

E+E

Sigma 05

**Modular Sensor
Platform**



E Plus E Sigma 05 Modular Sensor Platform User Guide

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E+E

E Plus E Sigma 05 Modular Sensor Platform



Specifications

- **Product Name:** Sigma 05 – Sensor Hub / Modular Sensor Platform
- **Interface:** RS485
- **Protocol:** Modbus RTU
- **Maximum Number of Probes:** 3
- **Supply Voltage Range:** 15 – 30 V DC

Product Usage Instructions

Plug-and-Play Operation / Setup

Sigma 05 is designed to work with E+E plug-and-play probes. By default, the automatic discovery function is enabled.

Follow these steps for setup:

1. Power off Sigma 05 before connecting or disconnecting probes.
2. Sigma 05 will automatically recognize and configure the connected probes according to the predefined table.
3. The assignment of measurands and output scaling is done automatically based on the connected probes.

Manual Operation / Setup

1. Connect Sigma 05 to a personal computer running the PCS10 Product Configuration Software.
2. Disable the automatic discovery function in the software.
3. Assign measurands to outputs and configure output scaling as needed.

Voltage Supply and Outputs

- Ensure correct installation and wiring to prevent overheating.

- Follow the wiring diagram provided for your product version.
- The supply voltage range is between 15 – 30 V DC.

Modbus Setup

The factory settings for Modbus communication are as follows.

- **Baud rate:** 9 600
- **Data bits:** 8
- **Parity:** Even
- **Stop bits:** 1
- **Modbus address:** Not set for Sigma 05

Approval

The Sigma 05 has DNV maritime type approval. Refer to the User Manual for detailed information.

INTRODUCTION

PLEASE NOTE

Find this document and further product information on our website at www.epluse.com/sigma05.

General Information

- Sigma 05 is a host device (Modbus master) for up to three E+E sensing probes/measurement devices with RS485 interface and Modbus RTU protocol.
- This Quick Guide focuses on the Sigma 05 functionality with E+E plug-and-play probes. Please make sure to review the Sigma 05 user manual at www.epluse.com/sigma05 for manual setup and other Sigma 05 features.

Plug and Play Operation Setup

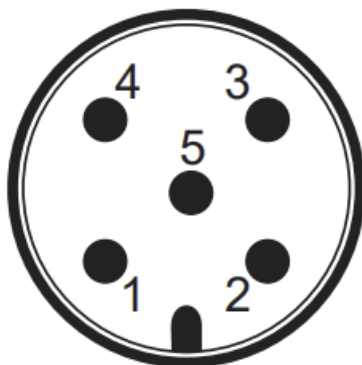
- With enabled automatic discovery function (default setting), Sigma 05 automatically recognizes E+E plug-and-play probes and their combinations according to the table below, see “Probe Combinations and Automatic Discovery”.
- Furthermore, the assignment of the measurands to the outputs and display, as well as the scaling of the outputs is performed automatically according to the table.
- This setup can be changed subsequently by the user as required, see “Manual Operation / Setup” below.

PLEASE NOTE

The Sigma 05 must be powered off while connecting or disconnecting probes

Manual Operation Setup

- For manual setup, connect Sigma 05 to a personal computer running PCS10 Product Configuration Software, free download from www.epluse.com/pcs10.
- Disable the automatic discovery function and proceed with assigning measurands to the outputs and display as well as with the output scaling. See the user manual at www.epluse.com/sigma05.



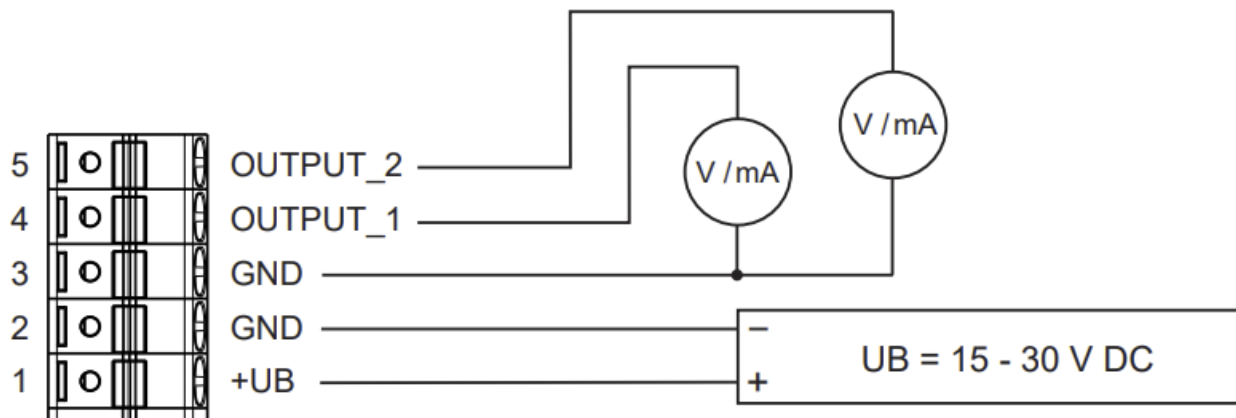
Pin number Function

1	Supply voltage ^{*)}
2	RS485 B (D-)
3	GND
4	RS485 A (D+)

- The supply voltage at the probe connector is always equal to the supply voltage applied to Sigma 05. <
- **Important:** Choose the Sigma 05 supply voltage (in the range 15 – 30 V DC) to match the probe supply requirements.

Voltage Supply and Outputs

- **WARNING** Incorrect installation, wiring or power supply may cause overheating and therefore personal injuries or property damage.
- For correct cabling of the device, always observe the presented wiring diagram for the product version used.
- The manufacturer cannot be held responsible for personal injuries or damage to property as a result of incorrect handling, installation, wiring, power supply and maintenance of the device.



Modbus Setup

	Factory settings	User selectable values (via PCS10)
Baud rate	9 600	9 600, 19 200, 38 400, 57 600, 76 800, 115 200
Data bits	8	8
Parity	Even	None, odd, even
Stop bits	1	1, 2
Modbus address	Sigma 05 has no Modbus address	

- The recommended settings for multiple devices in a Modbus RTU network are 9600, 8, Even, 1.
- The Sigma 05 represents 1 unit load in a Modbus network.

Approval

-  DNV (Det Norske Veritas) maritime type approval.
- For the scope of approval, please refer to the User Manual, chapter 9.4 DNV Type Approval.

Probe Combinations and Automatic Discovery

		Analogue Output 1		Analogue Output 2			Display line 1		Display line 2		Display line 3	
Probes	Unit	Scale SI	Scale US	Unit	Scale SI	Scale US	SI	US	SI	US	SI	US
1 EE072	RH	0...100 %	0...100 %	T	-40...80 °C	-40...176 °F	RH[%]	RH[%]	T[°C]	T[°F]		
2 EE074	T	-40...80 °C	-40...176 °F				T[°C]	T[°F]				
3 EE872-M13	CO2	Range of probe	Range of probe	RH	0...100 %	0...100 %	CO2 [ppm]	CO2 [ppm]	RH [%]	RH [%]	T[°C]	T[°F]
4 EE872-M10	CO2	Range of probe	Range of probe				CO2 [ppm]	CO2 [ppm]				
5 EE671	v	Range of probe	Range of probe				v[m/s]	v[ft/min]				
6 EE680	vn	Range of probe	Range of probe	T	0...50 °C	32...122 °F	vn[m/s]	vn[ft/min]	T[°C]	T[°F]		
7 HA010406	RH	0...100 %	0...100 %	T	-40...180 °C	-40...356 °F	RH[%]	RH[%]	T[°C]	T[°F]		
8 EE072	RH	0...100 %	0...100 %				RH[%]	RH[%]				

	EE07 4				T	-40...80 °C	-40...17 6 °F			T[° C]	T[°F]		
9	EE87 2-M1 3	CO2	Range of probe	Range of probe				CO ₂ [pp m]	CO ₂ [pp m]				
	EE07 2				RH	0...100 %	0...100 %			RH [%]	RH[%]	T[° C]	T[° F]
1 0	EE87 2-M1 0	CO2	Range of probe	Range of probe				CO ₂ [pp m]	CO ₂ [pp m]				
	EE07 2				RH	0...100 %	0...100 %			RH [%]	RH[%]	T[° C]	T[° F]
1 1	EE67 1	v	Range of probe	Range of probe				v[m/ s]	v[ft/ min]				
	EE07 2				RH	0...100 %	0...100 %			RH [%]	RH[%]	T[° C]	T[° F]
1 2	EE68 0	v	Range of probe	Range of probe				vn[m /s]	vn[ft /min]				
	EE07 2				RH	0...100 %	0...100 %			RH [%]	RH[%]	T[° C]	T[° F]
1 3	EE87 2-M1 3	CO2	Range of probe	Range of probe				CO ₂ [pp m]	CO ₂ [pp m]			RH [%]	RH [%]
	EE07 4				T	-40...80 °C	-40...17 6 °F			T[° C]	T[°F]		
1 4	EE87 2-M1 0	CO2	Range of probe	Range of probe				CO ₂ [pp m]	CO ₂ [pp m]				
	EE07 4				T	-40...80 °C	-40...17 6 °F			T[° C]	T[°F]		
1 5	EE67 1	v	Range of probe	Range of probe				v[m/ s]	v[ft/ min]				
	EE07 4				T	-40...80 °C	-40...17 6 °F			T[° C]	T[°F]		
1 6	EE68 0	vn	Range of probe	Range of probe				vn[m /s]	vn[ft /min]				
	EE07 4				T	-40...80 °C	-40...17 6 °F			T[° C]	T[°F]		
1	EE87 2-M1 3	CO2	Range of probe	Range of probe				CO ₂ [pp m]	CO ₂ [pp m]			T[° C]	T[° F]

7	EE67 1				v	Range of probe	Range of probe			v[m/ s]	v[ft/ min]		
1 8	EE87 2-M1 3	CO2	Range of probe	Range of probe				CO ₂ [pp m]	CO ₂ [pp m]			T[° C]	T[° F]
	EE68 0				vn	Range of probe	Range of probe			vn[m/ s]	vn[ft /min]		
1 9	EE87 2-M1 0	CO2	Range of probe	Range of probe				CO ₂ [pp m]	CO ₂ [pp m]				
	EE67 1				v	Range of probe	Range of probe			v[m/ s]	v[ft/ min]		
2 0	EE87 2-M1 0	CO2	Range of probe	Range of probe				CO ₂ [pp m]	CO ₂ [pp m]				
	EE68 0				vn	Range of probe	Range of probe			vn[m/ s]	vn[ft /min]	T[° C]	T[° F]
2 1	EE68 0	vn	Range of probe	Range of probe				vn[m /s]	vn[ft /min]			T[° C]	T[° F]
	EE67 1				v	Range of probe	Range of probe			v[m/ s]	v[ft/ min]		
22 HTP5 01		RH	0...100 %	0...100 %	T	-40...12 0 °C	-40...24 8 °F	RH[%]	RH[%]	T[° C]	T[°F]		
2 3	HTP5 01	RH	0...100 %	0...100 %				RH[%]	RH[%]	T[° C]	T[°F]		
	EE07 4				T	-40...12 0 °C	-40...24 8 °F					T[° C]	T[° F]
24 MOP 301		aw	0...1	0...1	T	-40...12 0 °C	-40...24 8 °F	aw[-]	aw[-]	T[° C]	T[°F]		
2 5	MOP 301	aw	0...1	0...1				aw[-]	aw[-]	T[° C]	T[°F]		
	EE07 4				T	-40...12 0 °C	-40...24 8 °F					T[° C]	T[° F]

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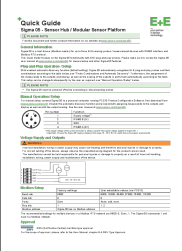
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- 195001



FAQ

- **Q: Can I connect more than three probes to the Sigma 05?**
 - **A:** No, the Sigma 05 supports a maximum of three probes.
- **Q: What happens if I use a supply voltage outside the recommended range?**
 - **A:** Using a supply voltage outside the range of 15 – 30 V DC may result in incorrect device operation or damage.
- **Q: How do I change the Modbus settings?**
 - **A:** Use the PCS10 Product Configuration Software to select user-selectable values for Modbus settings.

Documents / Resources

	E Plus E Sigma 05 Modular Sensor Platform [pdf] User Guide Sigma 05 Modular Sensor Platform, Sigma 05, Modular Sensor Platform, Sensor Platform
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References

- [E+E High-end sensor solutions for your applications | E+E Elektronik](#)
- [User Manual](#)

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