EPSON

Hardware Connection Manual between Waterproof/Dustproof Sensor and Host (USB/LAN)

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Table of Contents

Revision History

Rev. No.	Rev. Date	Page	Rev. Contents
20240703	2024/7/3	ALL	First edition

2. Overview

This document provides the connection methods for Seiko Epson's M-A552AR or M-A542VR with various equipment, and the reference design for the RS422 communication cable used.

It includes connection methods for M-A552AR or M-A542VR with various equipment, a list of required hardware, DIP switch settings, and diagrams for the RS422 communication cable.

3. How to Connect One Sensor via USB

This document introduces the method to use the RS422 communication cable (KD-002-XXX) to connect a single accelerometer or vibration sensor to StarTech's RS422-USB converter (ICUSB422). Connect the converter to the host (e.g., computer) via USB.

Power the M-A552AR or M-A542VR using an AC adapter. The recommended adapter is Adapter Technology ATS065T-P120.

3.1. Connection Example

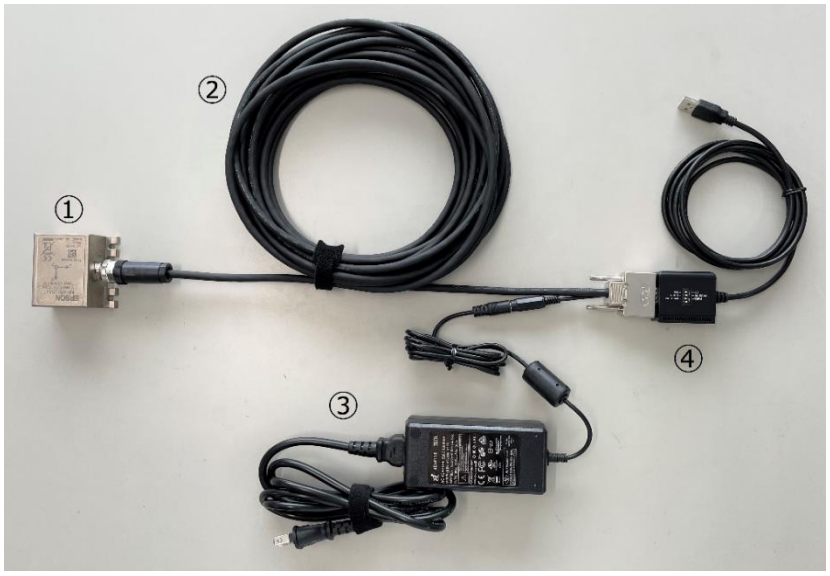


Figure 2-1

3.2. Hardware List

Table 2-1

Hardware	Model Number	Manufacturer	Remarks
Accelerometer/Vibration Sensor	M-A552AR10 / M-A542VR10	Seiko Epson	Figure 2-1, Item 1
RS422 Communication Cable	KD-002-XXX	-	Figure 2-1, Item 2
RS422-USB Conversion Hub	ICUSB422	StarTech	Figure 2-1, Item 3
AC Adapter	ATS065T-P120	AdapterTechnology	Figure 2-1, Item 4 （Recommended Products）

- KD-002-XXX is the communication cable connecting M-A552AR or M-A542VR to a standard RS422 D-sub 9pin connector. 'XXX' represents the cable length.
- AC adapter connection terminal specifications: plug size 5521, center positive.

3.3. DIP Switch Settings

Refer to Table 2-2 for the DIP switch settings of ICUSB422. For detailed instructions, consult the ICUSB422 manual.

Table 2-2

ICUSB422 Dip SW No	Setting
1	422
2	NO ECHO
3	TERM
4	-(Either)

4. How to Connect Multiple Sensors via USB

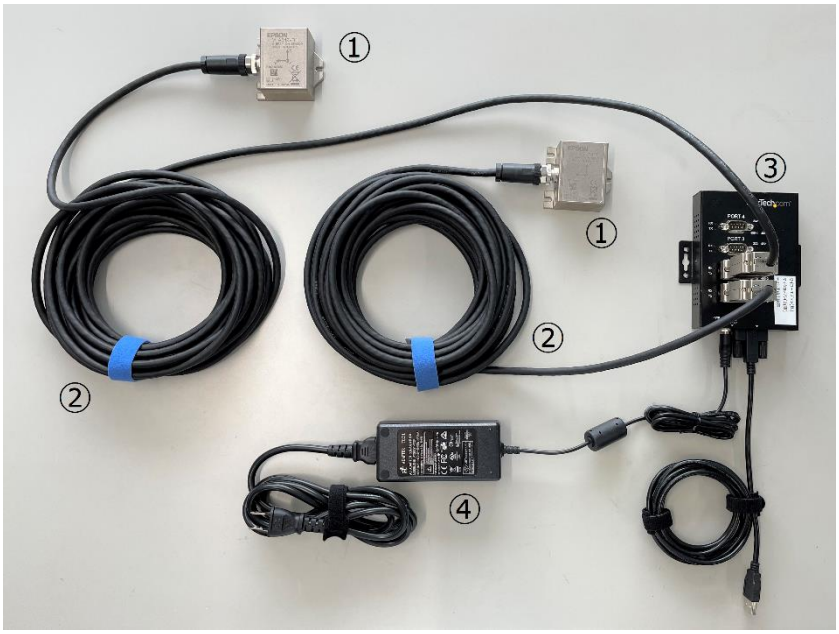
Prepare multiple setups as described in the single sensor connection method to connect multiple sensors. Alternatively, a hub can be used to simplify the process. The following describes the connection method using a hub.

Use the RS422 communication cable (KD-001-XXX) to connect multiple accelerometers or vibration sensors to StarTech's RS422-USB conversion hub (ICUSB234854I or ICUSB234858I). Connect the hub to the host (e.g., computer) via USB.

Power the M-A552AR or M-A542VR from the power output terminal of ICUSB234854I or ICUSB234858I. The recommended AC adapter is Adapter Technology ATS065T-P120.

4.1. Connection Example

Figure 3-1



- Figure 3-1 shows a configuration example for using two accelerometers/vibration sensors."

Table 3-1

Hardware	Model Number	Manufacturer	Remarks
Accelerometer/Vibration Sensor	M-A552AR10 / M-A542VR10	Seiko Epson	Figure 3-1, Item 1
RS422 Communication Cable	KD-001-XXX	-	Figure 3-1, Item 2
RS422-USB Conversion Hub	ICUSB234854I / ICUSB234858I	StarTech	Figure 3-1, Item 3
AC Adapter	ATS065T-P120	AdapterTechnology	Figure 3-1, Item 4 （Recommended Product）

- KD-001-XXX is the communication cable connecting M-A552AR or M-A542VR to StarTech products ICUSB234854I or ICUSB234858I. 'XXX' represents the cable length.

4.2. Jumper Group Settings

Table 3-2 provides the necessary configurations for the jumper group settings of each port on ICUSB234854I / ICUSB234858I. For detailed instructions, consult the ICUSB234854I / ICUSB234858I manual.

Table 3-2

ICUSB234854I / ICUSB234858I Jumper Group	Setting
Mode (COM Standard)	RS-422
Power (Pin 9)	AUX
Termination Resistor	Both RX+/RX- and TX+/TX- termination resistors enabled (standard termination for RS-422, RS-485 4-wire)

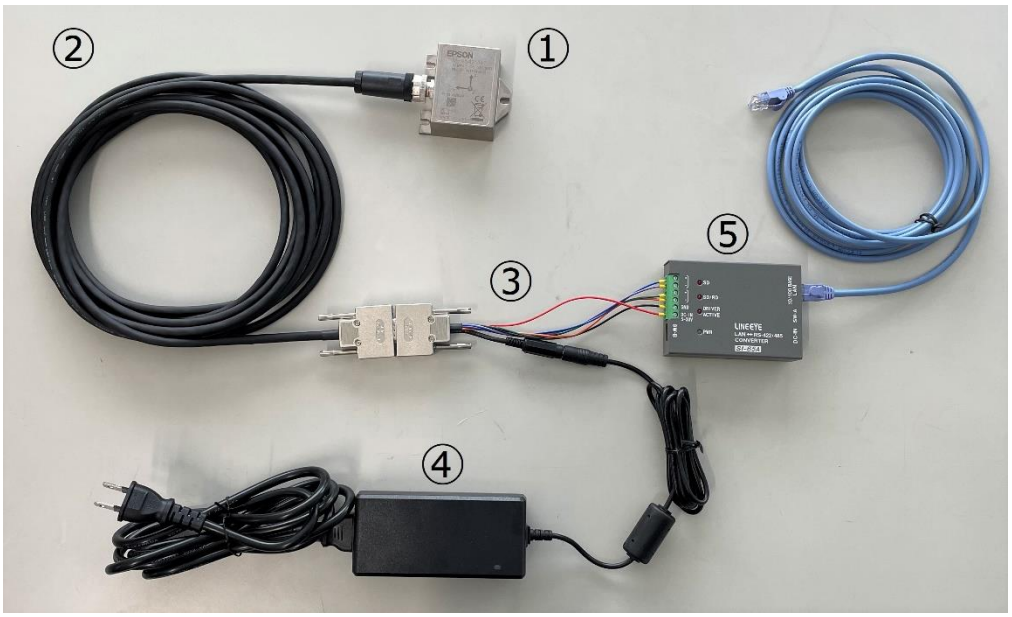
5. How to Connect Sensors via LAN

Use the RS422 communication cable (KD-001-XXX, KD-003-XXX) to connect accelerometers or vibration sensors to LINE-EYE's RS422-LAN converter (SI-65A). Connect the converter to the host (e.g., computer) via LAN.

Power the M-A552AR or M-A542VR using an AC adapter. The recommended adapter is Adapter Technology ATS065T-P120.

5.1. Connection Example

Figure 4-1



5.2. Hardware List

Table 4-1

Hardware	Model Number	Manufacturer	Remarks
Accelerometer/Vibration Sensor	M-A552AR10 / M-A542VR10	Seiko Epson	Figure 4-1, Item 1
RS422 Communication Cable	KD-001-XXX	-	Figure 4-1, Item 2
RS422 Communication Cable	KD-003-XXX	-	Figure 4-1, Item 3
RS422-LAN Converter	SI-65A	LINE-EYE	Figure 4-1, Item 5
AC Adapter	ATS065T-P120	AdapterTechnology	Figure 4-1, Item 4 （Recommended Product）

- KD-003-XXX is the communication cable connecting KD-001-XXX to LINE-EYE's SI-65A.
- AC adapter connection terminal specifications: plug size 5521, center positive. 'XXX' represents the cable length.

5.3. Connection with SI-65A

Refer to Table 4-2 for the connection between KD-003-XXX and SI-65A.

Table 4-2

SI-65A Terminal Name	Cable Color
SD +	Blue
SD -	Purple
RD +	Green
RD -	Orange
GND	Black
DC-IN	Red

5.4. DIP Switch Settings

Refer to the table below for the DIP switch settings of SI-65A. For detailed instructions, consult the SI-65A manual.

Table 4-3

SI-65A Dip SW No	Setting
SW-A No.1	ON
SW-A No.2	ON
SW-A No.3	ON
SW-A No.4	OFF
SW-B No.1	OFF
SW-B No.2	OFF
SW-B No.3	ON
SW-B No.4	ON

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