MITSUBISHI ELECTRIC

TECHNICAL BULLETIN

BCN-E2113-0034-G

iQ Monozukuri Rotary Machine Vibration Diagnosis Tested Device Information

■Date of Issue

February 2019 (Ver.G: September 2022)

■Relevant Models

AP10-VID001AA-MA, AP10-VID001AA-MB, AP10-VID001AA-MC, AP10-VID001AA-MD, AP10-VID001AA-ME, AP10-VID001AA-MF

Thank you for your patronage to Mitsubishi Electric FA Application Package.

This technical bulletin introduces devices whose operations with the Rotary Machine Vibration Diagnosis application package have been confirmed by Mitsubishi Electric.

When using each product, refer to the product manual. Contact the manufacturer for production status of each product.

CONTENTS

1 TERMS

Unless otherwise specified, this technical bulletin uses the following terms.

Term	Description
Recommended product	A product that meets the Mitsubishi Electric standards, whose operation has been confirmed by Mitsubishi Electric. Make sure to use a recommended product in accordance with its specifications (standards).
Applicable product	A product that meets the interface specifications for Mitsubishi Electric application packages. Note that it is not tested by Mitsubishi Electric. Make sure to use an applicable product in accordance with its specifications (standards). Some products may not be applicable due to specification changes by the manufacturer depending on the manufacturing date. Examine the applicable product to consider using it.
Discontinued product	A product that had been introduced as the applicable product in manuals or technical bulletins, and that is no more available due to discontinuation of production or any other reasons.

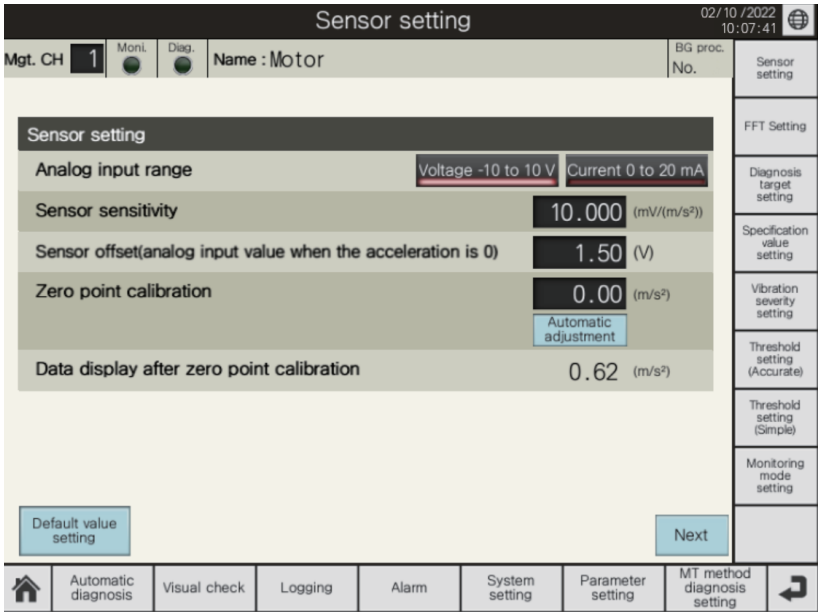
2 VIBRATION SENSOR

The vibration sensors only for detecting the vibration by acceleration are available.

Precautions

The iQ Monozukuri Rotary Machine Vibration Diagnosis application package can be used to adjust input values from vibration sensors detecting no vibration to zero acceleration with the zero point calibration value.

- The manual input range for the zero point calibration value is -50m/s^2 or higher and 50m/s^{2}or lower.
- When the zero point calibration value is set by automatic adjustment, a value outside the above input range may be input.
- If the zero point calibration value is outside the above input range, the cause may be a vibration sensor failure or cable disconnection, but it may also the specification of the vibration sensor. Please confirm the specification with the manufacturer.



2.1 Recommended Products

Manufacturer	Name	Model	Connection example	Contact
TOKIN Corporation	Acceleration Sensor	VS-JV10A	☞ Page 11 Direct connection	www.tokin.com
	Sensor Connection Cable	VSC-□□0PURS4-M8D-01 (□□ indicates the cable length [m].)		
	Acceleration Sensor Connection Unit*1	VB-2405B	☞ Page 12 When using the vibration sensor connection unit	
SHINKAWA Electric Co., Ltd.	Acceleration Sensor	CA-L02	☞ Page 13 Direct connection	www.shinkawa.co.jp/eng/products/ca
	Sensor Connection Cable	CW-L02S-□□-△ (□□ indicates the cable length [m]. △ indicates the presence or absence of a flexible armor.)		
ifm efector, inc.	Acceleration Sensor	VSA004	☞ Page 14 Direct connection	www.ifm.com
		VSA005	Same as VSA004 (☞ Page 14 Direct connection)	
PCB Piezotronics, Inc.	Acceleration Sensor	607M83	☞ Page 16 607M83	www.pcb.com
		603M113	☞ Page 17 603M113	
		608M50	☞ Page 18 608M50	
		608M83	☞ Page 19 608M83	
	Sensor Connection Cable	059QF□□□BZ*2 (□□□ indicates the cable length [ft].)	☞ Page 17 603M113	
		M059QF□□□BZ*2 (□□□ indicates the cable length [m].)		
TE Connectivity Ltd.	Acceleration Sensor	805M4-0020-01	☞ Page 24 Direct connection	Authorized Distributor: TACHIBANA ELETECH www.tachibana.co.jp/contact/mail/corp.php?contact_kind=6
Fuji Ceramics Corporation.	Acceleration Sensor	AF12C-5V	☞ Page 25 Direct connection	www.fujicera.co.jp
	Sensor Connection Cable	AF12C-5V-01-□ (□ indicates the cable length [m].)		
IMV CORPORATION	Acceleration Sensor	VP-8021C	☞ Page 26 VP-8021C	Authorized Distributor: Macnica Cytech Limited www.cytechglobal.com/form/contact
		VP-8021A	☞ Page 27 VP-8021A	
		VP-100	☞ Page 28 VP-100	
		HS-100I	☞ Page 29 HS-100I	
	Sensor Connection Cable	HB-8021A-ROD05M*3,*4	☞ Page 27 VP-8021A	
		HR-8021A-ROD05M*3		
		MS-AC415-□ (□ indicates the cable length [m].)	☞ Page 29 HS-100I	

*1 24VDC power supply can be used by using an optional connection unit.
*2 It is a dedicated sensor connection cable for 603M113.
*3 It is a dedicated sensor connection cable for VP-8021A.
*4 One cable is included with the acceleration sensor.

2.2 Applicable Products

Manufacturer	Name	Model	Connection example	Contact
ifm efector, inc.	Acceleration Sensor	VSA006	Same as VSA004 (☞ Page 14 Direct connection)	www.ifm.com
		VSA001	☞ Page 15 VSA001	
	Sensor Connection Cable	ADO△H040MSS□□□□C04*1 (□□□□ indicates the cable length [m]. △ indicates the connector type.)		
TE Connectivity Ltd.	Acceleration Sensor	805M4-0010-01	Same as 805M4-0020-01 (☞ Page 24 Direct connection)	Authorized Distributor: TACHIBANA ELETECH www.tachibana.co.jp/contact/mail/corp.php?contact_kind=6
		805M4-0050-01		
		805M4-0100-01		
		805M4-0200-01		
		805M4-0500-01		
PCB Piezotronics, Inc.	Acceleration Sensor	EX(M)607A11	☞ Page 20 EX(M)607A11	www.pcb.com
		EX(M)623C00	☞ Page 22 EX(M)623C00	
		EX(M)628F01	☞ Page 23 EX(M)628F01	
	Sensor Connection Cable	508BR010BZ	☞ Page 22 EX(M)623C00 ☞ Page 23 EX(M)628F01	

*1 It is a dedicated sensor connection cable for VSA001.

2.3 Sensor Specifications

TOKIN Corporation

Model	VS-JV10A
Weight	19[g]
Power supply voltage*1	5[V]
Sensor output	0 to 3.0[V] (Voltage output)
Sensor sensitivity	10.0[mV/ m/s^2] (98[mV/g])
Sensor offset	1.5[V]
Frequency range	10 to 15,000[Hz] (±3[dB])
Measurement range	±10[g]
Protective structure (Dust-proof and waterproof)	IP67
Operating ambient temperature	-25 to 85 [℃]
Sensor connection cable length*2	3, 10, 20[m]

*1 24VDC power supply can be used by using an optional connection unit.
*2 The cable length can be extended up to 20m. (For a cable longer than 20m, consult the sensor manufacturer.)

SHINKAWA Electric Co., Ltd.

Model	CA-L02
Weight	90[g]
Power supply voltage	5[V]
Sensor output	0.25 to 2.75[V] (Voltage output)
Sensor sensitivity	5.1[mV/ m/s^2] (50[mV/g])
Sensor offset	1.5[V]
Frequency range	0.3 to 15,000[Hz] (±3[dB])
Measurement range	±25[g]
Protective structure (Dust-proof and waterproof)	IP67
Operating ambient temperature	-25 to 120 [℃]
Sensor connection cable length*1	4.8, 9.6[m]

*1 The cable length can be extended up to 50m. (Cable is not included.)
The maximum cable length depends on the wiring environment. (Take measures such as installing cable through a duct.)

ifm efector, inc.

Model	VSA004	VSA005	VSA006
Weight	13[g]		
Power supply voltage	9[V]		
Sensor output	0 to 10[mA] (Current output)		
Sensor sensitivity	14.5[μA/ m/s²] (142[μA/g])		
Sensor offset	5[mA]		
Frequency range	0 to 10,000[Hz] (±3[dB])		
Measurement range	±25[g]		
Protective structure (Dust-proof and waterproof)	IP67		
Operating ambient temperature	-20 to 80[℃]		-30 to 85 [℃]
Cable length*1	3[m]	10[m]	6[m]

Model	VSA001
Weight	50[g]
Power supply voltage	9[V]
Sensor output	0 to 10[mA] (Current output)
Sensor sensitivity	14.5[μA/ m/s²](142[μA/g])
Sensor offset	5[mA]
Frequency range	0 to 6000[Hz]
Measurement range	±25[g]
Protective structure (Dust-proof and waterproof)*2	IP67, IP68, IP69K
Operating ambient temperature	-30 to 125[℃]
Sensor connection cable length*1,*3	2, 5, 10, 15, 20[m]

*1 The cable length can be extended up to 250m. (Cable is not included.)
*2 The structure differs depending on the protective structure of the sensor connection cable.
*3 Angled connector cable can be adaptable for 15m or 20m long cable used.

PCB Piezotronics, Inc.

Model	607M83	
Weight	31[g]	
Power supply voltage	5[V]	10[V]
Sensor output	1.0 to 4.0[V] (Voltage output)	1.0 to 9.0[V] (Voltage output)
Sensor sensitivity	10.2[mV/ m/s²] (100[mV/g])	
Sensor offset	2.5[V]	5.0[V]
Frequency range	1.5 to 10,000[Hz] (±3[dB])	
Measurement range	±15[g]	±40[g]
Protective structure (Dust-proof and waterproof)	IP68	
Operating ambient temperature	-54 to 121 [℃]	
Cable length*1	3[m]	

Model	603M113	
Weight	56.7[g]	
Power supply voltage	5[V]	10[V]
Sensor output	1.0 to 4.0[V] (Voltage output)	1.0 to 9.0[V] (Voltage output)
Sensor sensitivity	10.2[mV/ m/s²] (100[mV/g])	
Sensor offset	2.5[V]	5.0[V]
Frequency range	1.6 to 10,000[Hz] (±3[dB])	
Measurement range	±15[g]	±40[g]
Protective structure (Dust-proof and waterproof)	IP68	
Operating ambient temperature	-54 to 121 [℃]	
Sensor connection cable length*1	3[m]	

Model	608M50		608M83*2	
Weight	99.3[g]		6.8[g]	
Power supply voltage	5[V]	10[V]	5[V]	10[V]
Sensor output	1.0 to 4.0[V] (Voltage output)	1.0 to 9.0[V] (Voltage output)	1.0 to 4.0[V] (Voltage output)	1.0 to 9.0[V] (Voltage output)
Sensor sensitivity	10.2[mV/ m/s²] (100[mV/g])		10.2[mV/ m/s²] (100[mV/g])	
Sensor offset	2.5[V]	5.0[V]	2.5[V]	5.0[V]
Frequency range	1.5 to 10,000[Hz] (±3[dB])		1.6 to 10,000[Hz] (±3[dB])	
Measurement range	±15[g]	±40[g]	±15[g]	±40[g]
Protective structure (Dust-proof and waterproof)	IP68		None	
Operating ambient temperature	-54 to 121 [℃]		-54 to 121 [℃]	
Cable length*1	3[m]		3[m]	

Model	EX(M)607A11
Weight	31[g]
Power supply voltage*3	—
Sensor output*4	-5 to +5[V] (Voltage output)
Sensor sensitivity	10.2[mV/ m/s²](100[mV/g])
Sensor offset*4	0[V]
Frequency range	0.5 to 10,000[Hz] (±3[dB])
Measurement range	±50[g]
Protective structure (Dust-proof and waterproof)	IP68
Explosion-proof structure*5	Intrinsically safe explosion-proof structure
Explosion-proof performance*5	Ex ia IIC T4 Ga
Operating ambient temperature	-54 to 121 [℃]
Cable length*6	3[m]

Model	EX(M)623C00	EX(M)628F01
Weight	51[g]	94[g]
Power supply voltage*3	—	—
Sensor output*4	-5 to +5[V] (Voltage output)	-5 to +5[V] (Voltage output)
Sensor sensitivity	1.0[mV/ m/s²] (10[mV/g])	10.2[mV/ m/s²](100[mV/g])
Sensor offset*4	0[V]	0[V]
Frequency range	0.8 to 15,000[Hz] (±3[dB])	0.33 to 12,000[Hz] (±3[dB])
Measurement range	±500[g]	±50[g]
Protective structure (Dust-proof and waterproof)	IP68	IP68
Explosion-proof structure*5	Intrinsically safe explosion-proof structure	Intrinsically safe explosion-proof structure
Explosion-proof performance*5	Ex ia IIC T4 Ga	Ex ia IIC T4 Ga
Operating ambient temperature	-54 to 121 [℃]	-54 to 121 [℃]
Sensor connection cable length*6	3[m]	3[m]

*1 The cable length can be specified when ordering.
(In order to ensure the high-frequency characteristics of the sensor specifications, it is recommended that the length be up to around 80m.)
*2 Be careful to use this sensor because it is small and its cable is thin.
*3 It is supplied from the signal conditioner (682A02).
*4 The value via the signal conditioner (682A02).
*5 For details on explosion protection, consult the manufacturer.
*6 The total cable length can be extended up to 30m.

TE Connectivity Ltd.

Model	805M4-0020-01	805M4-0010-01	805M4-0050-01
Weight	5[g]		
Power supply voltage	5[V]		
Sensor output	0.5 to 4.5[V] (Voltage output)		
Sensor sensitivity	10.2[mV/ m/s^2] (100[mV/g])	20.4[mV/ m/s^2] (200[mV/g])	4.1[mV/ m/s^2] (40[mV/g])
Sensor offset	2.5[V]		
Frequency range	0.4 to 10,000[Hz] (±3[dB])		
Measurement range	±20[g]	±10[g]	±50[g]
Protective structure (Dust-proof and waterproof)	None (Up to IP67 can be met through an individual arrangement.)		
Operating ambient temperature	-40 to 100[℃]		
Cable length*1	3[m]		

Model	805M4-0100-01	805M4-0200-01	805M4-0500-01
Weight	5[g]		
Power supply voltage	5[V]		
Sensor output	0.5 to 4.5[V] (Voltage output)		
Sensor sensitivity	2[mV/ m/s^2] (20[mV/g])	1[mV/ m/s^2] (10[mV/g])	0.4[mV/ m/s^2] (4[mV/g])
Sensor offset	2.5[V]		
Frequency range	0.4 to 12,000[Hz] (±3[dB])		
Measurement range	±100[g]	±200[g]	±500[g]
Protective structure (Dust-proof and waterproof)	None (Up to IP67 can be met through an individual arrangement.)		
Operating ambient temperature	-40 to 100[℃]		
Cable length	3[m]		

*1 The cable length can be extended up to 10m. (For a cable longer than 10m, consult the sensor manufacturer.)

Fuji Ceramics Corporation.

Model	AF12C-5V
Weight	52[g]
Power supply voltage	5.0[V]
Sensor output	1.5 to 3.5[V] (Voltage output)
Sensor sensitivity	10[mV/ m/s^2] (98[mV/g])
Sensor offset	2.5[V]
Frequency range	5 to 10,000[Hz] (±3[dB])
Measurement range	±10.2[g]
Protective structure (Dust-proof and waterproof)	IP67
Operating ambient temperature	-20 to 80[℃]
Sensor connection cable length*1	3[m]

*1 The cable length can be extended up to 30m. (For a cable longer than 30m, consult the sensor manufacturer.)

IMV CORPORATION

Model	VP-8021C
Weight	15[g]
Power supply voltage	7 to 24[V] (12[V] is recommended)
Sensor output	0 to 5[V] (Voltage output)
Sensor sensitivity	3.9[mV/ m/s²]
Sensor offset	2.5[V]
Frequency range	10 to 8,000[Hz] (±3dB)
Measurement range	±50[g]
Protective structure (Dust-proof and waterproof)	IP67
Operating ambient temperature	-30 to 120[℃]
Cable length*1	3[m]

Model	VP-8021A	VP-100
Weight	15[g]	125[g]
Power supply voltage*2	—	—
Sensor output*3	-2 to +2[V] (Voltage output)	-8 to 8[V] (Voltage output)
Sensor sensitivity	3.9[mV/ m/s²] ±5%	100[mV/g]
Sensor offset*3	0[V]	0[V]
Frequency range	10 to 8,000[Hz] (±3dB)	2 to 10,000[Hz](±10%)
Measurement range	±50[g]	±80[g]
Protective structure (Dust-proof and waterproof)	None (Up to IP67 can be met through an individual arrangement.)	IP65
Operating ambient temperature	-30 to 120[℃]	-55 to 140[℃]
Sensor connection cable length*4	5[m]	—
Cable length*5	—	5[m]

Model	HS-100I
Weight	106[g]
Power supply voltage*2	—
Sensor output*3	-8 to 8[V] (Voltage output)
Sensor sensitivity	50[mV/G]±10%at80Hz
Sensor offset*3	0[V]
Frequency range	2 to 10,000[Hz](±10%)
Measurement range	±160[g]
Protective structure (Dust-proof and waterproof)	IP65
Explosion-proof structure*6	Intrinsically safe explosion-proof structure
Explosion-proof performance*6	Ex ia ⅡC T4 Ga
Operating ambient temperature	-20 to 80[℃]
Sensor connection cable length*7	5[m]

*1 The cable length can be extended up to 40m. (The cable is not provided and needs to be prepared. For details on routing the extended cable, consult the manufacturer.)
*2 It is supplied from the pickup output module (CC-551).
*3 The value via the pickup output module (CC-551).
*4 The total cable length can be extended up to 100m. (For details on routing the extended cable, consult the manufacturer.)
*5 The total cable length can be extended up to 200m. (For details on routing the extended cable, consult the manufacturer.)
*6 For details on explosion protection, consult the manufacturer.
*7 The cable length from the sensor to safe barrier can be extended up to 200m. (The sensor and safe barrier cannot be relayed. For details on routing the extended cable, consult the manufacturer.)

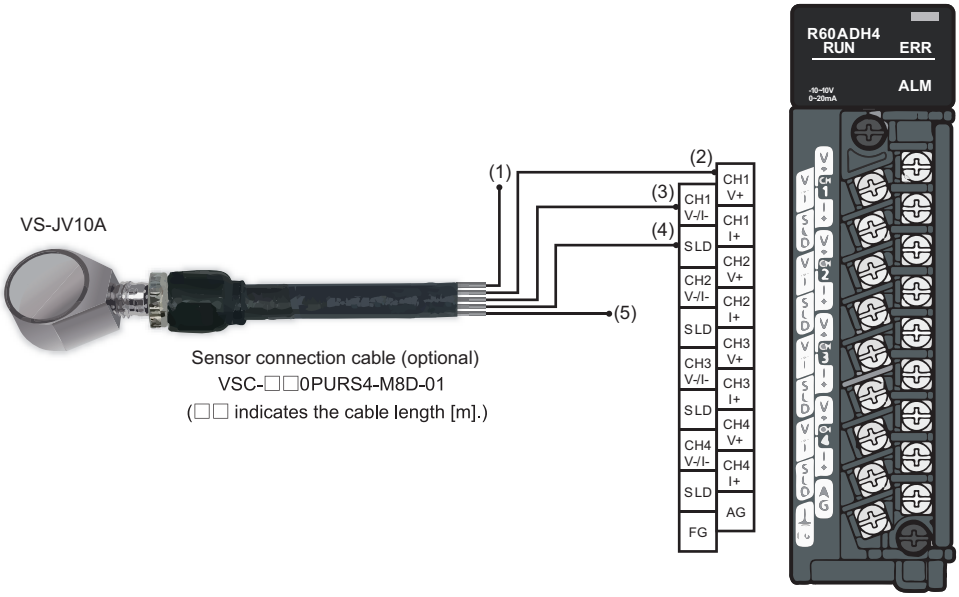
2.4 Connection Method

TOKIN Corporation

Direct connection

The following shows the sensor side cable specifications and a wiring example (for voltage input).

No.	Sensor side cable	Function	Destination	
(1)	Brown	Vin (Power supply + Input)	Power supply +	5 V DC
(2)	White	Vout (Sensor output)	Terminal on the high-speed analog input module	[V+] of each channel
(3)	Blue	SG (Signal ground)	Terminal on the high-speed analog input module	[V-/I-] of each channel
			Power supply -	
(4)	Shield	Connection with the sensor case	Terminal on the high-speed analog input module	[SLD] of each channel
(5)	Black	N/C (No connection in the sensor)	No (Curing with the terminal insulation tape)	

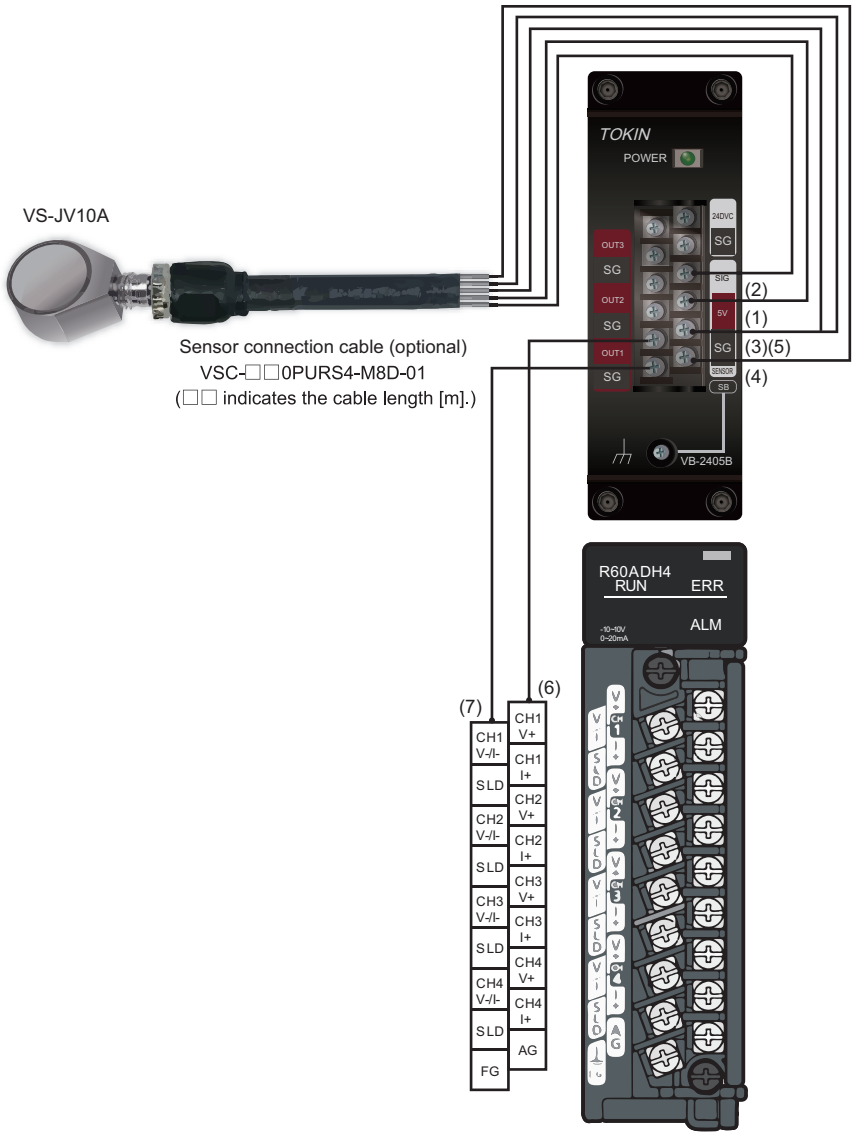


When using the vibration sensor connection unit

The following shows a wiring example (for voltage input) with the vibration sensor connection unit.

No.	Sensor side cable	Function	Destination	
(1)	Brown	Vin (Power supply + Input)	Terminal on the vibration sensor connection unit	5V
(2)	White	Vout (Sensor output)		SIG
(3)	Blue	SG (Signal ground)		SG
(4)	Shield	Connection with the sensor case		SB
(5)	Black	N/C (No connection in the sensor)		SG

No.	Terminal on the vibration sensor connection unit	Destination	
(6)	OUT1	Terminal on the high-speed analog input module	[V+] of each channel
(7)	SG		[V-/I-] of each channel

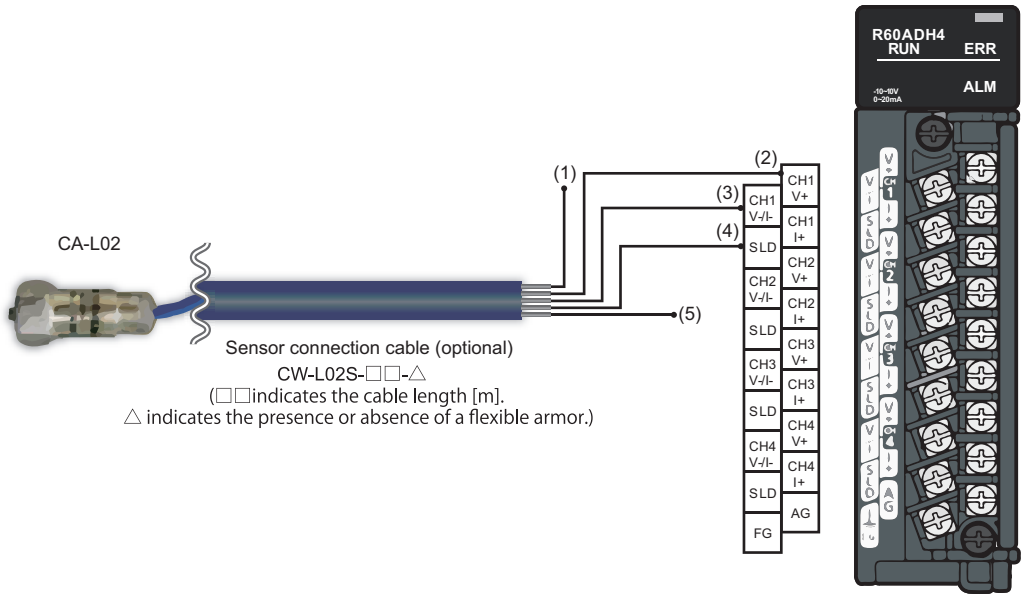


SHINKAWA Electric Co., Ltd.

Direct connection

The following shows the sensor side cable specifications and a wiring example (for voltage input).

No.	Sensor side cable	Function	Destination	
(1)	Green	Power supply	Power supply +	5 V DC
(2)	White	Acceleration signal	Terminal on the high-speed analog input module	[V+] of each channel
(3)	Red	0V	Terminal on the high-speed analog input module	[V-/I-] of each channel
			Power supply -	
(4)	Shield	Shield	Terminal on the high-speed analog input module	[SLD] of each channel
(5)	Black	Not used	No (Curing with the terminal insulation tape)	



Sensor connection cable (optional)
CW-L02S-□□-△
(□□indicates the cable length [m].
△ indicates the presence or absence of a flexible armor.)

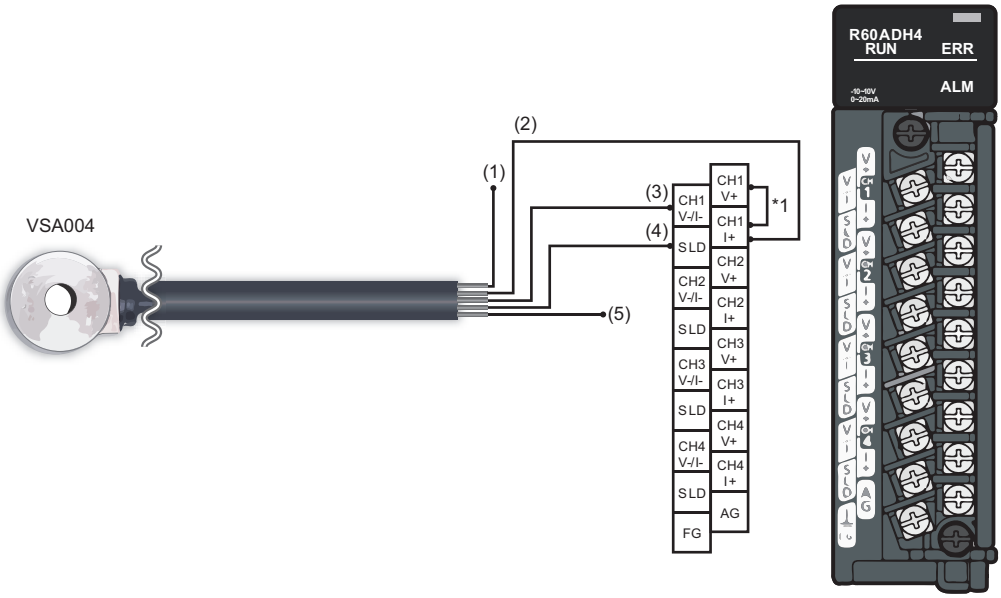
ifm efector, inc.

Direct connection

The following shows the sensor side cable specifications and a wiring example (for current input).

■VSA004, VSA005, and VSA006

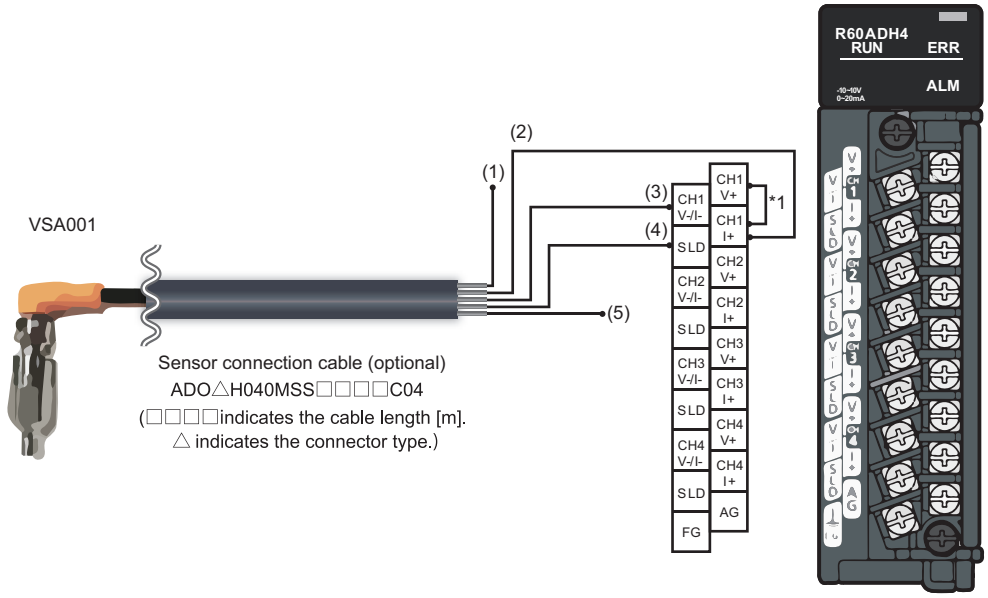
No.	Sensor side cable	Function	Destination	
(1)	Brown	L+	Power supply +	9 V DC
(2)	White	Out	Terminal on the high-speed analog input module	[I+] of each channel
(3)	Blue	GND	Terminal on the high-speed analog input module	[V-/I-] of each channel
			Power supply -	
(4)	Shield	Shielded wire	Terminal on the high-speed analog input module	[SLD] of each channel
(5)	Black	test	No (Curing with the terminal insulation tape)	



*1 For current input, always connect the [V+] and [I+] terminals.

■VSA001

No.	Sensor side cable	Function	Destination	
(1)	Brown	L+	Power supply +	DC9V
(2)	White	Out	Terminal on the high-speed analog input module	[I+] of each channel
(3)	Blue	GND	Terminal on the high-speed analog input module	[V-/I-] of each channel
			Power supply -	
(4)	Shield	Shielded wire	Terminal on the high-speed analog input module	[SLD] of each channel
(5)	Black	test	No (Curing with the terminal insulation tape)	



*1 For current input, always connect the [V+] and [I+] terminals.

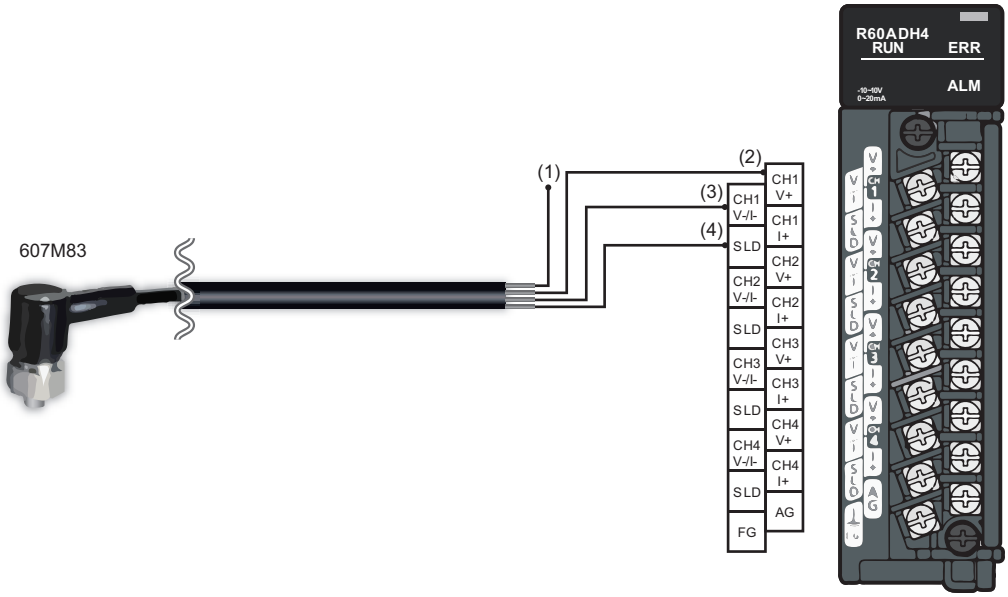
PCB Piezotronics, Inc.

Direct connection

The following shows the sensor side cable specifications and a wiring example (for voltage input).

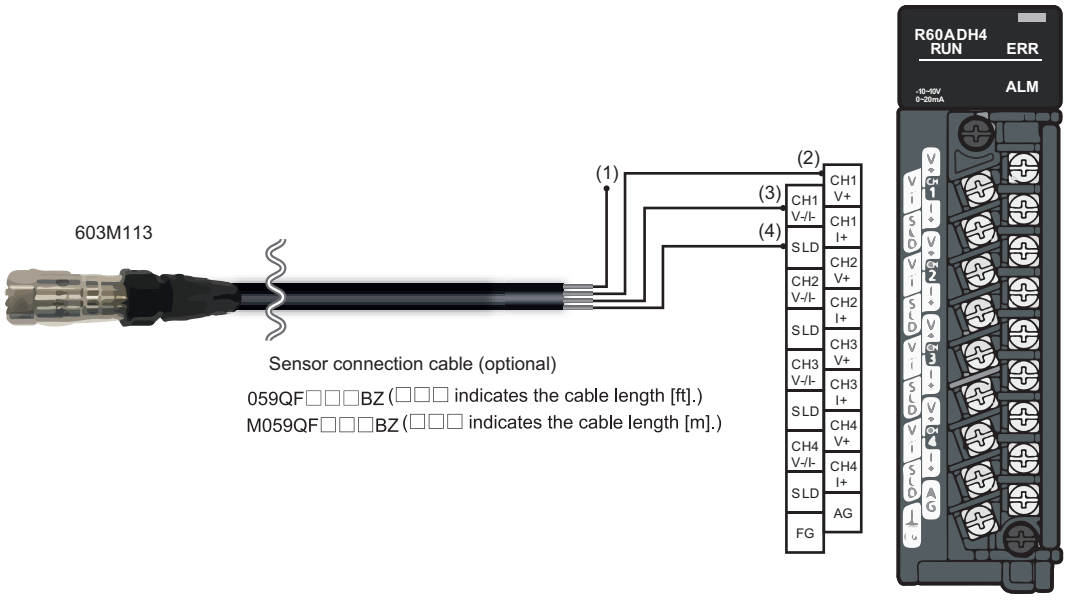
■607M83

No.	Sensor side cable	Function	Destination	
(1)	Red	Power	Power supply +	5 to 10 V DC
(2)	White	Output	Terminal on the high-speed analog input module	[V+] of each channel
(3)	Black	Ground	Terminal on the high-speed analog input module	[V-/I-] of each channel
			Power supply -	
(4)	Shield	Shield	Terminal on the high-speed analog input module	[SLD] of each channel



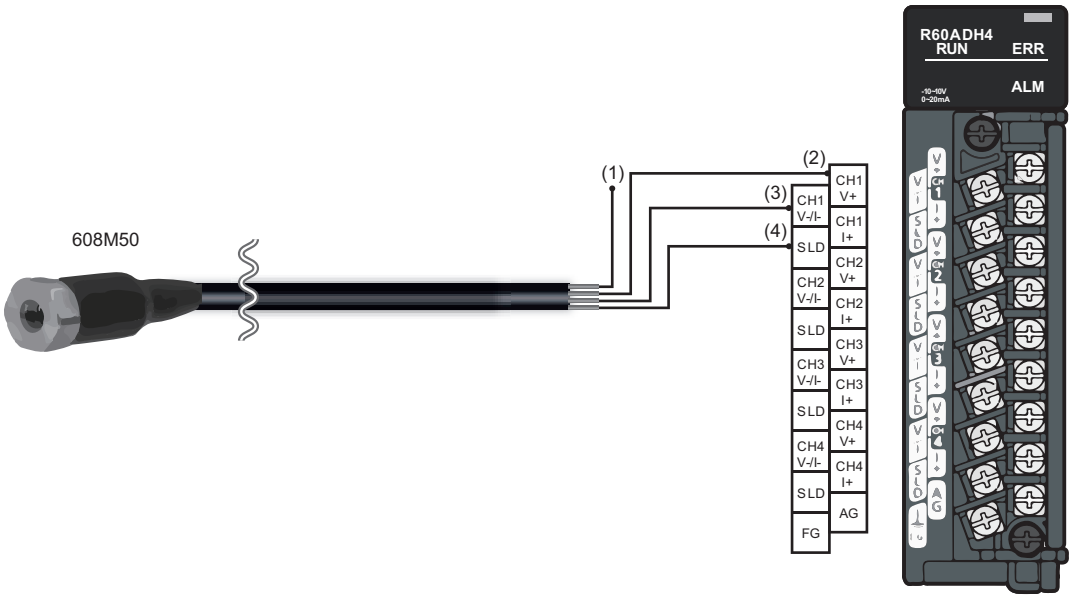
■603M113

No.	Sensor side cable	Function	Destination	
(1)	Red	Power	Power supply +	5 to 10 V DC
(2)	White	Output	Terminal on the high-speed analog input module	[V+] of each channel
(3)	Black	Ground	Terminal on the high-speed analog input module	[V-/I-] of each channel
	Green		Power supply -	
(4)	Shield	Shield	Terminal on the high-speed analog input module	[SLD] of each channel



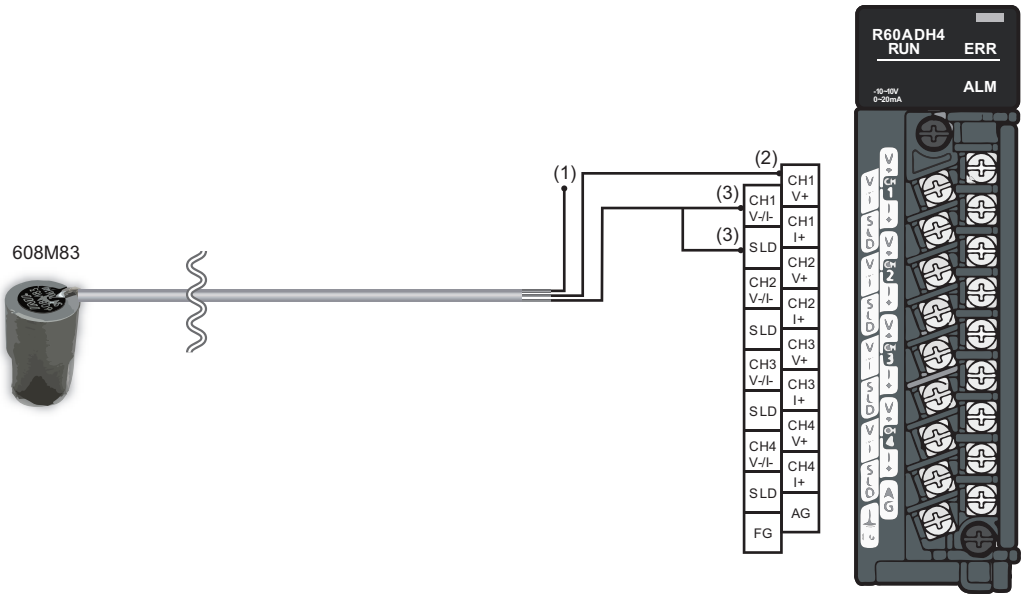
■608M50

No.	Sensor side cable	Function	Destination	
(1)	Red	Power	Power supply +	5 to 10 V DC
(2)	White	Signal	Terminal on the high-speed analog input module	[V+] of each channel
(3)	Black	Ground	Terminal on the high-speed analog input module	[V-/I-] of each channel
			Power supply -	
(4)	Shield	Shield	Terminal on the high-speed analog input module	[SLD] of each channel



■608M83

No.	Sensor side cable	Function	Destination	
(1)	Black	Power	Power supply +	5 to 10 V DC
(2)	White	Signal	Terminal on the high-speed analog input module	[V+] of each channel
(3)	Shield	Ground	Terminal on the high-speed analog input module	[V-/I-] of each channel
			Power supply -	
		Shield	Terminal on the high-speed analog input module	[SLD] of each channel



Connection via signal conditioner

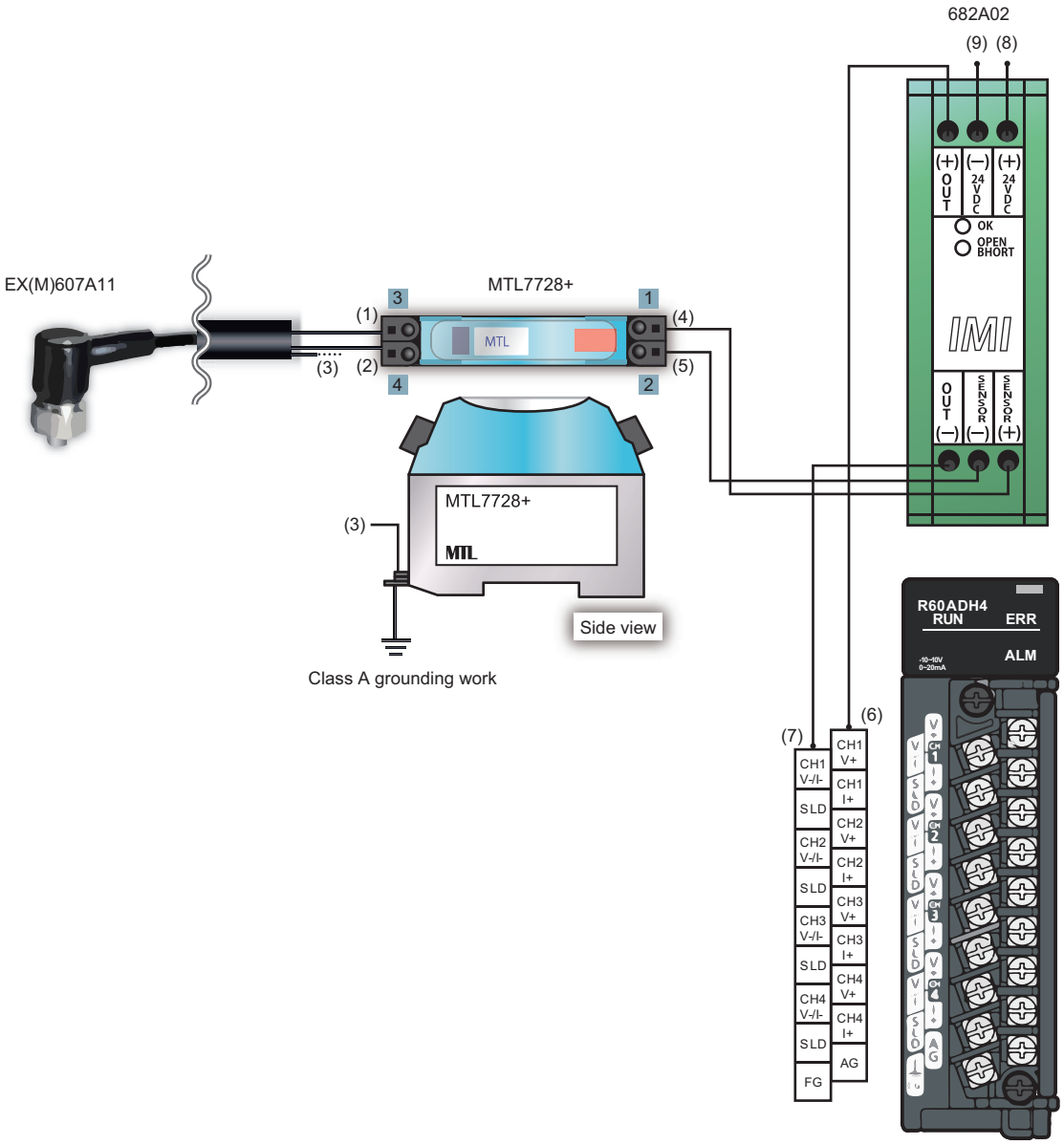
The following shows the specifications of the sensor side cables and other components and an example of wiring via the signal conditioner (for voltage input).

■EX(M)607A11

No.	Sensor side cable	Function	Destination	
(1)	White	Signal	Terminal on the safe barrier (MTL7728+)	SIG
(2)	Black	Ground		COM
(3)	Shield	Shield		Grounding terminal (shield)

No.	Terminal on the safe barrier (MTL7728+)	Destination	
(4)	SIG	Terminal on the signal conditioner (682A02)	SENSOR(+)
(5)	COM		SENSOR(-)

No.	Terminal on the signal conditioner (682A02)	Destination	
(6)	OUT(+)	Terminal on the high-speed analog input module	[V+] of each channel
(7)	OUT(-)		[V-/I-] of each channel
(8)	24VDC(+)	Power supply +	24V
(9)	24VDC(-)	Power supply -	24G[0V]

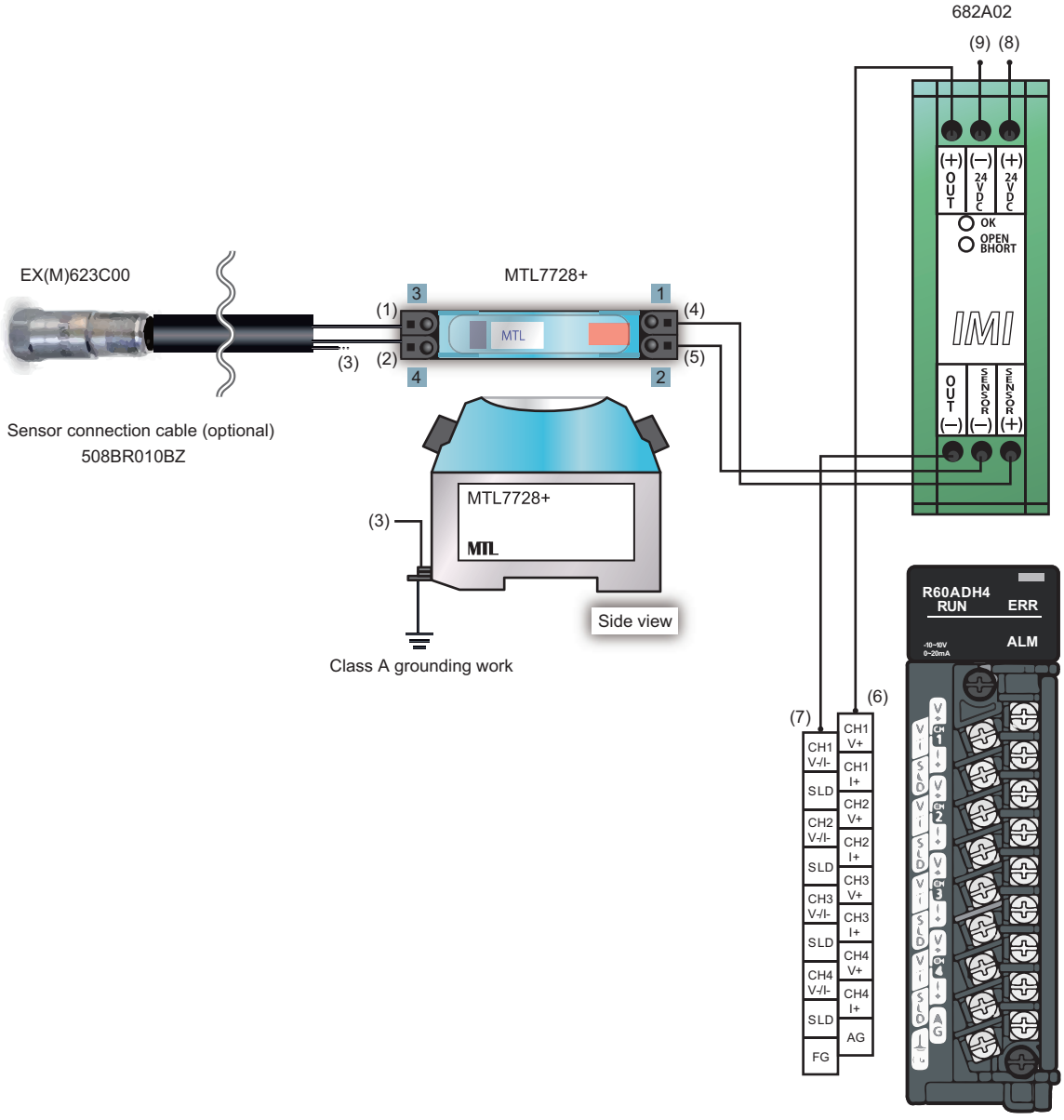

682A02
(9) (8)
(+) OUT
(−) 24 V D C
(+) 24 V D C
OK
OPEN
SHORT
IMI
OUT (−)
SUPPLY (−)
SUPPLY (+)
EX(M)607A11
MTL7728+
(1)
(2)
(3)
(4)
(5)
3
1
4
2
MTL
MTL7728+
MTL
(3)
Side view
Class A grounding work
(6)
(7)
CH1 V-/I-
SLD
CH2 V-/I-
SLD
CH3 V-/I-
SLD
CH4 V-/I-
SLD
FG
CH1 V+
CH1 I+
CH2 V+
CH2 I+
CH3 V+
CH3 I+
CH4 V+
CH4 I+
AG
R60ADH4
RUN
ERR
ALM
-10~10V
0~20mA

■EX(M)623C00

No.	Sensor side cable	Function	Destination	
(1)	Red	Signal	Terminal on the safe barrier (MTL7728+)	SIG
(2)	Blue	Ground		COM
(3)	Shield	Shield		Grounding terminal (shield)

No.	Terminal on the safe barrier (MTL7728+)	Destination	
(4)	SIG	Terminal on the signal conditioner (682A02)	SENSOR(+)
(5)	COM		SENSOR(-)

No.	Terminal on the signal conditioner (682A02)	Destination	
(6)	OUT(+)	Terminal on the high-speed analog input module	[V+] of each channel
(7)	OUT(-)		[V-/I-] of each channel
(8)	24VDC(+)	Power supply +	24V
(9)	24VDC(-)	Power supply -	24G[0V]

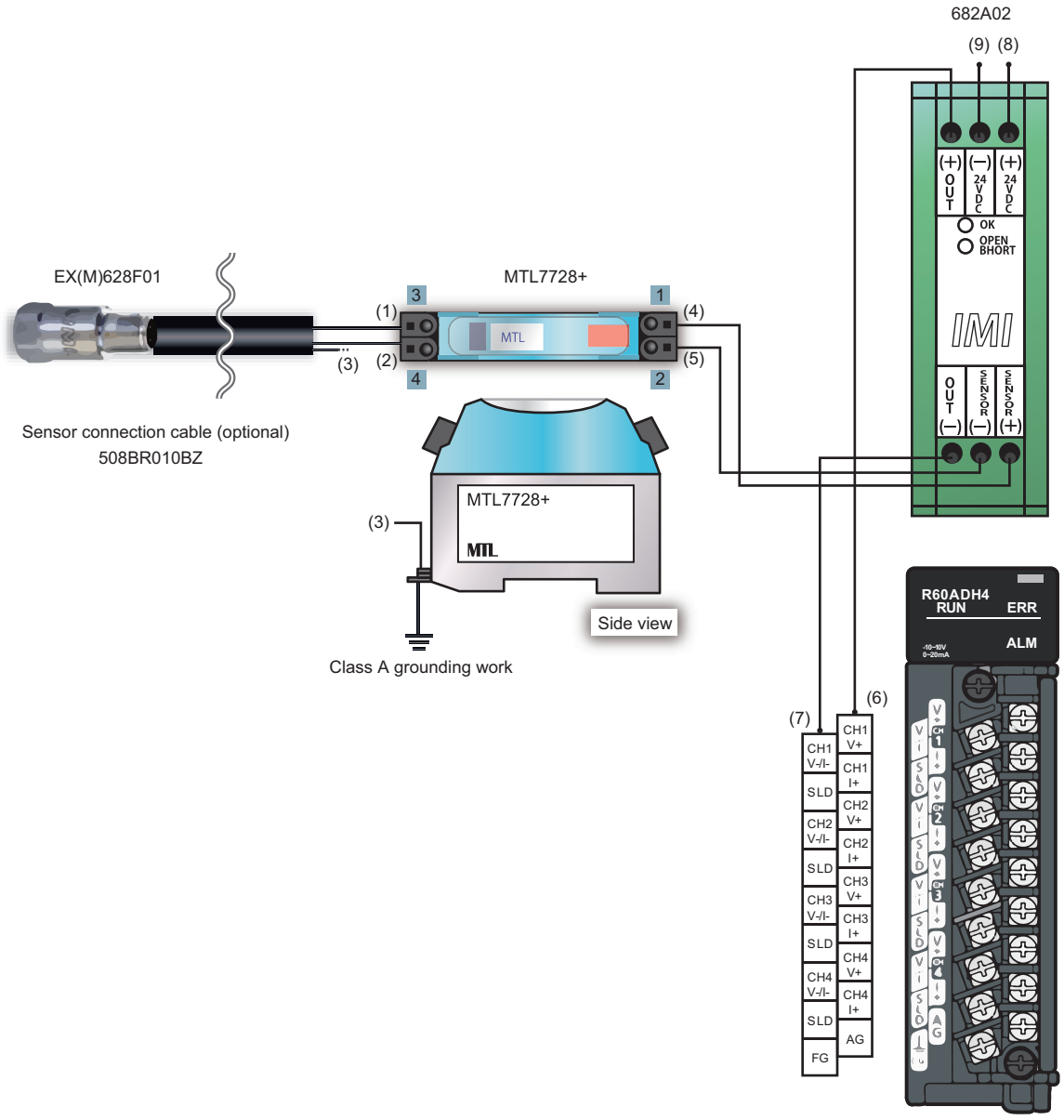


■EX(M)628F01

No.	Sensor side cable	Function	Destination	
(1)	Red	Signal	Terminal on the safe barrier (MTL7728+)	SIG
(2)	Blue	Ground		COM
(3)	Shield	Shield		Grounding terminal (shield)

No.	Terminal on the safe barrier (MTL7728+)	Destination	
(4)	SIG	Terminal on the signal conditioner (682A02)	SENSOR(+)
(5)	COM		SENSOR(-)

No.	Terminal on the signal conditioner (682A02)	Destination	
(6)	OUT(+)	Terminal on the high-speed analog input module	[V+] of each channel
(7)	OUT(-)		[V-/I-] of each channel
(8)	24VDC(+)	Power supply +	24V
(9)	24VDC(-)	Power supply -	24G[0V]

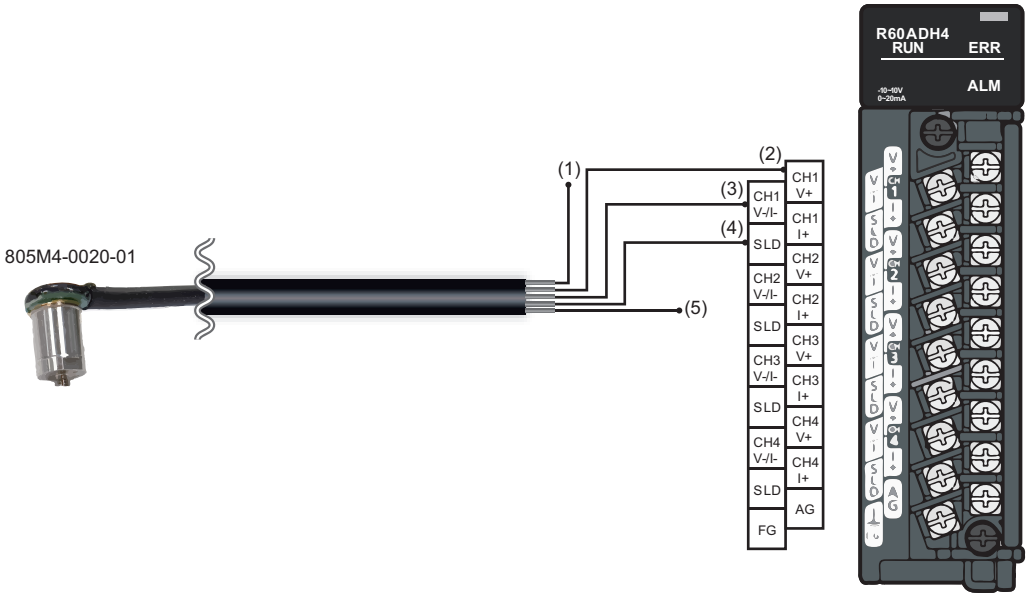


TE Connectivity Ltd.

Direct connection

The following shows the sensor side cable specifications and a wiring example (for voltage input).

No.	Sensor side cable	Function	Destination	
(1)	Red	+EXCITATION	Power supply +	5 V DC
(2)	Green	+OUTPUT	Terminal on the high-speed analog input module	[V+] of each channel
(3)	White	Ground	Terminal on the high-speed analog input module	[V-/I-] of each channel
(4)	Shield	Shield	Terminal on the high-speed analog input module	[SLD] of each channel
(5)	Black	Ground	Power supply -	

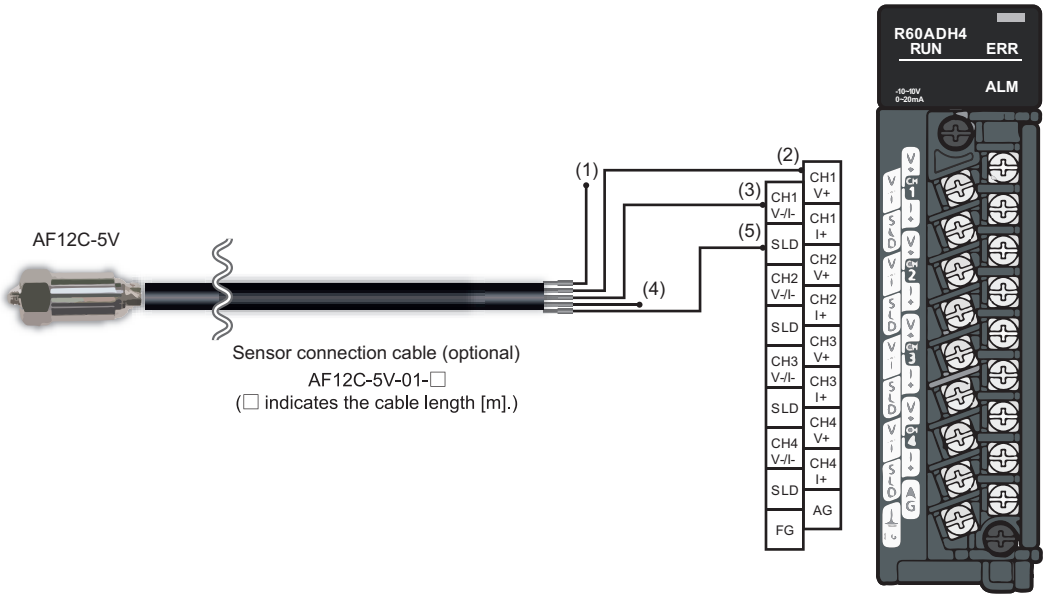


Fuji Ceramics Corporation.

Direct connection

The following shows the sensor side cable specifications and a wiring example (for voltage input).

No.	Sensor side cable	Function	Destination	
(1)	Red	+5V	Power supply +	5 V DC
(2)	White	SIG	Terminal on the high-speed analog input module	[V+] of each channel
(3)	Green	SG	Terminal on the high-speed analog input module	[V-/I-] of each channel
			Power supply -	
(4)	Yellow	N.C	No (Curing with the terminal insulation tape)	
(5)	Shield	Connection with the sensor case	Terminal on the high-speed analog input module	[SLD] of each channel



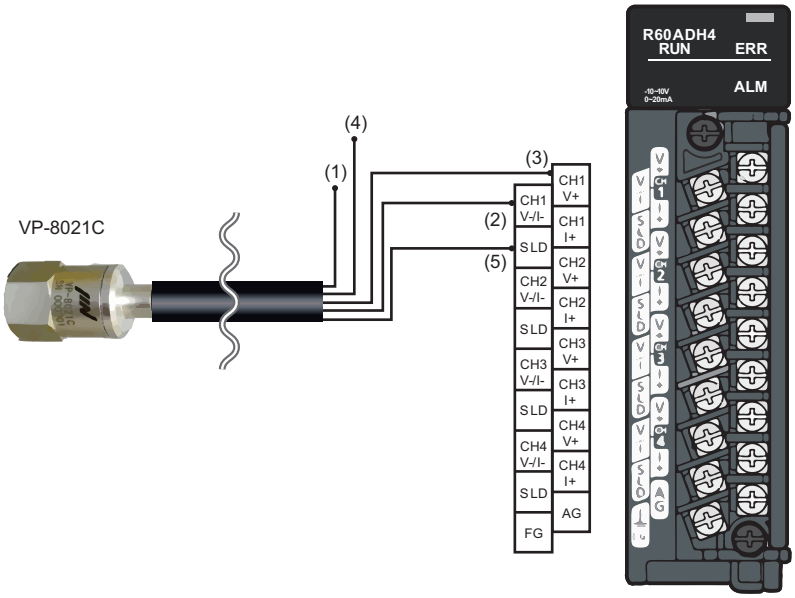
IMV CORPORATION

Direct connection

The following shows the sensor side cable specifications and a wiring example (for voltage input).

■VP-8021C

No.	Sensor side cable	Function	Destination	
(1)	Red	VDD	Power supply +	
(2)	Black	GND	Terminal on the high-speed analog input module	[V-/I-] of each channel
			Power supply -	
(3)	Green	SIG	Terminal on the high-speed analog input module	[V+] of each channel
(4)	White	TEMP	No (Curing with the terminal insulation tape)	
(5)	Shield	FG	Terminal on the high-speed analog input module	[SLD] of each channel



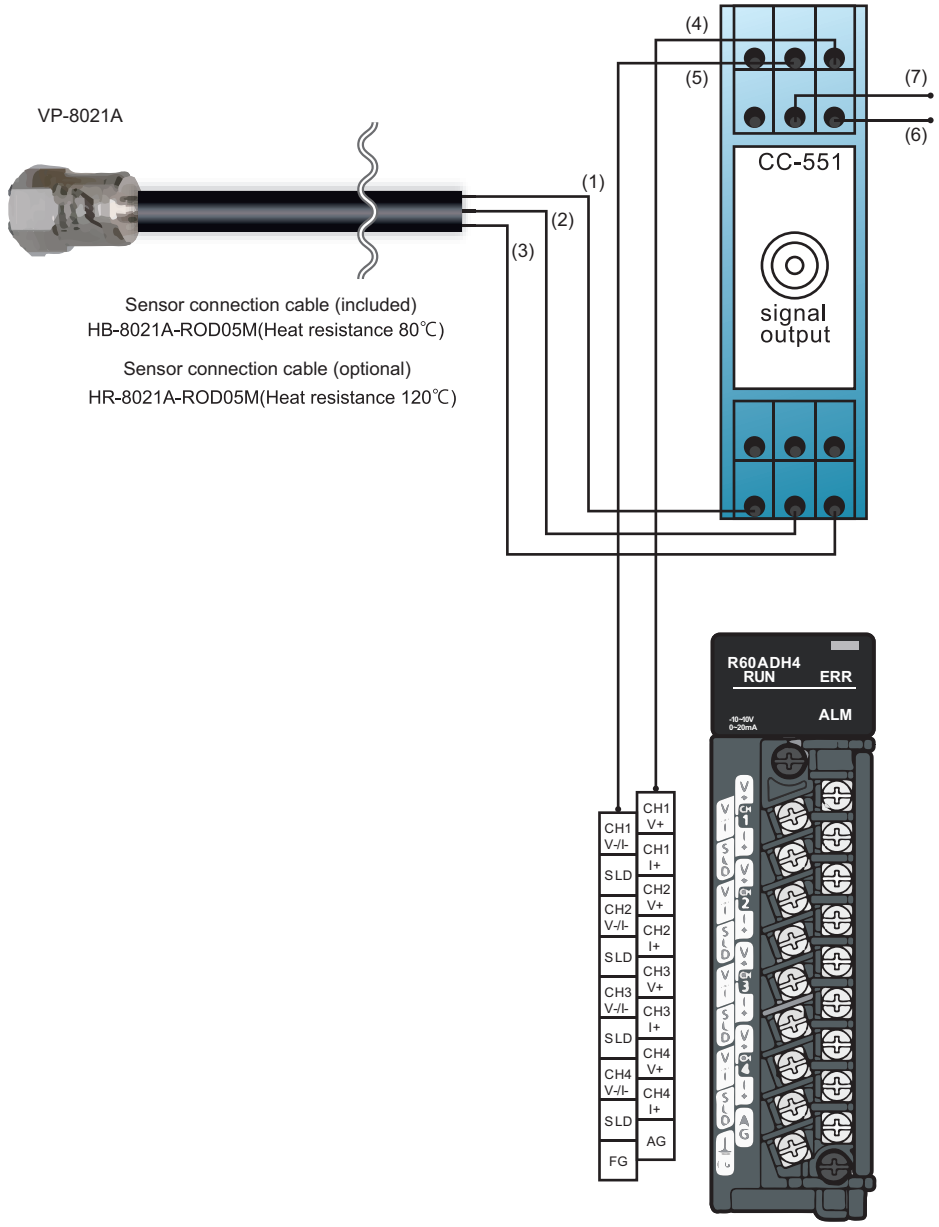
Connection via pickup output module

The following shows the specifications of the sensor side cables and other components and an example of wiring via the pickup output module (for voltage input).

■VP-8021A

No.	Sensor side cable	Function	Destination	
(1)	Red	IEPE power supply +	Terminal on the pickup output module (CC-551)	Pickup power supply/signal wire
(2)	White	IEPE power supply -		Pickup 0V wire
(3)	Shield	FG		Shield wire

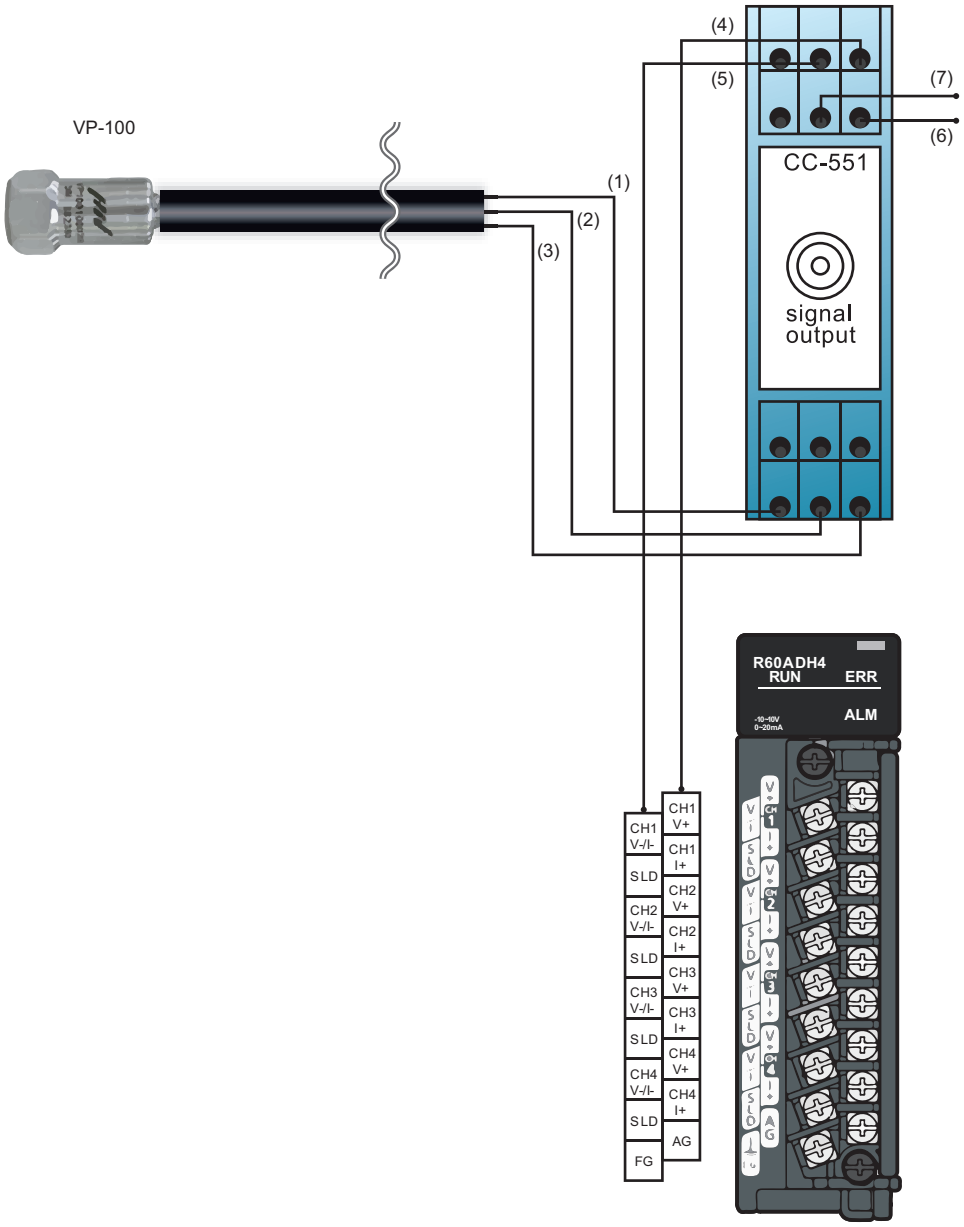
No.	Terminal on the pickup output module (CC-551)	Destination	
(4)	Pickup waveform output SIG Out	Terminal on the high-speed analog input module	[V+] of each channel
(5)	Pickup waveform output COM		[V-/I-] of each channel
(6)	24V(+)	Power supply +	24V
(7)	24G(0V)	Power supply -	24G[0V]



■VP-100

No.	Sensor side cable	Function	Destination	
(1)	White	IEPE power supply +	Terminal on the pickup output module (CC-551)	Pickup power supply/signal wire
(2)	Black	IEPE power supply -		Pickup 0V wire
(3)	Shield	FG		Shield wire

No.	Terminal on the pickup output module (CC-551)	Destination	
(4)	Pickup waveform output SIG Out	Terminal on the high-speed analog input module	[V+] of each channel
(5)	Pickup waveform output COM		[V-/I-] of each channel
(6)	24V(+)	Power supply +	24V
(7)	24G(0V)	Power supply -	24G[0V]

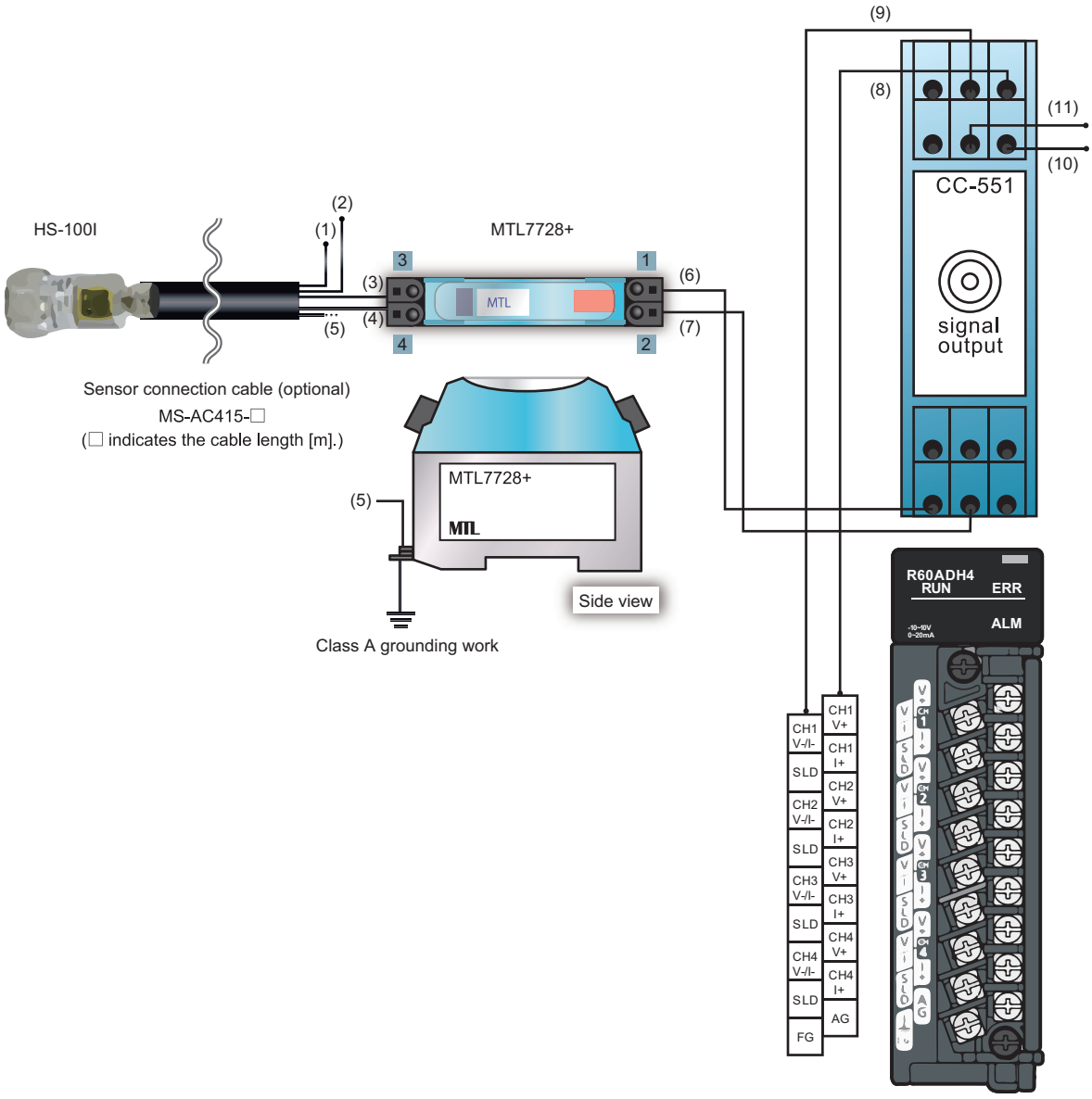


■HS-100I

No.	Sensor side cable	Function	Destination	
(1)	Red	Not used	Terminal on the safe barrier (MTL7728+)	No (Curing with the terminal insulation tape)
(2)	Blue	Not used		No (Curing with the terminal insulation tape)
(3)	White	IEPE power supply +		SIG
(4)	Black	IEPE power supply -		COM
(5)	Shield	Shield		Grounding terminal (shield)

No.	Terminal on the safe barrier (MTL7728+)	Destination	
(6)	SIG	Terminal on the pickup output module (CC-551)	Pickup power supply/signal wire
(7)	COM		Pickup 0V wire

No.	Terminal on the pickup output module (CC-551)	Destination	
(8)	Pickup waveform output SIG Out	Terminal on the high-speed analog input module	[V+] of each channel
(9)	Pickup waveform output COM		[V-/I-] of each channel
(10)	24V(+)	Power supply +	24V
(11)	24G(0V)	Power supply -	24G[0V]



REVISIONS

Version	Date of issue	Revision
A	February 2019	First edition
B	August 2019	Added "Protective structure" and "Operating ambient temperature" to the sensor specifications.
C	October 2019	Added a vibration sensor manufactured by TE Connectivity Ltd.
D	June 2021	Added vibration sensors manufactured by PCB Piezotronics, Inc., ifm efector,inc., and Fuji Ceramics Corporation.
E	March 2022	Added vibration sensors manufactured by PCB Piezotronics, Inc. and IMV CORPORATION. Added precautions.
F	April 2022	Changed a contact information for SHINKAWA Electric Co., Ltd..
G	September 2022	Added vibration sensor manufactured by PCB Piezotronics, Inc.

TRADEMARK