Modbus from version 1.6.0
Pioneer controller
Pioneer, Mini Retro P, Micro Pd och Mini Pi

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1 General

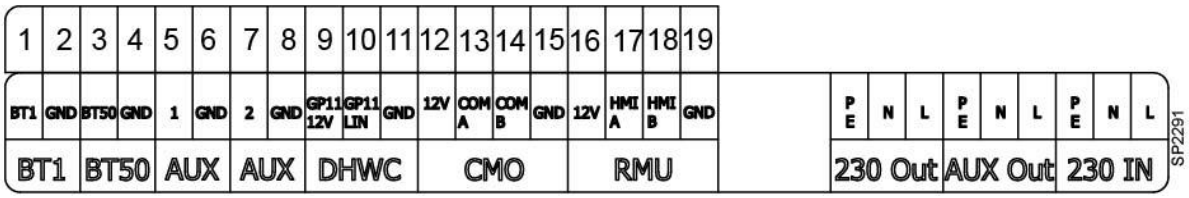
HIU with Pioneer controller can be connected to Wi-Fi and/or Modbus RTU.
This requires communication module CMO40.

1.1 Information about the document

All pictures in this document are general images.

The room thermostat, RMU S40C is called RMU in this document.
The communication module, CMO40, is called CMO in this document.

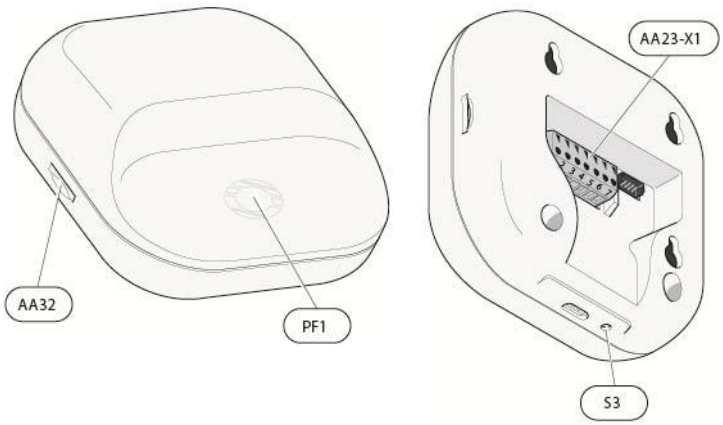
1.2 Terminal block



- BT1 (1–2) – outdoor sensor, with a conductor area of 0.5 mm2, the maximum cable length is 50 meters, maximum 5 Ω/conductor.
- BT50 (3–4) – extra room sensor.
- AUX 1 (5–6) – to connect e.g., Pre-Payment or other potential free options.
- AUX 2 (7–8) – to connect e.g., Pre-Payment or other potential free options.
- DHWC (9–11) – LIN DHWC pump.
- CMO (12–15) – Communication module, connect with LiYY, EKKX or similar, with a conductor area of 0.5 mm^2, the maximum cable length is 50 meters.
- RMU (16–19) – Room thermostat with built in temperature sensor. connect with LiYY, EKKX or similar, with a conductor area of 0.5 mm^2, the maximum cable length is 50 meters.
- 230 Out – 0-230 VAC, 3A, e.g., energy meter.
- AUX Out – 0-230 VAC, 3A, to read alarms and home/away settings.
- 230 IN – Power feed to the HIU.

1.3 Connecting the communication module CMO

CMO40 is a gateway that is used to connect the substation to the cloud for monitoring and control, using the app myUplink. It must be placed with access to Wi-Fi.

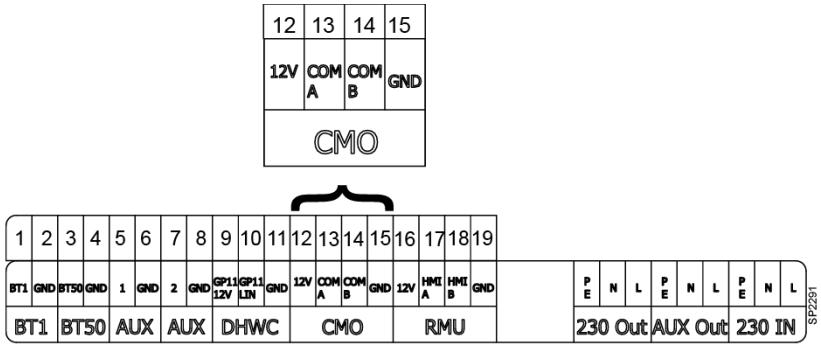


AA32	Space for memory card (Micro-SD)
PF1	LED Ring (status Indication)
S3	Reset button
AA23-X1	Terminal block, power supply

Pull in the CMO cable through one of the three cable glands located at the lower edge of the substation, use straps to hold the cable.

Connect the CMO to terminal block AA102-X1, marked CMO (12-15).

The minimum area of communication cables must be 0.5 mm² up to 50 m, for example EKKX, LiYY or equivalent.
The AA23-X1 connector in CMO, can be removed for easier wire installation, remember to mount it back before turning on the power.



CMO

AA23-X1

Pioneer controller AA102-X1 **CMO**

	1 □				With LiYY cable	
	2 □					
	3 □					
+12V	4 □	–	12V	12	White	
A	5 □	–	COM A	13	Brown	
B	6 □	–	COM B	14	Green	**CMO**
GND	7 □	–	GND	15	Yellow	

1.4 Connecting Modbus

Connect the Modbus cable to terminal block AA23X1, marked 1 and 2.
The minimum area of communication cables must be 0.5 mm² up to 50m, for example EKKX, LiYY or equivalent.
The AA23-X1 connector in CMO, can be removed for easier wire installation, remember to mount it back before turning on the power.

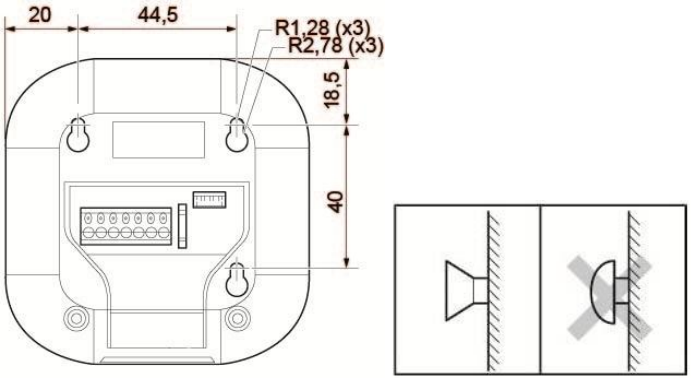
CMO

AA23-X1

Modbus A	1 □
Modbus B	2 □
	3 □
+12V	4 □
A	5 □
B	6 □
GND	7 □

1.5 Mounting the CMO on wall

Use all mounting points and mount the CMO upright, flat against the wall, screw size M2.5 with a maximum head diameter of 5.5mm. Leave at least 100 mm of free space around the module to allow access and make cable routing easier during installation and servicing.



1.6 Activate Modbus

To use Modbus the following settings must be done in the room thermostat RMU.

- In menu 4.1 – Operating mode
  Choose Outdoor control with room sensor – requires a connected outdoor- and room sensor, can be via Modbus.
  Works as outdoor control with addition that set desired temperature, menu 1.1.1. Heating is used to calculate offset on supply temperature.

1.7 Choose Wi-Fi and/or Modbus

In menu 7.2.16 – SMO40, choose if Modbus or both Modbus and Wi-Fi shall be activated.

Fail safe mode **On**: Wi-Fi and Modbus
Fail safe mode **Off**: Only Modbus

1.8 Modbus

Connection to Modbus uses address 247 as default.
This address can be changed in menu 5.8 – TPP Configurate.
Writable value between 1-245 and 247. Address 246 is occupied.

BaudRate:	57600
DataBits:	x8
StopBits:	One
Parity:	Even

1.9 Connect a Modbus sensor

If connecting a Modbus sensor, it must be activated in menu 7.2.16 – CMO40, activate Room temp.Modbus.

2 Parameter list from version 1.6.0

ID	Name	TPP Holding Reg	TPP Input Reg	Regs Count	Unit	Is signed	Variable size	Presciler	Points after dot
3663	System mode, climate system 1	-	--	1	eUnitNone	Unsigned	8	1	0
60371	BT50 Modbus sensor	0	-	1	eUnitCelsius	Signed	16	10	1
60373	Modbus desired temperature	1	-	1	eUnitCelsius	Signed	16	10	1
60375	Modbus heating curve	2	-	1	eUnitNone	Unsigned	8	1	0
60376	Modbus heating min supply	3	-	1	eUnitCelsius	Signed	16	10	1
60377	Modbus heating max supply	4	-	1	eUnitCelsius	Signed	16	10	1
60378	Modbus limit max power	5	-	1	eUnitNone	Unsigned	8	1	0
60379	Modbus max output	6	-	1	eUserUnitKiloWatt	Signed	16	10	0
60386	Modbus Kc, heating	7	-	1	eUnitNone	Unsigned	8	100	2
60388	Modbus Ti, heating	8	-	1	eUnitSecond	Unsigned	16	10	0
7014	Modbus Samples to run heating	9	-	1	eUnitSecond	Unsigned	16	1	0
4	BT1, current outdoor temperature	-	101	1	eUnitCelsius	Signed	16	10	1
54	BT1, average temperature	-	102	1	eUnitCelsius	Signed	16	10	1
60139	BT38, hot water out	-	103	1	eUnitCelsius	Signed	16	10	1
60140	BT4, cold water	-	104	1	eUnitCelsius	Signed	16	10	1
60137	BT69.1, primary return heating	-	105	1	eUnitCelsius	Signed	16	10	1
60142	BT68, primary in	-	106	1	eUnitCelsius	Signed	16	10	1
60138	BT69.2, primary out hot water	-	107	1	eUnitCelsius	Signed	16	10	1
60130	BT2, supply heating	-	108	1	eUnitCelsius	Signed	16	10	1
60131	BT3, return heating	-	109	1	eUnitCelsius	Signed	16	10	1
60238	Controlling room sensor, climate system 1	-	110	1	eUnitCelsius	Signed	16	10	1
60303	Indoor temperature, external	-	111	1	eUnitCelsius	Signed	16	10	1
60304	Indoor temperature	-	112	1	eUnitCelsius	Signed	16	10	1
60433	Relative humidity	-	113	1	eUnitPercent	Unsigned	16	10	1
780	Degree minutes (read-only)	-	-	2	eUnitDegreeMinutes	Signed	32	10	0
781	Degree minutes	-	116	2	eUnitDegreeMinutes	Signed	32	10	0
1708	Calculated supply, climate system 1	-	--	1	eUnitCelsius	Signed	16	10	1
60157	GP1, status	-	119	1	eUnitNone	Unsigned	8	1	0
60159	GP1, pump speed	-	120	1	eUnitPercent	Unsigned	16	10	1

ID	Name	TPP Holding Reg	TPP Input Reg	Regs Count	Unit	Is signed	Variable size	Presciler	Points after dot
60106	GP1 Flow	-	121	1	eUnitLitresPerMinute	Signed	16	10	1
60105	GP1 Head	-	122	1	eUnitBar	Signed	16	100	2
60163	GP11 Operating mode	-	--	1	eUnitNone	Unsigned	8	1	0
60162	GP11, speed hot water circulation	-	--	1	eUnitPercent	Unsigned	8	1	0
60118	GP11 Flow	-	--	1	eUnitLitresPerMinute	Signed	16	10	1
60117	GP11 Head	-	--	1	eUnitBar	Signed	16	100	2
60156	BF4, hot water flow	-	127	1	eUnitLitresPerMinute	Signed	16	100	2
60149	BP17, prim. in pressure	-	128	1	eUnitBar	Signed	16	1000	2
60150	BP18, prim. out pressure	-	129	1	eUnitBar	Signed	16	1000	2
60152	BP17-BP18, primary diff pressure	-	130	1	eUnitBar	Signed	16	1000	2
60151	BP19, heating pressure	-	131	1	eUnitBar	Signed	16	1000	2
60144	Operating pressure	-	132	1	eUnitBar	Signed	16	100	2
3665	Desired room temperature (no room sensor) climate system 1, heating	-	133	1	eUnitCelsius	Signed	16	10	1
3945	Set point value, room temp system 1	-	135	1	eUnitCelsius	Signed	16	10	1
60330	QN11.2, valve position	-	136	1	eUnitPercent	Unsigned	16	10	1
60329	QN11.1, valve position	-	137	1	eUnitPercent	Unsigned	16	10	1
60216	HW, set value	-	138	1	eUnitCelsius	Signed	16	10	0
60205	Priority hot water	-	139	1	eUnitNone	Unsigned	8	1	0
60206	Hot water priority limit	-	140	1	eUserUnitKiloWatt	Signed	16	100	0
3375	Alarm number	-	141	1	eUnitNone	Unsigned	16	1	0
60493	Energy consumption hot water [most recent 24 hour period per hour]	-	142	2	eUserUnitKiloWattHour	Unsigned	32	100	0
60494	Energy consumption heating [most recent 24 hour period per hour]	-	144	2	eUserUnitKiloWattHour	Unsigned	32	100	0
60496	Energy consumption hot water [previous day]	-	146	2	eUserUnitKiloWattHour	Unsigned	32	100	0
60497	Energy consumption heating [previous day]	-	148	2	eUserUnitKiloWattHour	Unsigned	32	100	0
60498	Energy consumption [previous day]	-	150	2	eUserUnitKiloWattHour	Unsigned	32	100	0
60499	Ratio heating [previous day]	-	152	1	eUnitPercent	Signed	16	10	0
60500	Ratio hot water [previous day]	-	153	1	eUnitPercent	Signed	16	10	0

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