStyle-1					224/00E0					30018	Outlet 0~3 online status					0/0000		
30003	UnitStyle-2					20/0014					30019	AC 0~15 online status					1/0001		
30004	Set temp.Ts					17/0011					30020	AC 16~31 online status					65280/FF00		
30005	Room temp.T1					90/005A					30021	AC 32~47 online status					65535/FFFF		
30006	Evaporator-temp.T2A					92/005C					30022	AC 48~63 online status					4091/0FFB		
30007	Evaporator-temp.T2B					90/005A					30023	Outlet 0~3 error status					0/0000		
30008	Condenser temp.T3					255/00FF					30024	Outlet 0~3 run status					0/0000		
30009	---					0/0000					30025	AC 0~15 error status					1/0001		
30010	---					0/0000					30026	AC 16~31 error status					0/0000		
30011	Timer-on					0/0000					30027	AC 32~47 error status					0/0000		
30012	Timer-off					0/0000					30028	AC 48~63 error status					58/003A		
30013	Power					10/000A					30029	AC 0~15 run status					0/0000		
30014	---					0/0000					30030	AC 16~31 run status					0/0000		
30015	---					0/0000					30031	AC 32~47 run status					0/0000		
30016	Error status					128/0080					30032	AC 48~63 run status					0/0000		

Addresses

Content

Display value

Addresses

Content

Display value

5.4. Air Conditioner Control

- When click "Air Conditioner Control" on the web page, it will display as following dialog:

Single control area

Group control area

Single control area:

You can control a single air conditioner, set mode, fan speed, temperature setting and click "Apply" button to carry out a single controlling function.

Group Control area:

Choose the corresponding group control button, all the indoor units under the control of the Modbus gateway will be turn on or turn off.

5.5. Software Modbus Poll installation and debug

- Connection through TCP/IP

Choose "Connection"->"Connection" in Fig.4.3, it will enter the following dialog, and then you can choose TCP/IP in the Pop-up window:

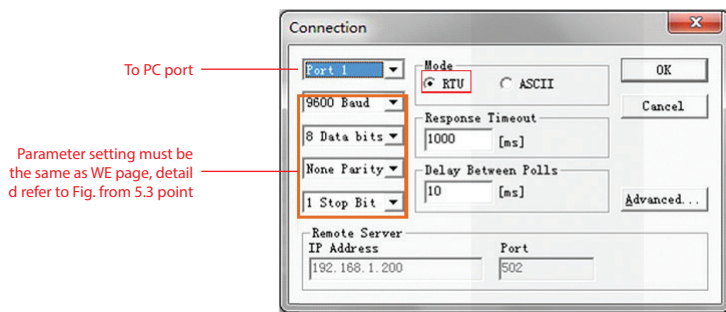
To choose the connection method

IP a dress of the gateway for connection

IP a dress of the gateway for connection

Connection through Modbus/RTU

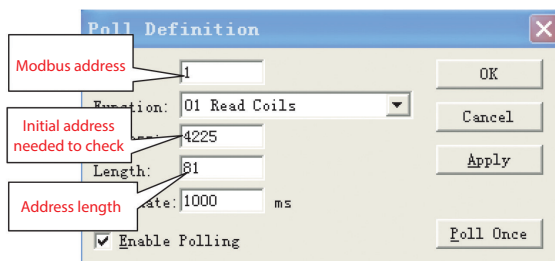
Choose RTU to connect, it will display as following dialog and you can set the corresponding parameters.



• Test

Modbus Poll software can read/write the content of the corresponding address in mapping table. Take reading coil content for an example:

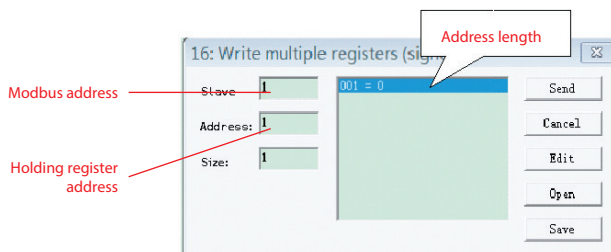
Choose "Poll Definition" under "Setup", it will display the following dialog.



Click "OK" button, it will display the content of the reading. If the reading content is the same as the value of the web page which has the same address, it means that the software debugging success.

Take writing holding register for example:

Select the dialog box, as shown below:



After changed the value, click "send" button to finish the writing operation.

• Software Reset

Press "RESET" button on the gateway for 3 seconds and power on again, the software configuration will be back to the original setting.

6. FUNCTION CODE

Function code	Function name	Function
0x02	Discrete input	Read
0x03	Read Holding Register	Read
0x04	Read Input Register	Read
0x10	Write Holding Register	Write

7. ABNORMAL REPLY

The master unit sends requests and waits for a reply from the slave unit. When there's no error, the slave unit will reply normally, but if the data checking error, the slave unit does not respond. When the master unit sends a wrong data (except checking error), the slave will respond abnormally.

Code	Name	Function
0x01	Illegal function code	Function code received by the slave can't be executed.
0x02	Illegal data address	The received data address is not allowed.
0x03	Illegal data	Value in query data field is not allowed by the slave.
0x06	Slave busy	The slave is busy with a long-time program command. Ask the master to send messages when the slave is free.

8. MAPPING TABLE

8.1. Indoor unit variable mapping table

Modbus description	Indoor address number	Modbus register address	Data name	Length	Octet Order	Explanation
Discrete input(R)	0	10001	Fan mode	1 Octet	1	1: Yes; 0: No
		10002	Dry mode			1: Yes; 0: No
		10003	Heat mode			1: Yes; 0: No
		10004	Cool mode			1: Yes; 0: No
		10005	Auto mode			1: Yes; 0: No
		10006	Mode locking			-
		10007	Reserve			Reserve, stay 0
		10008	On/Off			1= on; 0=off
		10009-10016	High fan speed	1 Octet	2	1= on; 0=off
			Mid fan speed			1= on; 0=off
			Low fan speed			1= on; 0=off
			Low fan speed			1= on; 0=off
			Reserve			Reserve, stay 0
			Reserve			Reserve, stay 0
			Reserve			Reserve, stay 0
			Auto(fixed) fan			1= on; 0=off

Modbus description	Indoor address number	Modbus register address	Data name	Length	Octet Order	Explanation
Discrete input(R)	0	10017-10024	Compressor	1 Octet	3	1= on; 0=off
			ODU high fan speed			1= on; 0=off
			ODU low fan speed			1= on; 0=off
			4-way valve			1= on; 0=off
			Crankcase			1= on; 0=off
			Oil return			Reserve, stay 0
			Reserve			Reserve, stay 0
			Reserve			Reserve, stay 0
		10025-10032	ECO operation	1 Octet	4	1= on; 0=off
			Electric auxiliary heating			1= on; 0=off
			Swing			1= on; 0=off
			Reserve			Reserve
			Reserve			Reserve
			Reserve			Reserve
			Reserve			Reserve
			Reserve			Reserve
		10033-10040	Horizontal swing	1 Octet	5	1= on ;0=off
			Add water			1= on ;0=off
			Water drain pump			1= on ;0=off
			Reserve			Reserve, stay 0
			Locking cool mode			1: Yes; 0:No
			Locking heat mode			1: Yes; 0:No
			Locking centralized controller			1: Yes; 0:No
			Locking remotecontroller			1: Yes; 0:No
		10041-10048	E0 Phase sequence error or no phase	1 Octet	6	1:Error; 0:Normal
			E1 communication error			1:Error; 0:Normal
			E2 T1 sensor error			1:Error; 0:Normal
			E3 T2A sensor error			1:Error; 0:Normal
			E4 T2B sensor error			1:Error; 0:Normal
			E5 T3/T4/Digital compressor discharge temp. sensor error			1:Error; 0:Normal
			E6 Zero crossing detection error			1:Error; 0:Normal
			E7 EEPROM error			1:Error; 0:Normal
		10049-10056	E8 Fan speed detection error	1 Octet	7	1:Error; 0:Normal
			E9 Mainboard and display board communication error			1:Error; 0:Normal
			EA Compressor over current (4 times)			1:Error; 0:Normal
			EB Inverter module protection			1:Error; 0:Normal
			EC Flesh error			1:Error; 0:Normal
			ED Outdoor unit error protection			1:Error; 0:Normal
			EE Water level detection error			1:Error; 0:Normal
			EF Other errors			1:Error; 0:Normal

Modbus description	Indoor address number	Modbus register address	Data name	Length	Octet Order	Explanation
Discrete Input(R)	0	10057-10064	P0 Evaporator temp. protection	1 Octet	8	1:Protection; 0:Normal
			P1 The cold wind or frostprotection			1:Protection; 0:Normal
			P2 Condenser high temp. protection			1:Protection; 0:Normal
			P3 Compressor temp. protection			1:Protection; 0:Normal
			P4 Discharge pipe temp. protection			1:Protection; 0:Normal
			P5 Discharge high pressure protection			1:Protection; 0:Normal
			P6 Discharge low pressure protection			1:Protection; 0:Normal
			P7 Power supply undervoltage protection			1:Protection; 0:Normal
		10065-10072	P8 Compressor over current protection	1 Octet	9	1:Protection; 0:Normal
			P9			Reserve, stay 0
			PA			Reserve, stay 0
			PB			Reserve, stay 0
			PC			Reserve, stay 0
			PD			Reserve, stay 0
			PE			Reserve, stay 0
			PF Other protections			1:Protection; 0:Normal
		10073-10080	0# Network connection module and mainboard communication error	1 Octet	10	1:Error; 0:Normal
			1# Centralized controller and network module error			1:Error; 0:Normal
			2# Centralized controller and function module communication error			1:Error; 0:Normal
			3# Centralized controller and computer (gateway) communication error			1:Error; 0:Normal
			4# Order limit execution			1:Error; 0:Normal
			5# Order timeout, not execution			1:Error; 0:Normal
			6# Destination address not exist			1:Error; 0:Normal
			7# Error (unsupported) order			1:Error; 0:Normal
		10081-10128	Reserve	6 Octet	11~16	Reserve, stay 0
	1	10129	Fan mode	1 Octet	17	1: Yes; 0:No
		10130	Dry mode			1: Yes; 0:No
		10131	Heat mode			1: Yes; 0:No
		10132	Cool mode			1: Yes; 0:No
		10133	Auto mode			1: Yes; 0:No
		10134	Mode locking state			-
		10135	Reserve			Reserve, stay 0
		10136	On/Off state			1: on; 0:off
		10137-10144	High fan speed	1 Octet	18	1: Yes; 0:No
			Mid fan speed			1: Yes; 0:No
			Low fan speed			1: Yes; 0:No
			Soft fan speed			1: Yes; 0:No
			Reserve			Reserve, stay 0
			Reserve			Reserve, stay 0
			Reserve			Reserve, stay 0
			Auto(fixed)fan			1: Yes; 0:No

Modbus description	Indoor address number	Modbus register address	Data name	Length	Octet Order	Explanation
Discrete input(R)	1	10145-10152	Compresso	1 Octet	19	1= on; 0=off
			Outside draught fan high fan speed			1= on; 0=off
			Outside draught fan low fan speed			1= on; 0=off
			4-way valve			1= on; 0=off
			Crankcase			1= on; 0=off
			Oil return			1= on; 0=off
			Reserve			Reserve, stay 0
			Reserve			Reserve, stay 0
		10153-10160	Eco operation	1 Octet	20	1= on; 0=off
			Electric auxiliary heating			1= on; 0=off
			Swing			1= on; 0=off
			Reserve			Reserve, stay 0
			Reserve			Reserve, stay 0
			Reserve			Reserve, stay 0
			Reserve			Reserve, stay 0
			Reserve			Reserve, stay 0
		10161-10168	Horizontal swing	1 Octet	21	1= on; 0=off
			Add water			1= on; 0=off
			Water drain pump			1= on; 0=off
			Reserve			Reserve, stay 0
			Locking cool mode			1: Yes; 0:No
			Locking heat mode			1: Yes; 0:No
			Centralized controller lock			1: Yes; 0:No
			Remote controller lock			1: Yes; 0:No
		10169-10176	E0 Phase sequency error or no phase	1 Octet	22	1:Error; 0:Normal
			E1 communication error			1:Error; 0:Normal
			E2 T1 sensor error			1:Error; 0:Normal
			E3 T2A sensor error			1:Error; 0:Normal
			E4 T2B sensor error			1:Error; 0: Normal
			E5 T3/T4/Digital compressor discharge temp. sensor error			1:Error; 0:Normal
			E6 Zero crossing detection error			1:Error; 0: Normal
			E7 EEPROM error			1:Error; 0:Normal
		10177-10184	E8 Fan speed detection error	1 Octet	23	1:Error; 0:Normal
			E9 Mainboard and display board communication error			1:Error; 0:Normal
			EA Compressor over current (4 times)			1:Error; 0:Normal
			EB Inverter module protection			1:Error; 0:Normal
			EC Clearance error			1:Error; 0:Normal
			ED Outdoor unit error protection			1:Error; 0:Normal
			EE Water level detection error			1:Error; 0:Normal
			EF Other errors			1:Error; 0:Normal

Modbus description	Indoor address number	Modbus register address	Data name	Length	Octet Order	Explanation
Discrete input(R)	1	10185-10192	P0 Evaporator temp. protection	1 Octet	24	1:Error; 0:Normal
			P1 The cold wind or frost protection			1:Error; 0:Normal
			P2 Condenser high temp. protection			1:Error; 0:Normal
			P3 Compressor temp. protection			1:Error; 0:Normal
			P4 Discharge pipe temp. protection			1:Error; 0:Normal
			P5 Discharge high pressure protection			1:Error; 0:Normal
			P6 Discharge low pressure protection			1:Error; 0:Normal
			P7 Power supply over or under voltage protection			1:Error; 0:Normal
		10193-10200	P8 Compressor over current protection	1 Octet	25	1:Protection; 0:Normal
			P9			Reserve, stay 0
			PA			Reserve, stay 0
			PB			Reserve, stay 0
			PC			Reserve, stay 0
			PD			Reserve, stay 0
			PE			Reserve, stay 0
			PF Other protections			1:Protection; 0:Normal
		10201-10208	0# Network connection module and mainboard communication error	1 Octet	26	1:Error; 0:Normal
			1# Centralized controller and network module error			1:Error; 0: Normal
			2# Centralized controller and function module communication error			1:Error; 0: Normal
			3# Centralized controller and computer (gateway) communication error			1:Error; 0: Normal
			4# Order limit execution			1:Error; 0:Normal
			5# Order timeout, no execution			1:Error; 0: Normal
			6# Destination address not exist			1:Error; 0:Normal
			7# Error (unsupported) order			1:Error; 0:Normal
		10209-10256	Reserve	6 Octet	27 ~ 32	Reserve, stay 0
	n	(128*n+10001) (128*n+10008)	As 1# indoor	1 Octet	n*16+1	As 1# indoor
		(128*n+10009) (128*n+10016)			n*16+2	
		(128*n+10017) (128*n+10024)			n*16+3	
		(128*n+10025) (128*n+10031)			n*16+4	
		(128*n+10032) (128*n+10040)			n*16+5	
		(128*n+10041) (128*n+10048)			n*16+6	
		(128*n+10049) (128*n+10056)			n*16+7	
		(128*n+10057) (128*n+10064)			n*16+8	
		(128*n+10065) (128*n+10072)			n*16+9	
		(128*n+10073) (128*n+10080)			n*16+10	

Modbus description	Indoor address number	Modbus register address	Data name	Length	Octet Order	Explanation
Discrete input(R)	n	(128*n+10081) (128*n+10128)	As 1# indoor	6 Octet	(n*16+11) ~ (n*16+16)	As 1# indoor
	63	18065-18072	As 1# indoor	1 Octet	1009	As 1# indoor
		18073-18080		1 Octet	1010	
		18081-18088		1 Octet	1011	
		18089-18096		1 Octet	1012	
		18097-18104		1 Octet	1013	
		18105-18112		1 Octet	1014	
		18113-18120		1 Octet	1015	
		18121-18128		1 Octet	1016	
		18129-18136		1 Octet	1017	
		18137-18144		1 Octet	1018	
		18145-18192		6 Octet	1019~1024	

Modbus description	Indoor address number	Modbus register address	Data name	Length	Explanation
Input Register (R)	0	30001	System state	2 Octet	bit0: the running state of the system 1:running, 0:stop; bit1: the error state of the system, 1:error,0:normal; bit2: local/remote, 1:remote, 0:local
		30002	Model message 1	2 Octet	-
		30003	Model message 2	2 Octet	-
		30004	Setting temp Ts	2 Octet	17~30 means the temperature range is 17 to 30°C
		30005	Indoor temp T1	2 Octet	0~240 means - 20 to 100°C (T*2+40)
		30006	Evaporator pipe temp T2A	2 Octet	0~240 means the temperature range is from - 20 to 100°C
		30007	Evaporator medium pipe temp. T2B	2 Octet	0~240 means - 20 to 100°C (T*2+40)
		30008	Condenser pipe temp T3	2 Octet	0~240 means - 20 to 100°C (T*2+40) 0xFF is invalid
		30009	Reserve	-	-
		30010	Reserve	-	-
		30011	Timing on hour	2 Octet	0~96 means no timer ~ 24 hours timer
		30012	Timing off hour	2 Octet	0~96 means no timer ~ 24 hours timer
		30013	Electric consumption power	2 Octet	Unit: 0.1HP
		30014 ~ 30015	Reserve	4 Octet	Reserve, stay 0
		30016	Error state	2 Octet	bit0: means E0 error, 1:Yes, 0:No bit1: means E1 error, 1:Yes, 0:No bit15: means EF error, 1:Yes, 0:No
		30017	Protection state	2 Octet	bit0: means P0 protection, 1: Yes, 0: No bit1: means P1 protection, 1: Yes, 0: No bit15: means PF protection , 1: Yes, 0: No
		30018	0~3 outdoor unit online state	2 Octet	bit0: means 0# outdoor unit online, 1: Yes, 0: No bit1: means 1# outdoor unit online, 1: Yes, 0: No bit2: means 2# outdoor unit online, 1: Yes, 0: No bit3: means 3# outdoor unit online, 1: Yes, 0: No

Modbus description	Indoor address number	Modbus register address	Data name	Length	Explanation
Input Register (R)	0	30019	0~15 indoor unit online state	2 Octet	bit0: means 0# indoor unit online, 1: Yes, 0: No bit1: means 1# indoor unit online, 1: Yes, 0: No bit15: means 15# indoor unit online, 1: Yes, 0: No
		30020	16~31# indoor unit online state	2 Octet	bit0: means 16# indoor unit online, 1: Yes, 0: No bit1: means 17# indoor unit online, 1: Yes, 0: No bit15: means 31# indoor unit online, 1: Yes, 0: No
		30021	32~47# indoor unit online state	2 Octet	bit0: means 32# indoor unit online, 1: Yes, 0: No bit1: means 33# indoor unit online, 1: Yes, 0: No bit15: means 47# indoor unit online, 1: Yes, 0: No
		30022	48~63# indoor unit online state	2 Octet	bit0: means 48# indoor unit online, 1: Yes, 0: No bit1: means 49# indoor unit online, 1: Yes, 0: No bit1: means 63# indoor unit online, 1: Yes, 0: No
		30023	0~3 #outdoor unit error state	2 Octet	bit0: means 0# outdoor unit error, 1: Yes, 0: No bit1: means 1# outdoor unit error, 1: Yes, 0: No bit2: means 2# outdoor unit error, 1: Yes, 0: No bit3: means 3# outdoor unit error, 1: Yes, 0: No
		30024	0~3# outdoor unit running state	2 Octet	bit0: means 0# outdoor unit running state, 1: Yes, 0: No bit1: means 1# outdoor unit running state, 1: Yes, 0: No bit2: means 2# outdoor unit running state, 1: Yes, 0: No bit3: means 3# outdoor unit running state, 1: Yes, 0: No
		30025	0~15# indoor unit error state	2 Octet	bit0: means 0# indoor unit error state, 1: Yes, 0: No bit1: means 1# indoor unit error state, 1: Yes, 0: No bit15: means 15# indoor unit error state, 1: Yes, 0: No
		30026	16~31# indoor unit error state	2 Octet	bit0: means 16# indoor unit error state, 1: Yes, 0: No bit1: means 17# indoor unit error state, 1: Yes, 0: No bit15: means 31# indoor unit error state, 1: Yes, 0: No
		30027	32~47# indoor unit error state	2 Octet	bit0: means 32# indoor unit error state, 1: Yes, 0: No bit1: means 33# indoor unit error state, 1: Yes, 0: No bit15: means 47# indoor unit error state, 1: Yes, 0: No
		30028	48~63# indoor unit error state	2 Octet	bit0: means 48# indoor unit error state, 1: Yes, 0: No bit1: means 49# indoor unit error state, 1: Yes, 0: No bit15: means 63# indoor unit error state, 1: Yes, 0: No
		30029	0~15# indoor unit running state	2 Octet	bit0: means 0# indoor unit running state, 1: Yes, 0: No bit1: means 1# indoor unit running state, 1: Yes, 0: No bit15: means 15# indoor unit running state, 1: Yes, 0: No
		30030	16~31# indoor unit running state	2 Octet	bit0: means 16# indoor unit running state, 1: Yes, 0: No bit1: means 17# indoor unit running state, 1: Yes, 0: No bit15: means 31# indoor unit running state, 1: Yes, 0: No
		30031	32~47# indoor unit running state	2 Octet	bit0: means 32# indoor unit running state, 1: Yes, 0: No bit1: means 33# indoor unit running state, 1: Yes, 0: No bit15: means 47# indoor unit running state, 1: Yes, 0: No
		30032	48~63# indoor unit running state	2 Octet	bit0: means 48# indoor unit error state, 1: Yes, 0: No bit1: means 49# indoor unit error state, 1: Yes, 0: No bit15: means 63# indoor unit error state, 1: Yes, 0: No
	1	30033	Reserve		Reserve, stay 0
		30034	Model message 1	2 Octet	-
		30035	Model message 2	2 Octet	-

Modbus description	Indoor address number	Modbus register address	Data name	Length	Explanation
Input Register (R)	1	30036	Setting temp. Ts	2 Octet	17~30 means the temperature range is 17 to 30°C
		30037	Indoor temp T1	2 Octet	0~240 means - 20 to 100°C (T*2+40)
		30038	Evaporator pipe temp. T2A	2 Octet	0~240 means - 20 to 100°C (T*2+40)
		30039	Evaporator medium pipe temp. T2B	2 Octet	0~240 means - 20 to 100°C (T*2+40)
		30040	Condenser pipe temp. T3	2 Octet	0~240 means - 20 to 100°C (T*2+40) 0xFF is invalid
		30041	Reserve	-	-
		30042	Reserve	-	-
		30043	Timing on hour	2 Octet	0~96 means no timer ~ 24 hours Time=N*15 minutE, N=0~96
		30044	Timing off hour	2 Octet	0~96 means no timer ~ 24 hours Time=N*15 minutE, N=0~96
		30045	Electric consumption power	2 Octet	Unit:0.1HP
		30046 ~ 30047	Reserve	4 Octet	Reserve, stay 0
		30048	Error state	2 Octet	As 1# indoor unit
		30049	Protection state	2 Octet	
		30050	0~3 outdoor unit online state	2 Octet	
		30051	0~15 indoor unit online state	2 Octet	
		30052	16~31 indoor unit online state	2 Octet	
		30053	32~47 indoor unit online state	2 Octet	
		30054	48~63 indoor unit online state	2 Octet	
		30055	0~3 outdoor unit error state	2 Octet	
		30056	0~3 outdoor unit running state	2 Octet	
		30057	0~15 indoor unit error state	2 Octet	
		30058	16~31 indoor unit error state	2 Octet	
		30059	32~47 indoor unit error state	2 Octet	
		30060	48~63 indoor unit error state	2 Octet	
		30061	0~15 indoor unit running state	2 Octet	
		30062	16~31 indoor unit running state	2 Octet	
		30063	32~47 indoor unit running state	2 Octet	
		30064	48~63 indoor unit running state	2 Octet	
	n	30000+n*32+1	Reserve	-	As 0# indoor unit
		30000+n*32+2	Model message 1	2 Octet	
		30000+n*32+3	Model message 2	2 Octet	
		30000+n*32+4	Setting temp. Ts	2 Octet	
		30000+n*32+5	Indoor temp T1	2 Octet	
		30000+n*32+6	Evaporator pipe temp. T2A	2 Octet	
		30000+n*32+7	Evaporator medium pipe temp. T2B	2 Octet	
		30000+n*32+8	Condenser pipe temp. T3	2 Octet	
		30000+n*32+9	Reserve	-	
		30000+n*32+10	Reserve	-	
		30000+n*32+11	Timing on hour	2 Octet	
		30000+n*32+12	Timing off hour	2 Octet	
		30000+n*32+13	Electric consumption power	2 Octet	

Modbus description	Indoor address number	Modbus register address	Data name	Length	Explanation
Input Register (R)	n	(30000+n*32+14)	As 1# indoor unit	38 Octet	As 1# indoor unit
		~ (30000+n*32+32)			
	63	32017	Reserve	-	As 1# indoor unit
		32018	Model message 1	2 Octet	
		32019	Model message 2	2 Octet	
		32020	Setting temp. Ts	2 Octet	
		32021	Indoor temp. T1	2 Octet	
		32022	Evaporator pipe temp. T2A	2 Octet	
		32023	Evaporator medium pipe temp. T2B	2 Octet	
		32024	Condenser pipe temp. T3	2 Octet	
		32025	Reserve	-	
		32026	Reserve	-	
		32027	Timing on hour	2 Octet	
		32028	Timing off hour	2 Octet	
		32029	Electric consumption power	2 Octet	
		32030~32048	As 1# indoor unit	38 Octet	
Holding register (W)	0	40001	Refrigerant system on/off	2 Octet	0:Close the whole system 1:Open the whole system - The summer mode, cool mode 170 ° C, Low fan speed, no timing, no auxiliary 2: Open the whole system - The summer mod,cool mode 240 ° C medium fan speed, no timing, no auxiliary 3: Open the whole system - The summer mod,cool mode, 260 ° C high fan speed, no timing, no auxiliary 4: Open the whole system - The winter mode, heat mode, 300 ° C, high fan speed, no timing, no auxiliary 5: Open the whole system - The winter mode, heat mode 260 ° C, medium fan speed, no timing, no auxiliary 6: Open the whole system - The winter mode, heat mode 240 ° C, low fan speed, no timing, no auxiliary
		40002	Setting mode	2 Octet	bit15~bit8: reserve, stay 0 bit7: turn On/Off, 1: On, 0: Off bit6: reserve, stay 0 bit5: mode lock bit4: auto mode 1: Yes, 0: No bit3: cool mode 1: Yes, 0: No bit2: heat mode 1: Yes, 0: No bit1: dry mode 1: Yes, 0: No bit0: Fan mode 1: Yes, 0: No bit6~bit0: every bit mutually exclusive.
		40003	Setting fan speed	2 Octet	bit15~bit8: reserve, stay 0 bit7: Auto fan 1: Yes, 0: No bit6~bit3: reserve, stay 0 bit2: Low fan speed 1: Yes, 0: No bit1: Medium fan speed 1: Yes, 0: No bit0: High fan speed 1: Yes, 0: No bit7~bit0: every bit mutually exclusive.
		40004	Setting temperature	2 Octet	16~32 means the temperature range is 16 to 32°C
		40005	Timing on hour	2 Octet	0~96 means no timer ~ 24 hours Time=N*15 minutE, N=0~96

Modbus description	Indoor address number	Modbus register address	Data name	Length	Explanation
Holding register (W)	0	40006	Timing off hour	2 Octet	0~96 means no timer ~ 24 hours Time=N*15 minutE, N=0~96
		40007	Auxiliary function state	2 Octet	bit15~bit4:Reserve, stay 0 bit3: Change of air 1:On, 0:Off bit2: Swing 1: On, 0: Off bit1: Electric auxiliary heating 1: On, 0: Off bit0: Economic operation 1: On, 0: Off
		40008-40032	Reserve	50 Octet	Reserve , cannot write.
	1	40033	Reserve	2 Octet	As 0# indoor Reserve , cannot write.
		40034	Setting mode	2 Octet	
		40035	Setting fan speed	2 Octet	
		40036	Setting temperature	2 Octet	
		40037	Timing on hour	2 Octet	
		40038	Timing off hour	2 Octet	
		40039	Auxiliary function state	2 Octet	
		40040~40064	Reserve	50 Octet	Reserve , cannot write.
	n	40000+n*32+1	Reserve	2 Octet	As 1# indoor
		40000+n*32+2	Setting mode	2 Octet	
		40000+n*32+3	Setting fan speed	2 Octet	
		40000+n*32+4	Setting temperature	2 Octet	
		40000+n*32+5	Timing on hour	2 Octet	
		40000+n*32+6	Timing off hour	2 Octet	
		40000+n*32+7	Auxiliary function state	2 Octet	
		(40000+n*32+8)~ (40000+n*32+32)	Reserve	50 Octet	
	63	42017	Reserve	2 Octet	As 1# indoor
		42018	Setting mode	2 Octet	
		42019	Setting fan speed	2 Octet	
		42020	Setting temperature	2 Octet	
		42021	Timing on hour	2 Octet	
		42022	Timing off hour	2 Octet	
		42023	Auxiliary function state	2 Octet	
		42024~42048	Reserve	50 Octet	
	64	-	-	-	Group control 0-7# indoor, format as above
	65	-	-	-	Group control 8-15# indoor, format as above
	66	-	-	-	Group control 16-23# indoor, format as above
	67	-	-	-	Group control 24-31# indoor, format as above
	68	-	-	-	Group control 32-39# indoor, format as above
	69	-	-	-	Group control 40-47# indoor, format as above

Modbus description	Indoor address number	Modbus register address	Data name	Length	Explanation
Holding register (W)	70	-	-	-	Group control 48-55# indoor, format as above
	71	-	-	-	Group control 56-63# indoor, format as above
	72	-	-	-	Group control 0-63# indoor, format as above

8.2. Outdoor unit variable mapping table

Modbus description	Outdoor address number	Modbus register address	Data name	Explanation
Discrete input(R)	0	18192+1	Cool mode	1: Yes, 0: No
		18194	Heat mode	1: Yes, 0: No
		18195	Reserve	Reserve, stay 0
		18196	Reserve	Reserve, stay 0
		18197	Reserve	Reserve, stay 0
		18198	Reserve	Reserve, stay 0
		18199	Lock sign	1: Yes, 0: No
		18200	Force locking	1: Yes, 0: No
		18201	Low speed	1: Yes, 0: No
		18202	Medium fan speed	1: Yes, 0: No
		18203	High fan speed	1: Yes, 0: No
		18204	Reserve	Reserve, stay 0
		18205	Reserve	Reserve, stay 0
		18206	Reserve	Reserve, stay 0
		18207	Reserve	Reserve, stay 0
		18208	Reserve	Reserve, stay 0
		18209	4-way valveST1	1: on, 0: off
		18210	Auxiliary 4-way valve ST2	1: on, 0: off
		18211	Solenoid valve SV1	1: on, 0: off
		18212	Solenoid valve SV2	1: on, 0: off
		18213	Solenoid valve SV3	1: on, 0: off
		18214	Solenoid valve SV4	1: on, 0: off

Modbus description	Outdoor address number	Modbus register address	Data name	Explanation
Discrete input(R)	0	18215	Solenoid valve SV5	1: on, 0: off
		18216	Solenoid valve SV6	1: on, 0: off
		18217	Compressor 1	1: on, 0: off
		18218	Compressor 2	1: on, 0: off
		18219	Compressor 3	1: on, 0: off
		18220	Reserve	Reserve, stay 0
		18221	Reserve	Reserve, stay 0
		18222	Reserve	Reserve, stay 0
		18223	Reserve	Reserve, stay 0
		18224	Reserve	Reserve, stay 0
		18225	E0 Outdoor unit communication error	1:Error, 0: Normal
		18226	E1 Phase sequence error or no phase	1:Error, 0: Normal
		18227	E2 Outdoor&indoor unit communication error	1:Error, 0: Normal
		18228	E4 Reserve	Reserve, stay 0
		18229	E3 T3/T4/digital compressor discharge temperature sensor error	1:Error, 0: Normal
		18230	E5 Reserve	Reserve, stay 0
		18231	E6 T6 sensor error	1:Error, 0: Normal
		18232	E7 Reserve	Reserve, stay 0
		18233	E8 Reserve	Reserve, stay 0
		18234	E9 Voltage error	1:Error, 0: Normal
		18235	H1 Network communication error	1:Error, 0: Normal
		18236	H0 DSP communication error	1:Error, 0: Normal
		18237	H2 The outdoor reduce error(the host effective)	1:Error, 0: Normal
		18238	H3 The outdoor increase error(the host effective)	Reserve, stay 0
		18239	EE Reserve	Reserve, stay 0
		18240	EF Other error	-
		18241	P0 Compressor top temp. protection	1:protection, 0: Normal
		18242	P1 Discharge high pressure protection	1:protection, 0: Normal
		18243	P2 Discharge low pressure protection	1:protection, 0: Normal
		18244	P3 Compressor current protection 1	1:protection, 0: Normal
		18245	P4 Discharge pipe temp. protection	1:protection, 0: Normal
		18246	P5 Condenser high temp protection	1:protection, 0: Normal
		18247	P6 Inverter module protection	1:protection, 0: Normal
		18248	P7 Compressor current protection 2	1:protection, 0: Normal
		18249	P8 Compressor current protection 3	1:protection, 0: Normal
		18250	P9 Power supply under-voltageprotection	1:protection, 0: Normal
		18251	PA Defrost protection	1:protection, 0: Normal
		18252	PB Reserve	Reserve, stay 0
		18253	PC Reserve	Reserve, stay 0
		18254	PD Oil return	1:protection, 0: Normal

Modbus description	Outdoor address number	Modbus register address	Data name	Explanation
Discrete input(R)	0	18255	PE Oil equalization	1:protection, 0: Normal
		18256	PF Other error	1:protection, 0: Normal
		18257~18320	Reserve	Reserve, stay 0
	1	18320+1	Cool mode	1: Yes, 0: No
		18322	Heat mode	1: Yes, 0: No
		18323	Reserve	Reserve, stay 0
		18324	Reserve	Reserve, stay 0
		18325	Reserve	Reserve, stay 0
		18326	Reserve	Reserve, stay 0
		18327	Lock sign	1: Yes, 0: No
		18328	Force locking	1: Yes, 0: No
		18329	Low fan speed	1: Yes, 0: No
		18330	Medium fan speed	1: Yes, 0: No
		18331	High fan speed	1: Yes, 0: No
		18332	Reserve	Reserve, stay 0
		18333	Reserve	Reserve, stay 0
		18334	Reserve	Reserve, stay 0
		18335	Reserve	Reserve, stay 0
		18336	Reserve	Reserve, stay 0
		18337	4-way valveST1	1: on, 0: off
		18338	Auxiliary 4-way valve ST2	1: on, 0: off
		18339	Solenoid valve SV1	1: on, 0: off
		18340	Solenoid valve SV2	1: on, 0: off
		18341	Solenoid valve SV3	1: on, 0: off
		18342	Solenoid valve SV4	1: on, 0: off
		18343	Solenoid valve SV5	1: on, 0: off
		18344	Solenoid valve SV6	1: on, 0: off
		18345	Compressor 1	1: on, 0: off
		18346	Compressor 2	1: on, 0: off
		18347	Compressor 3	1: on, 0: off
		18348	Reserve	Reserve, stay 0
		18349	Reserve	Reserve, stay 0
		18350	Reserve	Reserve, stay 0
		18351	Reserve	Reserve, stay 0
		18352	Reserve	Reserve, stay 0
		18353	E0 Outdoor unit communication error	1:Error, 0: Normal
		18354	E1 Phase sequence error or no phase	1:Error, 0: Normal
		18355	E2 Outdoor&indoor unit communication error	1:Error, 0: Normal
		18356	E4 Reserve	Reserve, stay 0
		18357	E3 T3/T4/digital compressor discharge temperature sensor error	1:Error, 0: Normal
		18358	E5 Reserve	Reserve, stay 0

Modbus description	Outdoor address number	Modbus register address	Data name	Explanation
Discrete input(R)	1	18359	E6 DSP communication error	1:Error, 0: Normal
		18360	E7 Reserve	Reserve, stay 0
		18361	E8 Reserve	Reserve, stay 0
		18362	E9 Voltage error	1:Error, 0: Normal
		18363	H1 Network communication error	1:Error, 0: Normal
		18364	H0 DSP communication error	1:Error, 0: Normal
		18365	H2 The outdoor reduce error(the host effective)	1:Error, 0: Normal
		18366	H3 The outdoor increase error(the host effective)	Reserve, stay 0
		18367	EE Reserve	Reserve, stay 0
		18368	EF Other error	-
		18369	P0 Compressor top temp. protection	1:protection, 0: Normal
		18370	P1 Discharge high pressure protection	1:protection, 0: Normal
		18371	P2 Discharge low pressure protection	1:protection, 0: Normal
		18372	P3 Compressor current protection 1	1:protection, 0: Normal
		18373	P4 Discharge pipe temp. protection	1:protection, 0: Normal
		18374	P5 Condenser high temp protection	1:protection, 0: Normal
		18375	P6 Inverter module protection	1:protection, 0: Normal
		18376	P7 Compressor current protection 2	1:protection, 0: Normal
		18377	P8 Compressor current protection 3	1:protection, 0: Normal
		18378	P9 Power supply under-voltage protection	1:protection, 0: Normal
		18379	PA Defrost protection	1:protection, 0: Normal
		18380	PB Reserve	Reserve, stay 0
		18381	PC Reserve	Reserve, stay 0
		18382	PD Oil return	1:protection, 0: Normal
		18383	PE Oil equalization	1:protection, 0: Normal
		18384	PF Other error	1:protection, 0: Normal
		18385~18448	Reserve	Reserve, stay 0
	n	18192+n*128+1	Cool mode	1: Yes, 0: No
		18192+n*128+2	Heat mode	1: Yes, 0: No
		18192+n*128+3	Reserve	Reserve, stay 0
		18192+n*128+4	Reserve	Reserve, stay 0
		18192+n*128+5	Reserve	Reserve, stay 0
		18192+n*128+6	Reserve	Reserve, stay 0
		18192+n*128+7	Lock sign	1: Yes, 0: No
		18192+n*128+8	Force locking	1: Yes, 0: No
		18192+n*128+9	Low speed	1: Yes, 0: No
		18192+n*128+10	Medium speed	1: Yes, 0: No
		18192+n*128+11	High speed	1: Yes, 0: No
		18192+n*128+12	Reserve	Reserve, stay 0
		18192+n*128+13	Reserve	Reserve, stay 0
		18192+n*128+14	Reserve	Reserve, stay 0

Modbus description	Outdoor address number	Modbus register address	Data name	Explanation
Discrete input(R)	n	18192+n*128+15	Reserve	Reserve, stay 0
		18192+n*128+16	Reserve	Reserve, stay 0
		18192+n*128+17	4-way valve ST1	1: on, 0: off
		18192+n*128+18	Auxiliary 4-way valve ST2	1: on, 0: off
		18192+n*128+19	Solenoid valve SV1	1: on, 0: off
		18192+n*128+20	Solenoid valve SV2	1: on, 0: off
		18192+n*128+21	Solenoid valve SV3	1: on, 0: off
		18192+n*128+22	Solenoid valve SV4	1: on, 0: off
		18192+n*128+23	Solenoid valve SV5	1: on, 0: off
		18192+n*128+24	Solenoid valve SV6	1: on, 0: off
		18192+n*128+25	Compressor 1	1: on, 0: off
		18192+n*128+26	Compressor 2	1: on, 0: off
		18192+n*128+27	Compressor 3	1: on, 0: off
		18192+n*128+28	Reserve	Reserve, stay 0
		18192+n*128+29	Reserve	Reserve, stay 0
		18192+n*128+30	Reserve	Reserve, stay 0
		18192+n*128+31	Reserve	Reserve, stay 0
		18192+n*128+32	Reserve	Reserve, stay 0
		18192+n*128+33	E0 Outdoor unit communication error	1:Error, 0: Normal
		18192+n*128+34	E1 Phase sequence error or no phase	1:Error, 0: Normal
		18192+n*128+35	E2 Outdoor&indoor unit communication error	1:Error, 0: Normal
		18192+n*128+36	E4 Reserve	Reserve, stay 0
		18192+n*128+37	E3 T3/T4/digital compressor discharge temperature sensor error	1:Error, 0: Normal
		18192+n*128+38	E5 Reserve	Reserve, stay 0
		18192+n*128+39	E6 T6 sensor error	1:Error, 0: Normal
		18192+n*128+40	E7 Reserve	Reserve, stay 0
		18192+n*128+41	E8 Reserve	Reserve, stay 0
		18192+n*128+42	E9 Voltage error	1:Error, 0: Normal
		18192+n*128+43	H1 Network communication error	1:Error, 0: Normal
		18192+n*128+44	H0 DSP communication error	1:Error, 0: Normal
		18192+n*128+45	H2 The outdoor reduce error(the host effective)	1:Error, 0: Normal
		18192+n*128+46	H3 The outdoor increase error(the host effective)	Reserve, stay 0
		18192+n*128+47	EE Reserve	Reserve, stay 0
		18192+n*128+48	EF Other error	-
		18192+n*128+49	P0 Compressor top temp. protection	1:protection, 0:Normal
		18192+n*128+50	P1 Discharge high pressure protection	1:protection, 0: Normal
		18192+n*128+51	P2 Discharge low pressure protection	1:protection, 0: Normal
		18192+n*128+52	P3 Compressor current protection 1	1:protection, 0: Normal
		18192+n*128+53	P4 Discharge pipe temp. protection	1:protection, 0: Normal
		18192+n*128+54	P5 Condenser high temp protection	1:protection, 0: Normal

Modbus description	Outdoor address number	Modbus register address	Data name	Explanation
Discrete input(R)	n	18192+n*128+55	P6 Inverter module protection	1:protection, 0: Normal
		18192+n*128+56	P7 Compressor current protection 2	1:protection, 0: Normal
		18192+n*128+57	P8 Compressor current protection 3	1:protection, 0: Normal
		18192+n*128+58	P9 Power supply under-voltage protection	1:protection, 0: Normal
		18192+n*128+59	PA Defrost protection	1:protection, 0: Normal
		18192+n*128+60	PB Reserve	Reserve, stay 0
		18192+n*128+61	PC Reserve	Reserve, stay 0
		18192+n*128+62	PD Oil return	1:protection, 0: Normal
		18192+n*128+63	PE Oil equalization	1:protection, 0: Normal
		18192+n*128+64	PF Other error	1:protection, 0: Normal
		(18192+n*128+65)~ (18192+n*128+128)	Reserve	Reserve, stay 0
	3	18577	Cool mode	1: Yes, 0: No
		18578	Heat mode	1: Yes, 0: No
		18579	Reserve	Reserve, stay 0
		18580	Reserve	Reserve, stay 0
		18581	Reserve	Reserve, stay 0
		18582	Reserve	Reserve, stay 0
		18583	Lock sign	1: Yes, 0: No
		18584	Force locking	1: Yes, 0: No
		18585	Low fan speed	1: Yes, 0: No
		18586	Medium fan speed	1: Yes, 0: No
		18587	High fan speed	1: Yes, 0: No
		18588	Reserve	Reserve, stay 0
		18589	Reserve	Reserve, stay 0
		18590	Reserve	Reserve, stay 0
		18591	Reserve	Reserve, stay 0
		18592	Reserve	Reserve, stay 0
		18593	4-way valveST1	1: on, 0: off
		18594	Auxiliary 4-way valve ST2	1: on, 0: off
		18595	Solenoid valve SV1	1: on, 0: off
		18596	Solenoid valve SV2	1: on, 0: off
		18597	Solenoid valve SV3	1: on, 0: off
		18598	Solenoid valve SV4	1: on, 0: off
		18599	Solenoid valve SV5	1: on, 0: off
		18600	Solenoid valve SV6	1: on, 0: off
		18601	Compressor 1	1: on, 0: off
		18602	Compressor 2	1: on, 0: off
		18603	Compressor 3	1: on, 0: off
		18604	Reserve	Reserve, stay 0
		18605	Reserve	Reserve, stay 0
		18606	Reserve	Reserve, stay 0
		18607	Reserve	Reserve, stay 0

Modbus description	Outdoor address number	Modbus register address	Data name	Explanation
Discrete input(R)	3	18608	Reserve	Reserve, stay 0
		18609	E0 Outdoor unit communication error	1:Error, 0: Normal
		18610	E1 Phase sequence error or no phase	1:Error, 0: Normal
		18611	E2 Outdoor&indoor unit communication error	1:Error, 0: Normal
		18612	E4 Reserve	Reserve, stay 0
		18613	E3 T3/T4/digital compressor discharge temperature sensor error	1:Error, 0: Normal
		18614	E5 Reserve	Reserve, stay 0
		18615	E6 T6 sensor error	1:Error, 0: Normal
		18616	E7 Reserve	Reserve, stay 0
		18617	E8 Reserve	Reserve, stay 0
		18618	E9 Voltage error	1:Error, 0: Normal
		18619	H1 Network communication error	1:Error, 0: Normal
		18620	H0 DSP communication error	1:Error, 0: Normal
		18621	H2 The outdoor reduce error(the host effective)	1:Error, 0: Normal
		18622	H3 The outdoor increase error(the host effective)	Reserve, stay 0
		18623	EE Reserve	Reserve, stay 0
		18624	EF Other error	
		18625	P0 Compressor top temp. protection	1:protection, 0:Normal
		18626	P1 Discharge high pressure protection	1:protection, 0: Normal
		18627	P2 Discharge low pressure protection	1:protection, 0: Normal
		18628	P3 Compressor current protection 1	1:protection, 0: Normal
		18629	P4 Discharge pipe temp. protection	1:protection, 0: Normal
		18630	P5 Condenser high temp. protection	1:protection, 0: Normal
		18631	P6 Inverter module protection	1:protection, 0: Normal
		18632	P7 Compressor current protection 2	1:protection, 0: Normal
		18633	P8 Compressor current protection 3	1:protection, 0: Normal
		18634	P9 Power supply under-voltage protection	1:protection, 0: Normal
		18635	PA Defrost protection	1:protection, 0: Normal
		18636	PB Reserve	Reserve, stay 0
		18637	PC Reserve	Reserve, stay 0
		18638	PD Oil return	1:protection, 0: Normal
		18639	PE Oil equalization	1:protection, 0: Normal
		18640	PF Other error	1:protection, 0: Normal
		18641~18704	Reserve	Reserve, stay 0
Input register (R)	0	32048+1	Reserve	Reserve, stay 0
		32050	First byte of model message	-
		32051	Second byte of model message	-
		32052	Outdoor temp T4	0~240 means -20~100°C (T*2+40) 0xFF is invalid
		32053	Outdoor condenser outlet temp T3	0~240 means -20~100°C (T*2+40) 0xFF is invalid

Modbus description	Outdoor address number	Modbus register address	Data name	Explanation
Input register (R)	0	32054	Outdoor condenser inlet temp T6	0~240 means -20~100°C (T*2+40) 0xFF is invalid
		32055	Compressor 1 discharge temp	0~200 means -20~100°C (T*2+40) 0xFF is invalid
		32056	Compressor 2 discharge temp	0~200 means -20~100°C (T*2+40) 0xFF is invalid
		32057	Compressor 3 discharge temp	0~200 means -20~100°C (T*2+40) 0xFF is invalid
		32058	Compressor 1 current	0~200 means the current range from 0A to 200A
		32059	Compressor 2 current	0~200 means the current range from 0A to 200A
		32060	Compressor 3 current	0~200 means the current range from 0A to 200A
		32061	Current of compressor 3	0~200 means the current range from 0A to 200A
		32062	Inverter compressor frequency	0~250 means 0~250Hz
		32063	EEV 1 opening	00h~07Dh means 0~1000 step open degree and resolution is 8 step; 0FFh means no the data.
		32064	EEV 2 opening	As above
		32065	Outdoor unit running capacity requirement	Each 1 means 1HP, and 0~250 means 0~250 0xFF is invalid
		32066~32080	Reserve	Reserve, stay 0
	1	32081	Reserve	As 0# outdoor
		32082	First byte of model message	
		32083	Second byte of model message	
		32084	Outdoor temp T4	
		32085	Outdoor condenser outlet temp T3	
		32086	Outdoor condenser inlet temp T6	
		32087	Compressor 1 discharge temp	
		32088	Compressor 2 discharge temp	
		32089	Compressor 3 discharge temp	
		32090	Qty.of indoor unit	
		32091	Compressor 1 current	
		32092	Compressor 2 current	
		32093	Compressor 3 current	
		32094	Inverter compressor frequency	
		32095	EEV 1 opening	
		32096	EEV 2 opening	
		32097	Outdoor unit running capacity requirement	
		32098~32112	Reserve	
	2	32113	Reserve	As 1# outdoor
		32114	First byte of model message	
		32115	Second byte of model message	
		32116	Outdoor temp T4	
		32117	Outdoor condenser outlet temp T3	
		32118	Outdoor condenser inlet temp T6	
		32119	Compressor 1 discharge temp	
		32120	Compressor 2 discharge temp	
		32121	Compressor 3 discharge temp	

Modbus description	Outdoor address number	Modbus register address	Data name	Explanation
Input register (R)	2	32122	Qty.of indoor unit	As 1# outdoor
		32123	Compressor 1 current	
		32124	Compressor 2 current	
		32125	Compressor 3 current	
		32126	Inverter compressor frequency	
		32127	EEV 1 opening	
		32128	EEV 2 opening	
		32129	Outdoor unit running capacity requirement	
		32130~32144	Reserve	
	3	32145	Reserve	As 1# outdoor
		32146	First byte of model message	
		32147	Second byte of model message	
		32148	Outdoor temp T4	
		32149	Outdoor condenser outlet temp T3	
		32150	Outdoor condenser inlet temp T6	
		32151	Compressor 1 discharge temp	
		32152	Compressor 2 discharge temp	
		32153	Compressor 3 discharge temp	
		32154	Qty.of indoor unit	
		32155	Compressor 1 current	
		32156	Compressor 2 current	
		32157	Compressor 3 current	
		32158	Inverter compressor frequency	
		32159	EEV 1 opening	
		32160	EEV 2 opening	
		32161	Outdoor unit running capacity requirement	
		32162~32176	Reserve	

Note:

1. Register 40001 can only be controlled separately and cannot be written together with other Holding Register points.
2. To control indoor unit, you need to control the "Setting mode, Setting fan speed, Setting temperature" 3 parameters at the same time(one command). (e.g.:indoor unit address 0, Holding register:40002-Setting mode, 40003-Setting fan speed, 40004-Setting temperature). Writing only one of them will result in a different control result than expected.
3. After the gateway controls the parameters, it takes a certain amount of time to refresh the indoor unit operation state, which takes up to 3 minutes.

This image shows a full page of white paper with horizontal dotted lines. The lines are evenly spaced and run across the width of the page, providing a guide for handwriting practice. There are no margins, text, or other markings on the page.

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