

General Specifications

Cables and Terminal Board



GS 33G06L10-01E

■ GENERAL

The GS covers the specifications of cables, signal cables and communication cables used in the bus (V net, RIO bus and E net) to configure the network of the CENTUM CS system.

■ CABLE CHARACTERISTICS

Item	V net (10BASE-5)	V net (10BASE-2)	Twisted Pair Cable for PICS (V net)	RIO bus	E net
Cable type	Coaxial cable	Coaxial cable	Twisted pair cable	Twisted pair cable	Coaxial cable
Cable connector	N type	BNC	RJ45	Crimp-style terminal held in place with M4 screws	BNC
Minimum bending radius (mm)	100	50	23.2	100	50

■ MODELS AND SUFFIX CODES

V net Cable (10BASE-5 cable) (*1)

		Description
Model	YCB111	V net Cable (10BASE-5 cable)
Suffix Codes	- M003	Cable Length 2.5 m
	- M005	Cable Length 5 m
	- M008	Cable Length 7.5 m
	-M□□□	Enter Cable Length in □□□ by 5 m. Max. Length 500 m (up to -M500)

*1: A term from Ethernet "10BASE-5" is used to show wire size of V net cable simply. V net specifications differ from Ethernet specifications. Use this Yokogawa-specified cable.

V net Cable (10BASE-2 cable) (*1)

		Description
Model	YCB141	V net Cable (10BASE-2 cable)
Suffix Codes	- M001	Cable Length 1 m
	- M002	Cable Length 2 m
	- M010	Cable Length 10 m
	- M005	Cable Length 5 m
	-M□□□	Enter a multiple of 5 in □□□ (Cable is provided every 5 m). Max. Cable Length 185 m (Suffix code: -M185)

*1: A term from Ethernet "10BASE-2" is used to show wire size of V net cable simply. V net specifications differ from Ethernet specifications. Use this Yokogawa-specified cable.

V net Terminator (for 10BASE-5 cable)

		Description
Model	YCB118	V net Terminator (for 10BASE-5 cable)

V net Terminator (for 10BASE-2 cable)

		Description
Model	YCB148	V net Terminator (for 10BASE-2 cable)

V net Grounding Unit (for 10BASE-5 cable)

		Description
Model	YCB117	V net Grounding Unit (for 10BASE-5 cable)

Control bus T-shaped Connector (for 10BASE-2 cable)

		Description
Model	YCB146	Control bus T-shaped Connector (for 10BASE-2 cable)

Control bus Conversion Unit

		Description
Model	YCB149	Control bus Conversion Unit

Control Bus Cable Conversion Adapter

		Description
Model	YCB147	Control Bus Cable Conversion Adapter
Suffix Codes	- 5	2 connector type with no explosion protection
	- 6	4 connector type with no explosion protection
Option Code	/BR	General-purpose Rack Mountable Type

RIO bus Cable

		Description
Model	YCB121	
Suffix Codes	-M□□□	Enter Cable Length in □□□ every 1 m. Max. Length 750 m (up to -M750)
Option Code	/NL	Supports Non-Incendive instrumentation

RIO bus Terminator

		Description
Model	YCB128	RIO bus Terminator

E net Cable

		Description
Model	YCB101	E net Cable
Suffix Codes	-M001	Cable Length 1 m
	-M002	Cable Length 2 m
	-M004	Cable Length 4 m
	-M008	Cable Length 8 m
	-M016	Cable Length 16 m
	-M032	Cable Length 32 m
	-M048	Cable Length 48 m
	-M064	Cable Length 64 m
	-M080	Cable Length 80 m
	-M096	Cable Length 96 m
	-M112	Cable Length 112 m
	-M128	Cable Length 128 m
	-M144	Cable Length 144 m
	-M160	Cable Length 160 m
	-M176	Cable Length 176 m
-M185	Cable Length 185 m	

E net Terminator

		Description
Model	YCB108	E net Terminator

External I/O bus Cable

		Description
Model	KAF	External I/O bus Cable
Suffix Codes	-10	Cable Length up to 10 m
	-20	Cable Length up to 20 m
	-30	Cable Length up to 30 m
	-40	Cable Length up to 40 m
	-50	Cable Length up to 50 m
	-60	Cable Length up to 60 m
	-70	Cable Length up to 70 m
	-80	Cable Length up to 80 m
	-90	Cable Length up to 90 m
	-H0	Cable Length up to 100 m
Style Code	*A	Style A

External I/O bus Terminator

		Description
Model	AKB228	External I/O bus Terminator

V net Coupler Cable

		Description
Model	AKB101	V net Coupler Cable (for Model ACG10S (Unfixed Type))
Suffix Codes	-M002	Cable Length 2 m
	-M005	Cable Length 5 m
	-M010	Cable Length 10 m

SCSI Cable

		Description
Model	YCB252	SCSI Cable
Suffix Codes	-C030	Cable Length 0.3 m
	-C150	Cable Length 1.5 m

SCSI Terminator

		Description
Model	YCB258	SCSI Terminator

Signal Cable for Auxiliary Voltage Output of Analog Input Module

		Description
Model	AKB301	Signal Cable for Auxiliary Voltage Output of Analog Input Module (for Connection Between AMN11 and MUB Terminal Board (or TE16))
Suffix Codes	-M□□□	Enter Cable Length in □□□ in 5 m Units. Max. Length 50 m (up to -M050)

Signal Cable for YPR520 (for Standard Connection)

		Description
Model	AKB202	Signal Cable for YPR520 (for Standard Connection)
Suffix Codes	-M005	Cable Length 5 m
	-M010	Cable Length 10 m

Signal Cable for YPR520 (for Extension Connection)

		Description
Model	AKB203	Signal Cable for YPR520 (for Extension Connection)
Suffix Codes	-M005	Cable Length 5 m
	-M010	Cable Length 10 m
	-M015	Cable Length 15 m
	-M020	Cable Length 20 m
	-M025	Cable Length 25 m
	-M030	Cable Length 30 m

Signal Cable for YPR120 (for Long-Distance Connection)

		Description
Model	AKB171	Signal Cable for YPR120 (for Long-Distance Connection)
Suffix Codes	-M005	Cable Length up to 5 m
	-M010	Cable Length up to 10 m
	-M015	Cable Length up to 15 m
	-M020	Cable Length up to 20 m
	-M030	Cable Length up to 30 m
	-M040	Cable Length up to 40 m
	-M050	Cable Length up to 50 m
	-M060	Cable Length up to 60 m
	-M070	Cable Length up to 70 m
	-M080	Cable Length up to 80 m
	-M090	Cable Length up to 90 m
-M100	Cable Length up to 100 m	
Style Code	*A	Style A

Signal Cable

		Description
Model	KS1	Signal Cable (40-40 Pins)
	KS2	Signal Cable (40-40 Pins) (for connection between ADM □1C - terminal boards)
	KS3	Signal Cable (40-37 Pins) (for connection between ADM □1C - KCN sockets)
	KS9	Signal Cable (50-50 Pins) (for connection between ADM □2C - terminal boards)
	KS10	Signal Cable (50-50 Pins) (for connection between ADM □2C - KCN1 sockets)
Suffix Codes	-01	Cable Length 1 m
	-02	Cable Length 2 m
	-03	Cable Length 3 m
	-05	Cable Length 5 m
	-07	Cable Length 7 m
	-10	Cable Length up to 10 m
	-15	Cable Length 15 m
	-20	Cable Length up to 20 m
	-25	Cable Length 25 m
	-30	Cable Length up to 30 m
	-35	Cable Length 35 m
-40	Cable Length up to 40 m	
-45	Cable Length 45 m	
-50	Cable Length up to 50 m	
Style Code	*B	Style A (for KS3, KS10)
	*A	Style B (for KS1, KS2, KS9)
Option Code	/NL	Supports Non-Incendive instrumentation (Only KS2 and KS9 applied)

RS-232C Cable for Start-Stop Synchronized Communication

		Description
Model	AKB153	RS-232C Modem Cable for Start - Stop Synchronized Communication (9-25 Pins) (for connection between RS71 card-modems)
	AKB154	RS-232C Null Modem Cable for Start - Stop Synchronized Communication with Control Wire (9 - 25 Pins) (for connection between RS71 card - RS-232C device)
	AKB155	RS-232C Null Modem Cable for Start - Stop Synchronized Communication with Control Wire (9 - 25 Pins) (for connection between RS71 card - RS-232C device)
	AKB157	RS-232C Null Modem Cable for Start - Stop Synchronized Communication with Control Wire (9 - 25 Pins) (for standard connection between RS71 card - YPR120; Connecting Screw Standard of the Cable Connector for Printer: Millimeter Screw)
	AKB158	RS-232C Null Modem Cable for Start - Stop Synchronized Communication with Control Wire (9 - 25 Pins) (for standard connection between RS71 card - YPR120; Connecting Screw Standard of the Cable Connector for Printer: Inch Screw)
Suffix Codes	-M005	Cable Length 5 m
	-M010	Cable Length 10 m
	-M015	Cable Length 15 m

RS-232C Cable for Start-Stop Synchronized Communication (for Converting Commercially Available Cables)

		Description
Model	AKB156	RS-232C Cable for Start-Stop Synchronized Communication (9-25 Sockets) (for connection between RS71 card-modems)
Suffix Codes	-C050	Cable Length 0.5 m
	-C100	Cable Length 1 m

Socket (Used with KS3 Cable)

		Description
Model	KCN	Socket (Used with KS3 Cable)
Style Code	*A	Style A

Socket (Used with KS10 Cable)

		Description
Model	KCN1	Socket (Used with KS10 Cable)
Style Code	*A	Style A

RS-232C Cable for Start-Stop Synchronized Communication (for ACM11 Communication Module)

		Description
Model	KB3	RS-232C Modem Cable for Start-Stop Synchronized Communication (25-25 Pins) (for connection between ACM11 and modems)
Suffix Codes	-02	Cable Length 2 m
	-05	Cable Length 5 m
	-10	Cable Length 10 m
	-15	Cable Length 15 m
Style Code	*B	Style B

Note: If a RS-232C interface circuit at the partner equipment is insulated, use an AKB141 cable.

RS-232C Cable for Start-Stop Synchronized Communication (for ACM11 Communication Module)

		Description
Model	KB4	RS-232C Null Modem Cable for Start-Stop Synchronized Communication (25 - 25 Pins) (for connection between ACM11 and RS-232C devices)
Suffix Codes	-02	Cable Length 2 m
	-05	Cable Length 5 m
	-10	Cable Length 10 m
	-15	Cable Length 15 m
Style Code	*A	Style A

Note: If a RS-232C interface circuit at the partner equipment is insulated, use an AKB142 cable.

RS-232C Cable for Start-Stop Synchronized Communication (for ACM11 Communication Module)

		Description
Model	AKB141	For Connecting RS Circuit Isolated Devices RS-232C Modem Cable for Start-Stop Synchronized Communication (25 - 25 Pins) (for connection between ACM11 and modems)
Suffix Codes	-M002	Cable Length 2 m
	-M005	Cable Length 5 m
	-M010	Cable Length 10 m
	-M015	Cable Length 15 m

RS-232C Cable for Start-Stop Synchronized Communication (for ACM11, ACM21 Communication Module)

		Description
Model	AKB142	For Connecting RS Circuit Isolated Devices RS-232C Null Modem Cable for Start-Stop Synchronized Communication (25 - 25 male Pins) (for connection between ACM11, ACM21 and RS-232C devices)
Suffix Codes	-M002	Cable Length 2 m
	-M005	Cable Length 5 m
	-M010	Cable Length 10 m
	-M015	Cable Length 15 m

RS-422/RS-485 Cable (for ACM12 Communication Module)

		Description
Model	AKB161	RS-422/RS-485 Cable (for connection between ACM12 and FA500)
Suffix Codes	-M□□□	Enter Cable Length in □□□ in 5 m Units. Max. Length 100 m (up to -M100)

Power Supply Cable for AC Power Supply (Nominal Diameter 5.5 mm²)

		Description
Model	KP0	Power Supply Cable for AC Power Supply (Nominal Diameter 5.5 mm ²)
Suffix Codes	-10	Cable Length up to 10 m
	-20	Cable Length up to 20 m
	-30	Cable Length up to 30 m
	-40	Cable Length up to 40 m
	-50	Cable Length up to 50 m
Style Code	*A	Style A

Power Supply Cable for AC Power Supply (Nominal Diameter 8.0 mm²)

		Description
Model	KP1	Power Supply Cable for AC Power Supply (Nominal Diameter 8.0 mm ²)
Suffix Codes	-10	Cable Length up to 10 m
	-20	Cable Length up to 20 m
	-30	Cable Length up to 30 m
	-40	Cable Length up to 40 m
	-50	Cable Length up to 50 m
Style Code	*A	Style A

Power Supply Cable for DC Power Supply (Nominal Diameter 22.0 mm²)

		Description
Model	KP4	Power Supply Cable for AC Power Supply (Nominal Diameter 22.0 mm ²)
Suffix Codes	-10	Cable Length up to 10 m
	-20	Cable Length up to 20 m
	-30	Cable Length up to 30 m
	-40	Cable Length up to 40 m
	-50	Cable Length up to 50 m
Style Code	*A	Style A

Grounding Cable

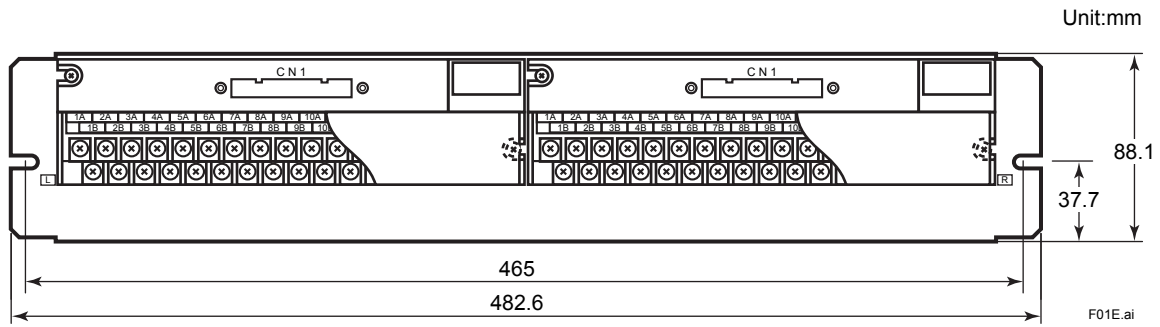
		Description
Model	KG0	Grounding Cable (for circuit grounding, between devices)
Suffix Codes	-10	Cable Length up to 10 m
	-20	Cable Length up to 20 m
	-30	Cable Length up to 30 m
	-40	Cable Length up to 40 m
	-50	Cable Length up to 50 m
Style Code	*A	Style A

Terminal Board (For Connector Type Digital I/O Module)

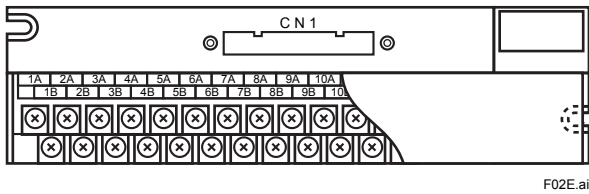
Model	Style Code	Description
MUB	*A	General-Purpose Terminal Board (16 point board (TE16) x 2, Non-Incendive instrumentation)
MUD	*A	General-Purpose Terminal Board (32 point board (TE32) x 2, Non-Incendive instrumentation)
TE16	*B	Terminal Block for 16 Points (Non-Incendive instrumentation)
TE32	*B	Terminal Block for 32 Points (Non-Incendive instrumentation)

EXTERNAL DIMENSIONS

MUB General-Purpose Terminal Board

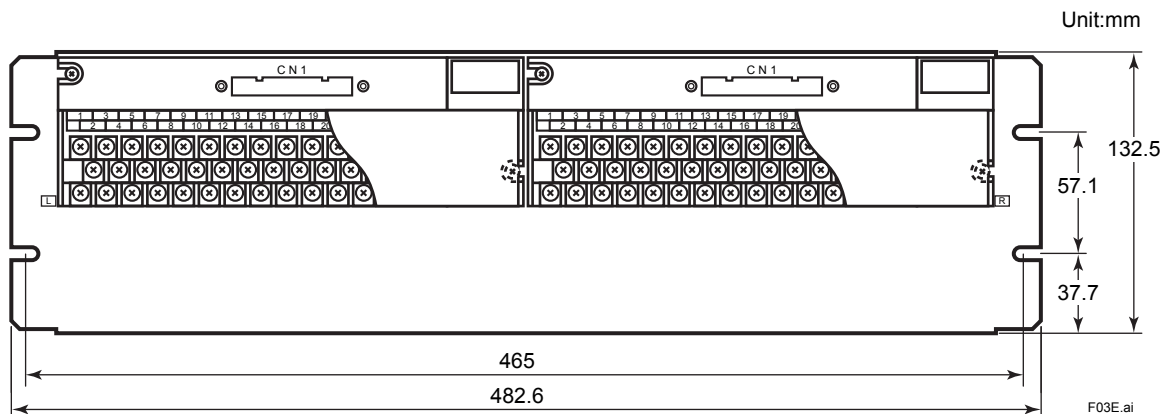


TE16 Terminal Block

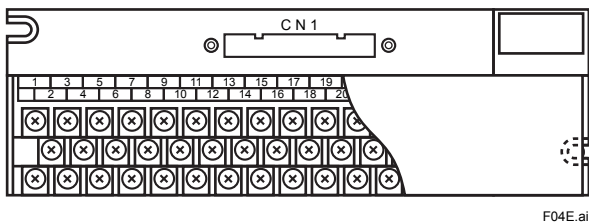


CH. No.	Input Terminal
1	1A + 1B -
2	2A + 2B -
⋮	⋮
15	15A + 15B -
16	16A + 16B -

MUD General-Purpose Terminal Board

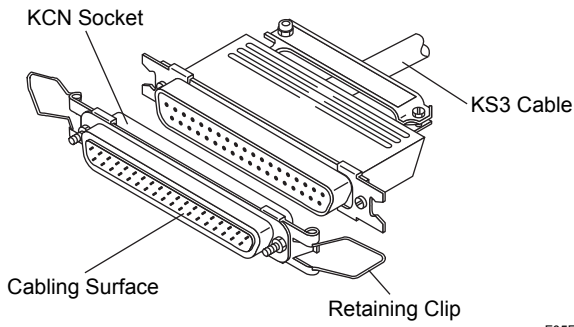


TE32 Terminal Block



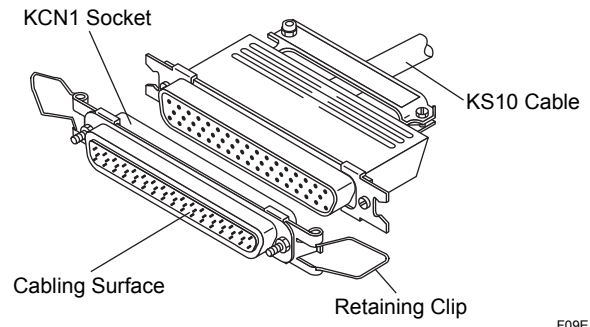
CH. No.	Input Terminal
1	1 + 1~16 COM. -
2	2 + 1~16 COM. -
⋮	⋮
31	31 + 17~32 COM. -
32	32 + 17~32 COM. -

KCN Socket (Used with KS3 Cable)



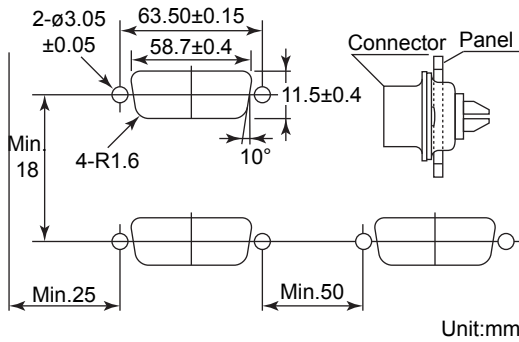
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KCN1 Socket (Used with KS10 Cable)



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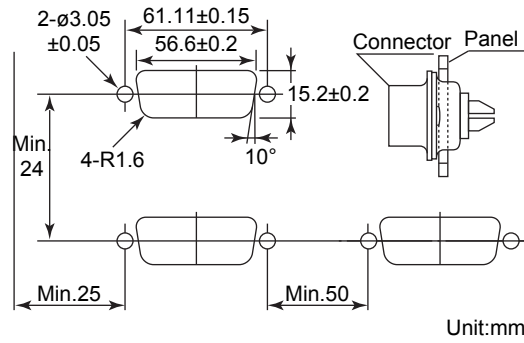
• Panel Cutout



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• Side View

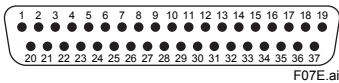
• Panel Cutout



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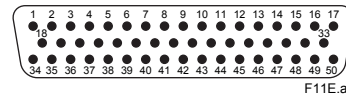
• Side View

• Pin Number Allocation (Connection Surface)



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• Pin Number Allocation (Connection Surface)

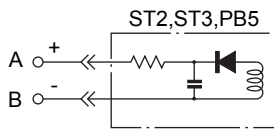


F11E.ai

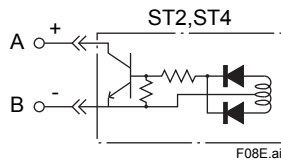
• Specifications

Number of Signals: 16
 Terminal Type: Solder terminal
 Wiring: AWG #20, #22, #24
 (cross sectional areas 0.2 to 0.5 mm²)
 Terminal Block Connection: TE16
 Cable Used to Connect I/O Cards: KS3 cable
 Output Specifications:
 Voltage: Max. 60 V DC
 Current: Max. 0.2 A

Input terminals:



Output terminals:



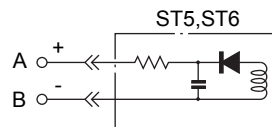
F08E.ai

For inductive load, connect spark killer (RC network for AC, diode for DC) parallel to the load.

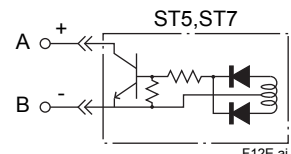
• Specifications

Number of Signals: 32
 Terminal Type: Solder terminal
 Wiring: AWG #20, #22, #24
 (cross sectional areas 0.2 to 0.5 mm²)
 Terminal Block Connection: TE32
 Cable Used to Connect I/O Cards: KS10 cable
 Output Specifications:
 Voltage: Max. 60 V DC
 Current: Max. 0.2 A

Input terminals:



Output terminals:

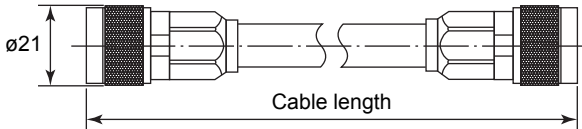
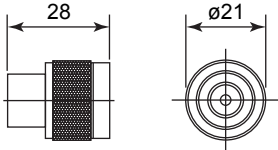
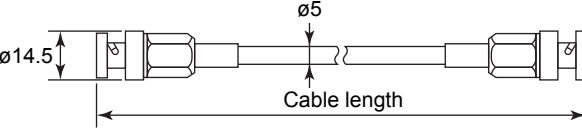
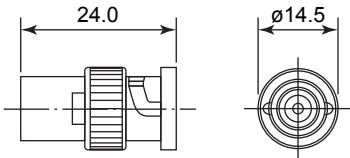
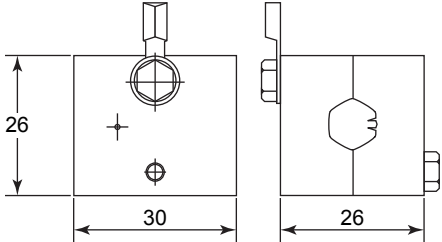
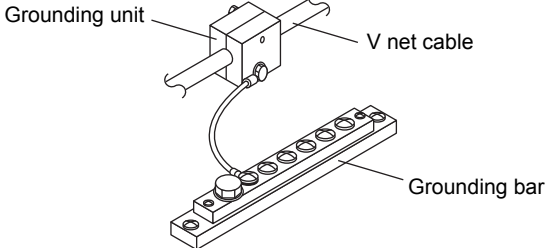
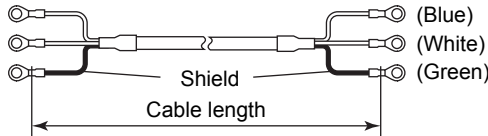
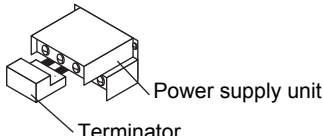
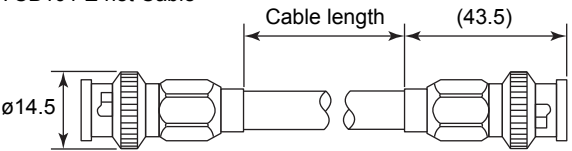
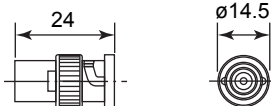
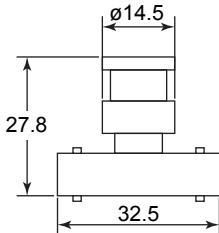
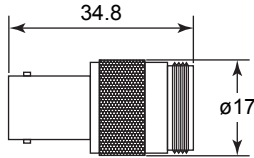
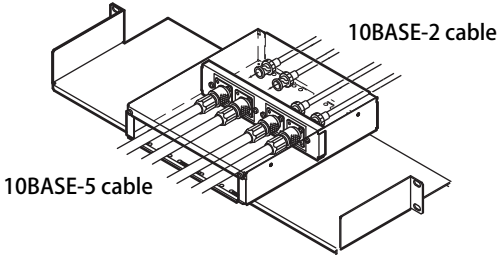


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For inductive load, connect spark killer (RC network for AC, diode for DC) parallel to the load.

Bus Cables and Terminators

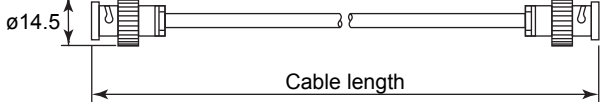
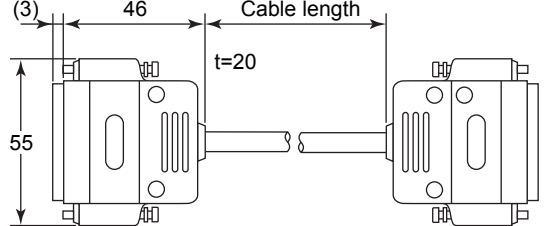
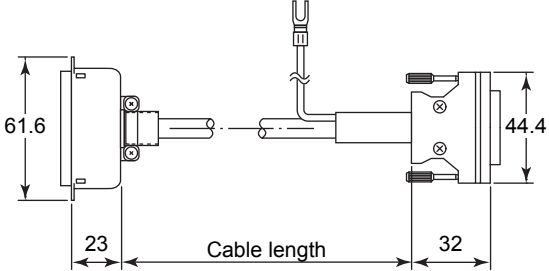
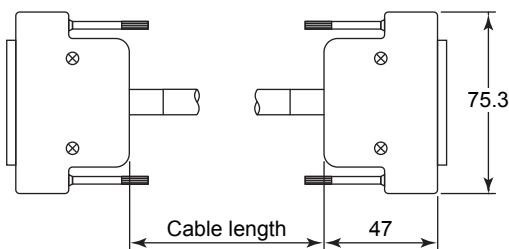
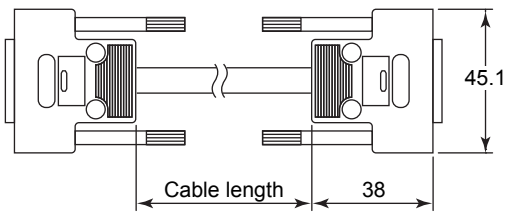
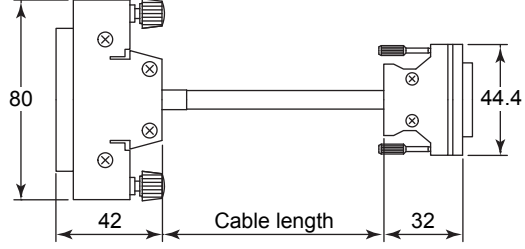
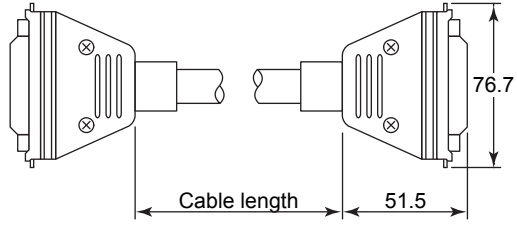
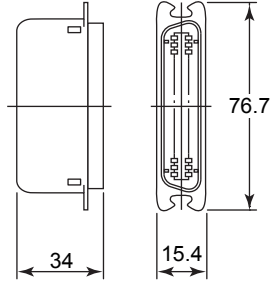
Unit:mm

<p>YCB111 V net Cable (10BASE-5 cable)</p> 	<p>YCB118 V net Terminator (for 10BASE-5 cable)</p> 
<p>YCB141 V net Cable (10BASE-2 cable)</p> 	<p>YCB148 V net Terminator (for 10BASE-2 cable)</p> 
<p>YCB117 V net Grounding Unit (for 10BASE-5 cable)</p> 	<p>Example of V net Grounding Unit in Use</p> 
<p>YCB121 RIO bus Cable</p> 	<p>YCB128 RIO bus Terminator</p> 
<p>YCB101 E net Cable</p> 	<p>YCB108 E net Terminator AKB228 External I/O Bus Terminator</p> 
<p>YCB146 Control bus T-shaped Connector (for 10BASE-2 cable)</p> 	<p>YCB149 Control bus Cable Conversion Unit</p> 
<p>YCB147 Control Bus Cable Conversion Adapter</p> 	

F13E.ai

Signal Cable, Others

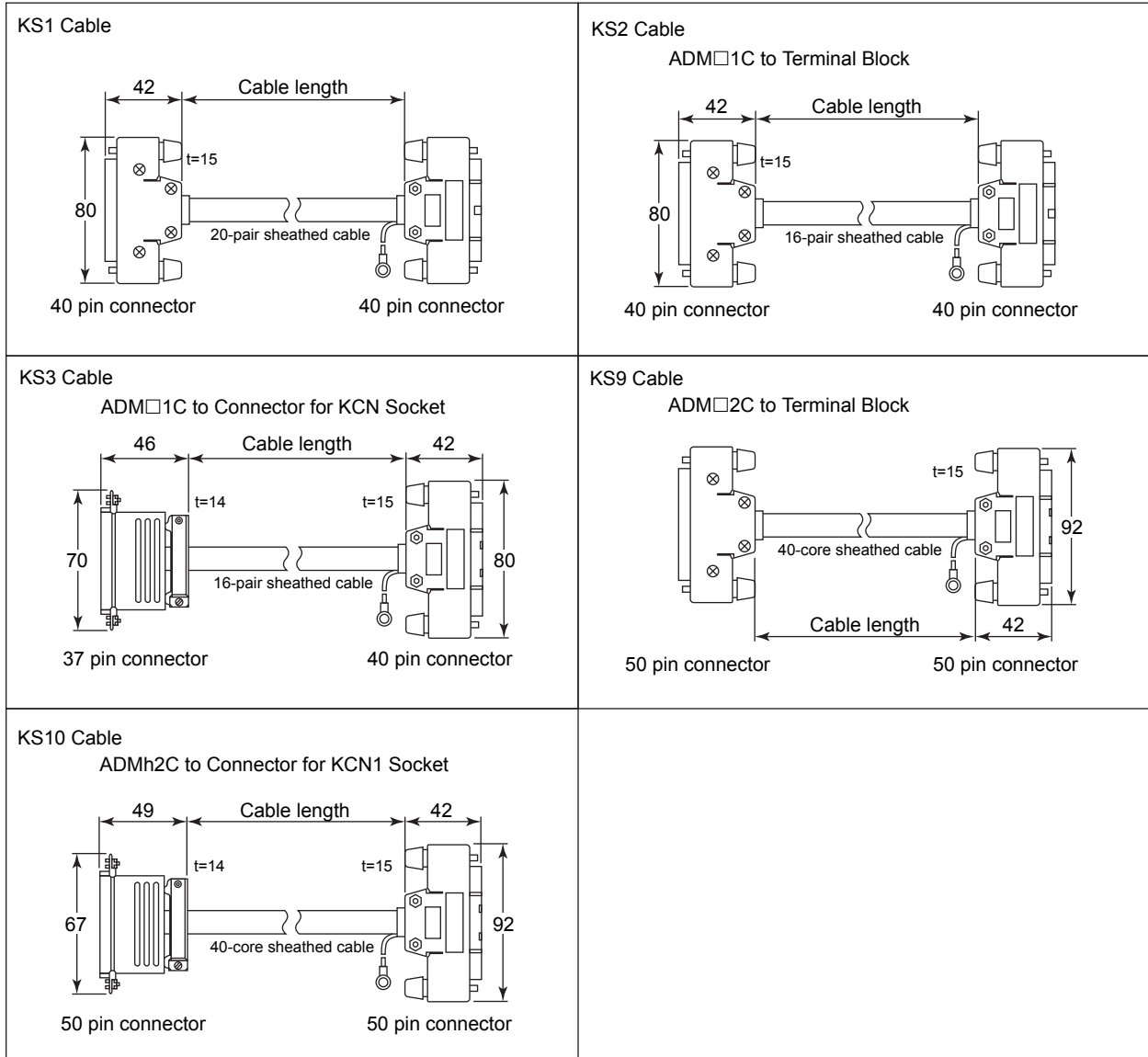
Unit:mm

<p>KAF External I/O Bus Cable ICU(AIP221 Card) to AEX101</p> 	<p>KAR Signal Cable for YPR120 (for long-distance connection) ICU (AIP201 Card to YPR120 long-distance connection)</p> 
<p>AKB202 Signal Cable for YPR512 (for standard connection)</p> 	<p>AKB203 Signal Cable for YPR512 (for extension connection)</p> 
<p>AKB101 V net Coupler Cable (for ACG10S Unfixed Type)</p> 	<p>AKB301 Cable for Auxiliary Output Analog Input Module (for connection between AMN11 to TE16 terminal block)</p> 
<p>YCB251 SCSI Cable</p> 	<p>YCB258 SCSI Terminator</p> 

F14E.ai

Signal Cable, Power Supply Cable

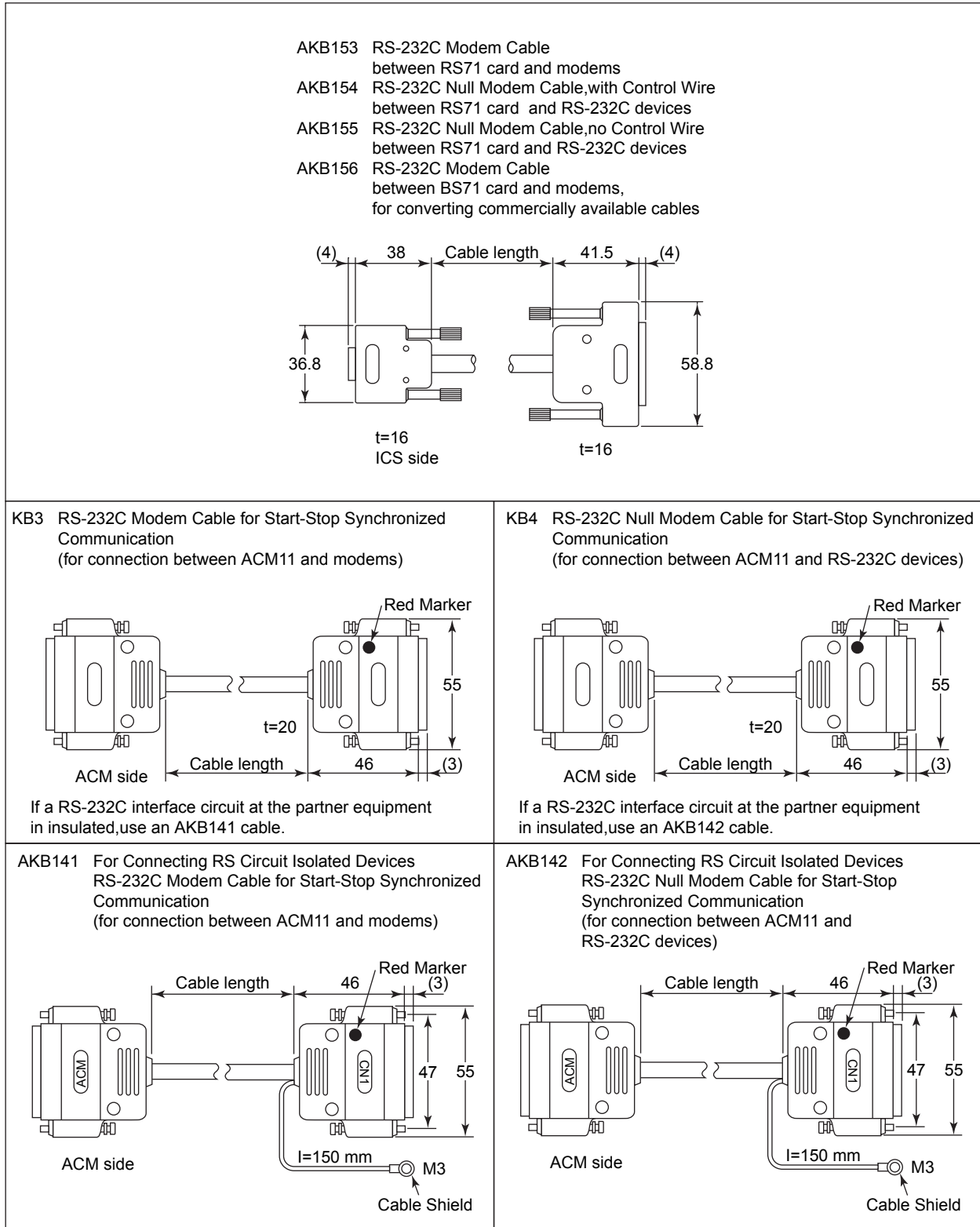
Unit:mm



F15E.ai

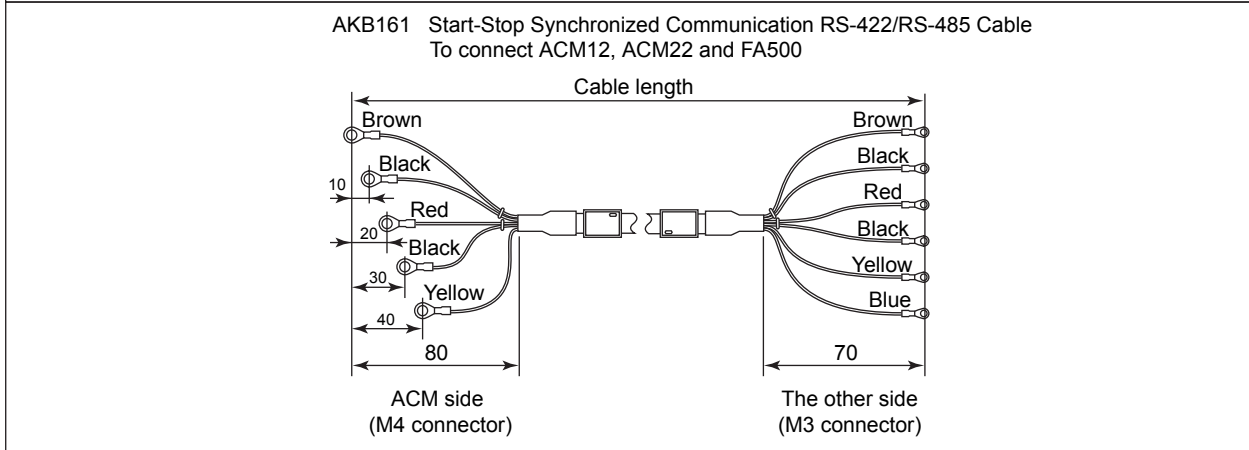
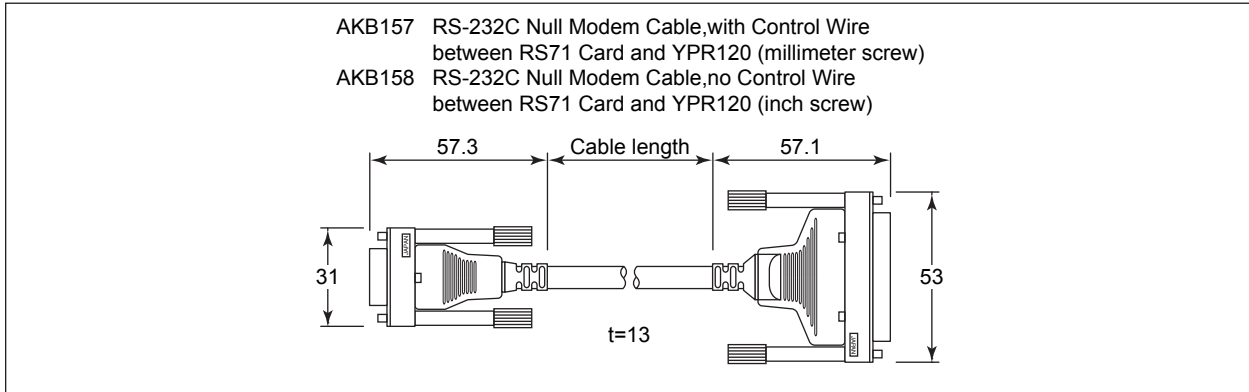
Communication Cable

Unit:mm



F16E.ai

Unit:mm



F17E.ai