

General Specifications



FC33E (Explosion-proof),
FC33U (Outdoor)
Pan Tilt Zoom type Color Camera

GS 85A7C01-16EN

■ GENERAL

► Model FC33:

- FC33 Series explosion-proof or outdoor pan tilt zoom type Color Camera is a self-contained, compact and lightweight.
- Most suitable for installation in high place and/or confined spaces.
- Designed to continuously operating in the most adverse environments of offshore and onshore oil & gas industries, marine and heavy industrial sectors
- High-sensitivity that permits whole day continuous monitoring without special lighting. (Day/Night camera)



► Full HDIP type:

- Camera image comes in CMOS Full HD: 1080 pixels, 60(fps)
- IP (Internet Protocol)

► Analogue type:

- Two control models available: RS-485 (PC-friendly) or Multiplexed signal on coaxial (Japan only)
- Camera image comes in CCD (NTSC or PAL)
NTSC: 976 (H) x 494 (V) or PAL: 976(H) x 582 (V).

► Options:

- Hood/Shade
- Integrated Wiper
- Upright/Inverted Installation

■ MODEL AND SUFFIX CODES

Model	Suffix Code	Option Code	Description
FC33E			Explosion-proof pan-tilt zoom color camera
FC33U			Weather-proof pan-tilt zoom color camera
Camera type	-D		Full HD: High-sensitivity 1/2.8" CMOS, 1920x1080 pixels , 30x optical zoom
	-N		Analog High-sensitivity, 1/4" CCD, 976(H)x494(V) pixels, 36x optical zoom, NTSC
	-P		Analog High sensitivity, 1/4" CCD, 976(H)x582(V) pixels, 36x optical zoom, PAL
Wiper	W		With wiper
	N		Without wiper
Control type	E		100BASE-TX Ethernet
	N		Multiplexed signal (Japan only)
	S		RS-485
Explosion Protected type	0		(TIIS Explosion Protection in Japan only)
	1		ATEX/IECEX Certification
Installation	S		Upright
	U		Inverted
Additional Specification code	/T		Name tag plate: Up to 15 letters (alpha-numeral combination code) can be specified
	/JB		Junction Box (IECEX, ATEX) 100BASE-FX
	/TX		10/100BASE-TX(RJ45-1) interface for JB
	/ME4		Set of (M20 type) Cable Glands (ATEX/IECEX) of 4 for JB and Sealing plugs of 0
	/ME3		Set of (M20 type) Cable Glands (ATEX/IECEX) of 3 for JB and Sealing plugs of 1
	/ME2		Set of (M20 type) Cable Glands (ATEX/IECEX) of 2 for JB and Sealing plugs of 2
	/CT		Upper lid-Opener for JB
	/SHD		Hood (Upright) for Full HDIP type
	/UHD		Hood (Inverted) for Full HDIP type
	/SH		Hood (Upright) for Analog type
	/UH		Hood (Inverted) for Analog type
	/SD		Shade(Only Upright Installation)
	/L10		Cable length 10m (Standard Cables length:5m)
	/ADP		Mounting adapter plate for the previous FC13

■ STANDARD SPECIFICATIONS

Full HDIP type:

Item		Description
Video	Image Sensor	1/2.8" CMOS
	Effective Pixels	Up to 1920x1080p. (2.13 Megapixels)
	Video S/N	> 50 dB
	White Balance	ATW (auto tracing white balance)
	Zoom Magnification	(30x optical) x (12x digital)
	Lens	f: 4.3mm - 129mm, F1.6 - 4.7 (with auto focus)
	Angle of View	63.7° (wide-angle) to 2.3° (telephoto)
	Compression	H.264, MJPEG
	Frame rate	Maximum 60 fps
	Minimum illumination	Normal Sensitivity
High Sensitivity		ICR-Off mode 0.01 lux (1/30 sec, 50%) 0.0013 lux (1/4 sec, 1/3 sec, 50%) ICR-On mode 0.0015 lux (1/30 sec, 50%) 0.0008 lux (1/4 sec, 1/3 sec, 30%)
I/O	Interface	100BASE-TX. IEEE 802.3u Cat 5/5e Cable
	Client PC requirements	Windows 7 or Windows10 (Browser: Internet Explorer 11 only)
	Password level	Administrator / User (when network login via PC)
	Communication	ONVIF® (Profile S) Fieldeye command (Web application for Full HDIP type)
	Supported Protocols:	IPv4,TCP,UDP,HTTP,RTSP,RTP,NTP,SNMP, HTTPS(planned) ;
Main Body	Housing Material	Die Casted SS316L (Stainless steel) no welding parts
	Finish	Electrolytic Polishing
	Weight	20kg (except cable(s))
	Cable Entry (2-port)	- For Multiple-cable input (LAN-cable and relay-connection lines are combined within one-cable. Std. length: 5m) - For Power-cable input (Std. length: 5m)
Mechanical	Pan Operation	360° continuous
	Tilt Operation	180° (0±90°)
	Rotation Speed	Up to Pan-tilt 40°/sec
	Installation style	Upright /Inverted
Electrical	Power Supply (rated value):	100VAC to 240VAC, 50Hz or 60Hz
	Power Consumption	30W (heater on) / 24W (heater off), 60VA (0.6A)
	Relay Output circuit	Single (1) contact, Max:DC48V, 100mA
Environment	Operation Temperature	-40°C to +60°C (-40°F to +140°F)
	Storage Temperature/Humidity	-40°C to +60°C / 5% to 95% RH (at 40°C)
Others	Preset points	128 points , Preset Accuracy: ±0.25°(PAN/ TILT)
	Wiper	Option
	Defroster	Standard equipment
Certifications	Explosion Protection: (Gas / Dust)	ATEX/IECEX Ex d IIC T5 Gb Explosion protection: Flame-proof construction Explosion-proof class: Ex d IIC T5  II 2 G Ex d IIC T5 Gb Ta= -40°C to +60°C ATEX Certificated: CML 14 ATEX 1097X (EN60079-0:2012, EN60079-1:2014) IECEX Certificated: IECEX CML 16.0096X
		 II 2 D Ex tb IIIC T105°C Db (EN60079-11:2012)
	Ingress Protection:	IEC IP66
		EMC EN50130-4 (2011) A1 (2014), EN55032 (2012) class A LDV EN61010-1(2010) RoHS

Note: This product is designed only for use in large-scale fixed installations

■ BODY CONNECTION CABLES

Full HDIP type:

Function		Film Color (being covered)		Symbol / Type	(Connected to)
Power Cable		Brown		L	(100 to 240)±10% V
		Blue		N	AC Power line
		Green yellow		PE	(AC GND)
Multiple Cable	Ethernet comm.	Orange/White	twisted pair cable	TX+	(RJ45-3)
		Orange		TX-	(RJ45-6)
		Green/White	twisted pair cable	RX+	(RJ45-1)
	Green	RX-		(RJ45-2)	
	Relay contact	Blue	twisted pair cable	N.O.	(N.O. terminal)
		White		COM.	(COM terminal)
Shield/FG		---			(Earth terminal /FG)

●Connection cables (Standard length is 5m.)

- Any cabling work should be done at the customer's side in accordance with each specific requirement.
- Removing cable from the main body is not permitted due to violate the integrity of explosion proof certifications.
- **10m extension(s)** is available by /L10 option
- **Power Cable:** (AWG16 equivalent, each cable of three)
- **Multiple Cable:** Composite Ethernet communication and relay-driving output signals (AWG24 equivalent, each twisted pair)

■ JUNCTION BOX (FOR FULL HD IP TYPE ONLY)

/JB and /JB/TX

●Housing Specifications

External dimensions	180 (W) x 240 (H) x 185 (D) mm
Weight	10 kg or less than (w/o. cable glands and/or sealing plugs)
Operating temperature	-40°C to +60°C
Housing Material	Die Casted SS316L Stainless steel (Finish: Electrolytic Polishing)
IP Rating	IP66 (ingress protection)

●Explosion Proof

ATEX/IECEX Certificated CML 14 ATEX
Explosion-proof class Exd IIC T5



II 2G
Ex d IIC T5 Gb
Ta= -40°C to +60°C

●Interface Specification

Cabling work for JB and JB/TX is necessary to installation.
⚠ Danger: Do never cabling work(s) against live wire(s),
Otherwise it can cause a serious accident.

(1) FC33E/U Multiple Cable

Interface port for main body of FC33E/U

(2) AC Power Output (by 1-a relay contact)

Internal constant-open contact*(a-contact) /1-Circuit

*: (This a-contact is controlled by FC33E/U via the port (1) above)

Output (Switching) voltage** handled by a-contact: AC100 to 240V (Rated value)

***: (This AC Power-Output is being introduced from a port (3) below)

Note: If not used, a Sealing plug (ME3 or 2) is needed.

(3) AC Power Input

AC100 to 240V (Rated Value), 50Hz or 60Hz (Rated value)

Recommends: having a size of ≥AWG16 as each (L, N and PE)

An AC-Power supplying source for the "AC power output (2)" above

SPD (Surge Protective Device): installed between each line (L, N and PE) internally, and replaceable;

(4) User Interface

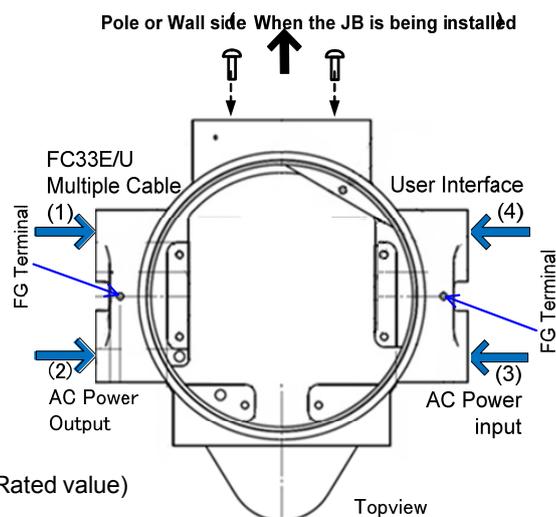
IEEE 802.3 10BASE-T

IEEE 802.3u 100BASE-TX, 100BASE-FX

IEEE 802.3x Flow Control

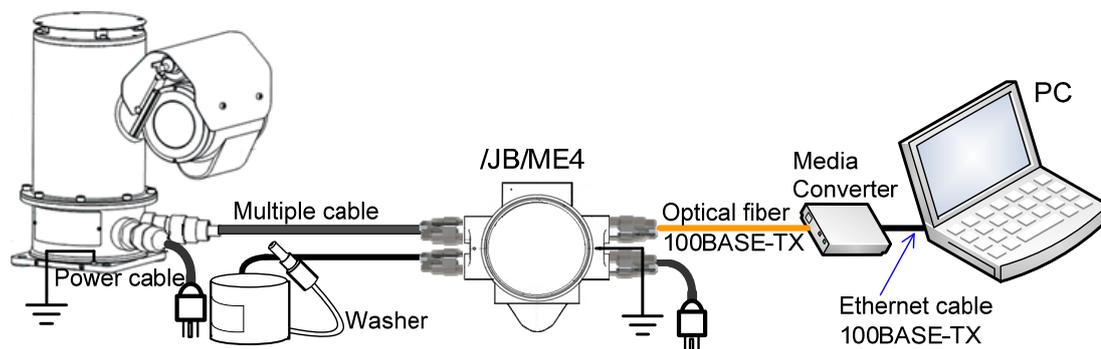
Interface type selection by the OPTION-CODE:

Interface type	Connector type	Designated OPTION-CODE	Note
100BASE-FX	SC2 (2 core) x1	/JB/ME2-4	Std. combination
10BASE-T, 100BASE-TX	RJ-45 x1	/JB/TX/ME2-4	/TX OPTION-CODE is appended. (An optical media converter is omitted)

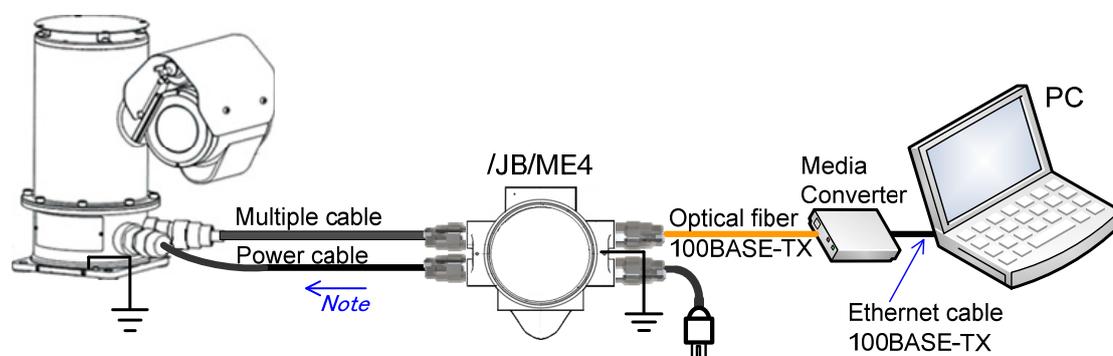


EXTERNAL CONNECTION (EXAMPLE)

(1) Using an Optical fiber

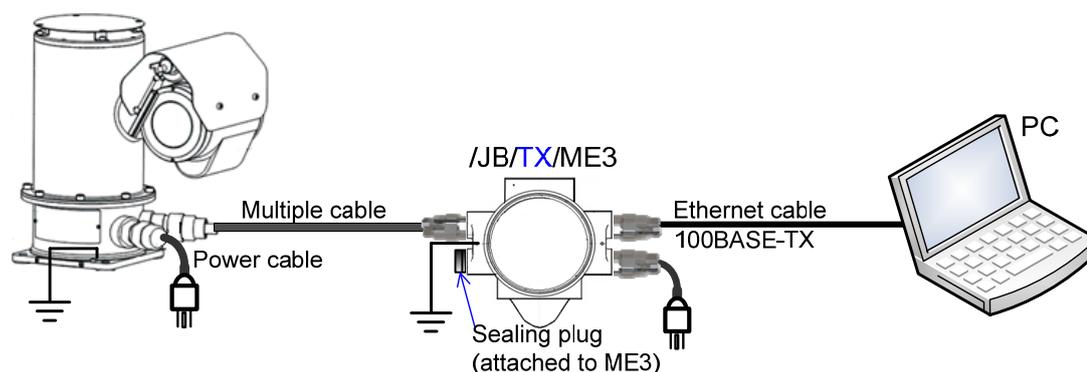


(2) Using Optical cable (without peripheral equipment)



Note: Any 1-a contact-closing-operation is not needed for supplying AC Power to the Main body

(3) Using LAN cable (without peripheral equipment)



Note: By /TX-code, an optical media converter was omitted from /JB.

■ STANDARD SPECIFICATIONS

Analog type:

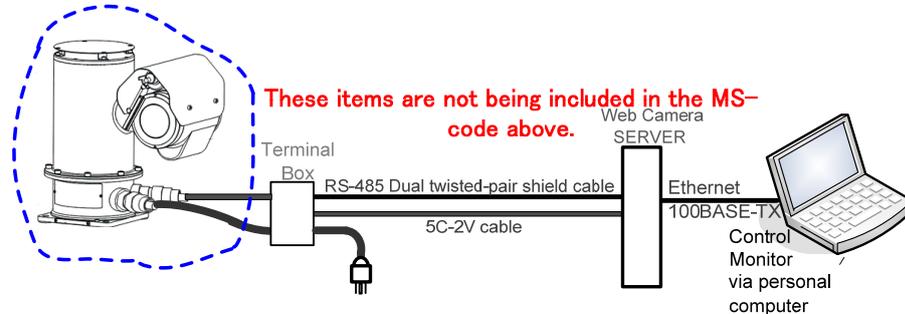
Item		Description
Video	Image Sensor	1/4" CCD interline transfer (Color)
	Effective Pixels	NTSC: 976 (H) 494 (V) PAL: 976 (H) 582 (V)
	Horizontal resolution:	650TV line
	Video S/N	> 50 dB
	White Balance	ATW (auto tracing white balance)
	Zoom Magnification	(36x optical) x (20x digital)
	Lens	f: 3.3 mm - 119mm / F1.4 - 4.2 (with auto focus)
	Angle of View	60.2° (wide-angle) to 1.7° (telephoto)
	Iris (Auto /Manual):	0: close - 255: open (Manual)
	Electronic shutter (Auto/Manual):	1/10,000 sec to 1/60 sec
	Minimum illumination	Normal Sensitivity (Sense Up: OFF) 0.5 lx Color typical 0.04 lx Color typical
	Shutter speed: -NTSC:1/60 sec -PAL:1/50 sec	High Sensitivity (Sense Up: ON) 0.03 lx Color typical 0.0025 lx B/W typical 0.015 lx Color (AGC High) 0.00125 lx B/W (AGC High)
I/O	Video output signal:	VBS 1.0 V p-p 75Ω signal Transmission distance: Up to.300m (when 5C-2V cable is used, without a cable compensator)
	Control type S (RS-485 signal)	Asynchronous communication, full duplex mode: (8-bit data, 1-bit stop, at 9,600 bps, no- parity)
	Communications over RS-485 signal	Fieldeye command, D-protocol command
Main Body	Housing Material	Die Casted SS316L (Stainless steel) no welding parts
	Finish	Electrolytic Polishing
	Weight	19kg (Cables are excepted)
	Cable Entries	Multiple cable and Power-cable; (Std. lengths 5m)
Mechanical	Pan Operation	360° continuous
	Tilt Operation	180° (0±90°)
	Rotation Speed	Up to Pan-tilt 40°/sec
	Installation style	Upright /Inverted
Electrical	Power Supply	90VAC to 264VAC, 50(+/-10%)Hz or 60(+/-10%)Hz
	Power Consumption	25W (with heater) 60VA (0.6A)
Environment	Operation Temperature	-40°C to +60°C (-40°F to +140°F)
	Storage Temperature/Humidity	-40°C to +60°C / 5% to 95% RH (at 40°C)
Others	Preset points	128 points , Preset Accuracy: ±0.5° (PAN/ TILT)
	Wiper	Option
	Defroster	Standard equipment
Certifications	Explosion Protection:	ATEX/IECEX Ex d IIC T5 Gb Explosion protection: Flame-proof construction Explosion-proof class: Ex d IIC T5  II 2 G Ex d IIC T5 Gb Ta= -40°C to +60°C ATEX Certificated: CML 14 ATEX 1097X (EN60079-0:2012, EN60079-1:2014) IECEX Certificated: IECEX CML 16.0096X
	Ingress Protection:	IEC IP66 equivalent
		EMC EN50130-4 (2011) A1(2014), EN55032 (2012) class A LDV EN61010-1(2010)
		RoHS

■ BODY CONNECTION CABLES

Analog type:

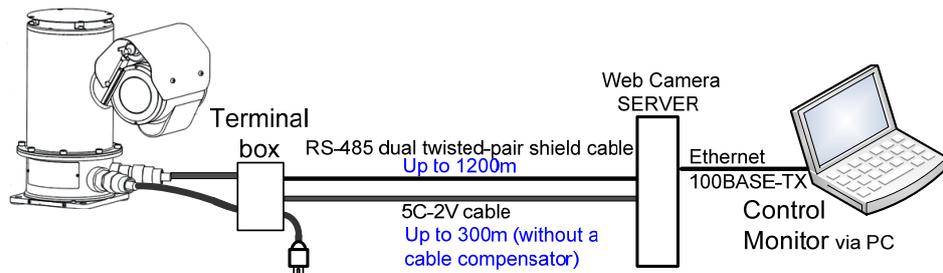
Cable type		Device to be Connected (via the Terminal box)	
		Symbol / Type	(Connected to:)
Power cable (Default length 5m, non-removable from the body) (AWG16 equivalent)	Brown	L	(100 to 240)±10% V AC
	Pale blue	N	(AC power line)
	Green yellow	GND	(AC power ground)
Video signal cable	Internal conductor	Video signal	Web camera server (VIDEO IN) → EXAMPLE (1) or Monitor display (for PAL and/or NTSC) (VIDEO IN) → EXAMPLE (2)
	External inductor	Signal/GND	
RS-485 cable (AWG24 equivalent)	Yellow twisted pair cable	TXD+	Web camera server (RS-485 terminals) → EXAMPLE (1) or Full-duplex converter and so on. (RS-485 terminals) → EXAMPLE (2)
	White twisted pair cable	TXD-	
	Orange twisted pair cable	RXD+	
	White twisted pair cable	RXD-	
	Shield	FG (as needed)	

FC33E-PWS1S/SH/SD/

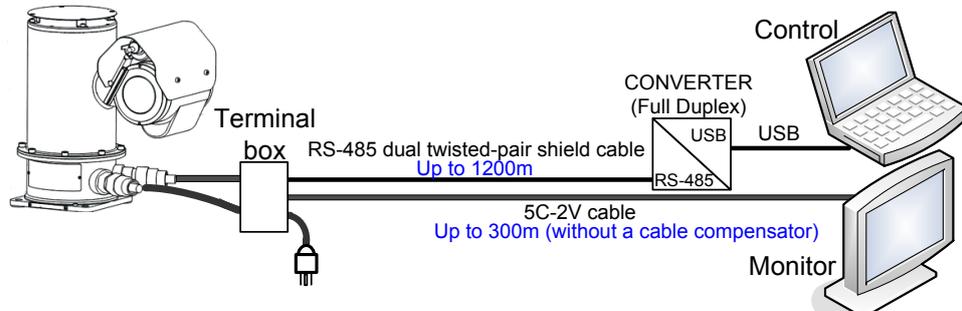


■ EXTERNAL CONNECTIONS (EXAMPLE)

(1) Connection to a Web Camera serve:



(2) Direct Connection to a PC



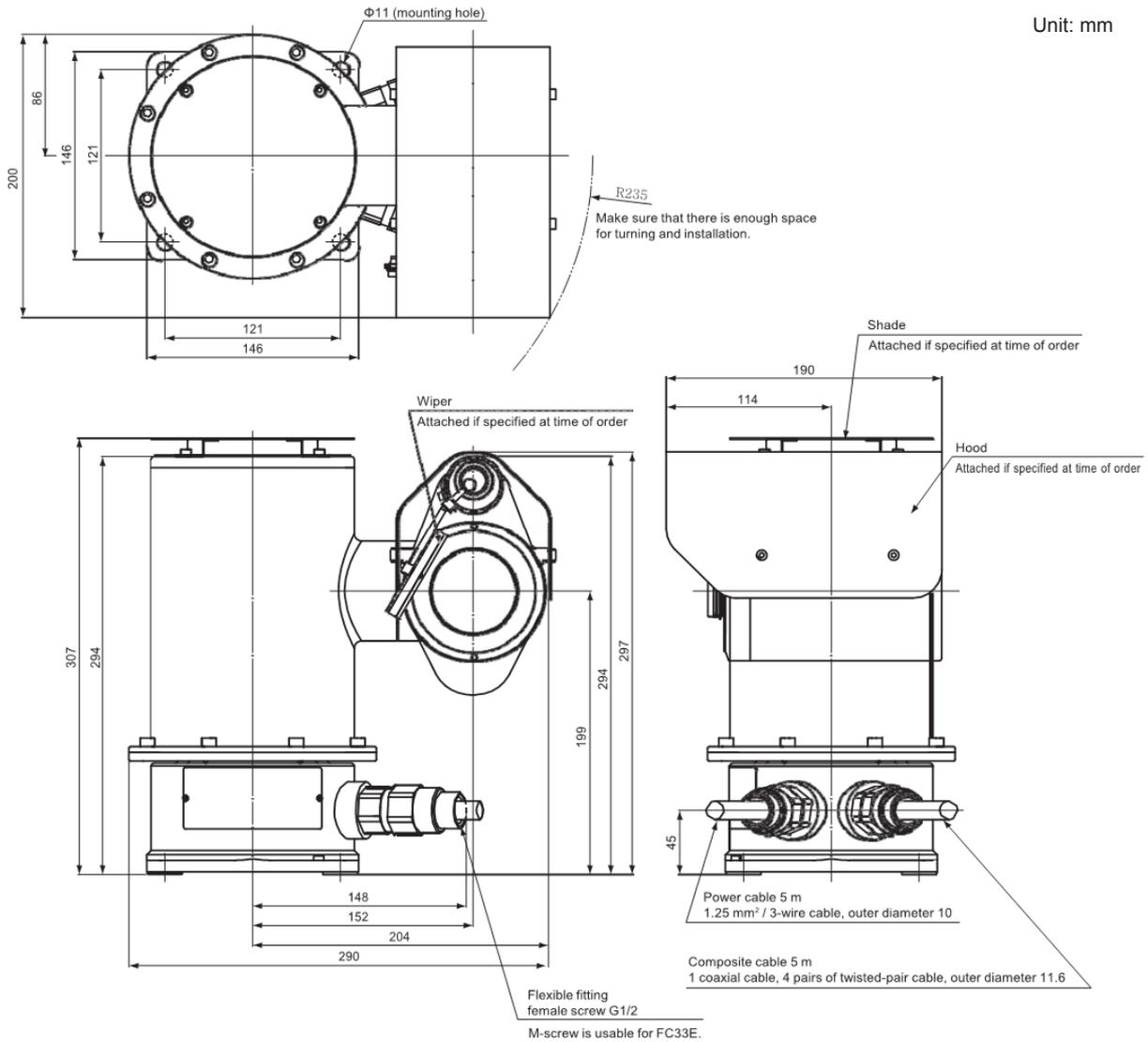
NOTE): Terminal box: Prepared by customer.

External dimensions

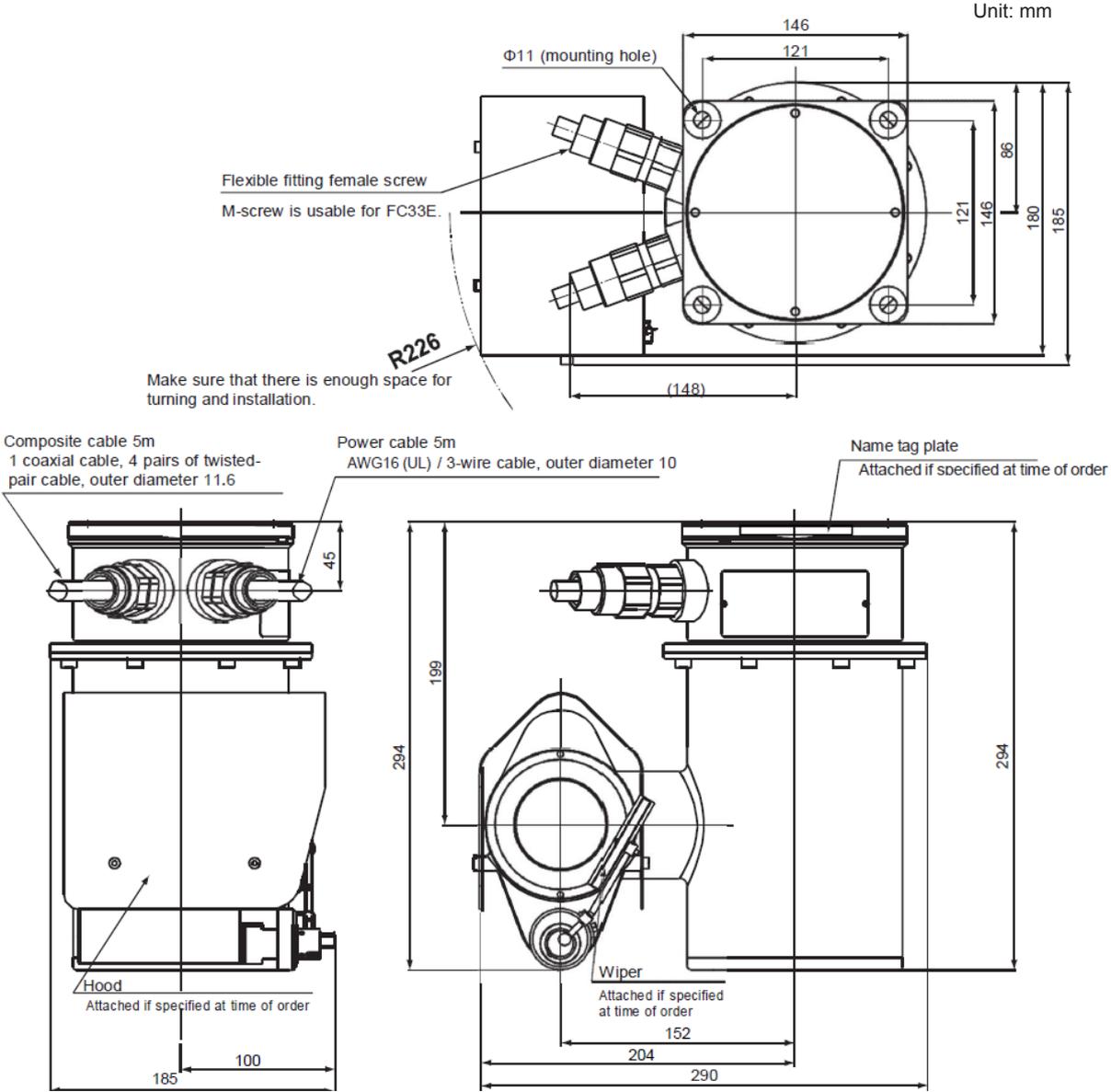
Main body of model FC33

Upright Type: FC33□-□□□□S

Unit: mm



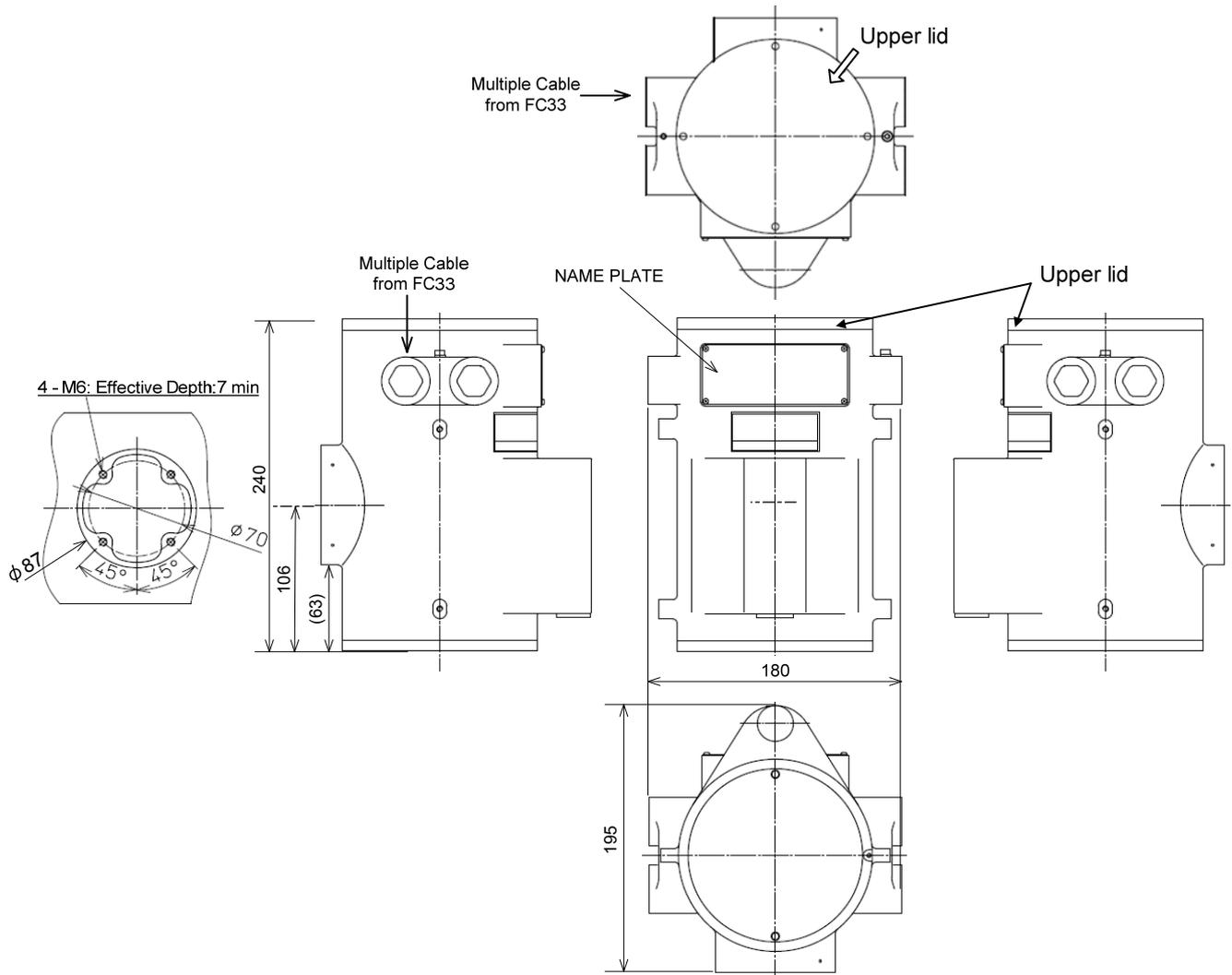
• Inverted Type:
FC33□-□□□□U



External dimensions JUNCTION BOX

•/JB and /JB/TX (Full HD IP type ONLY)

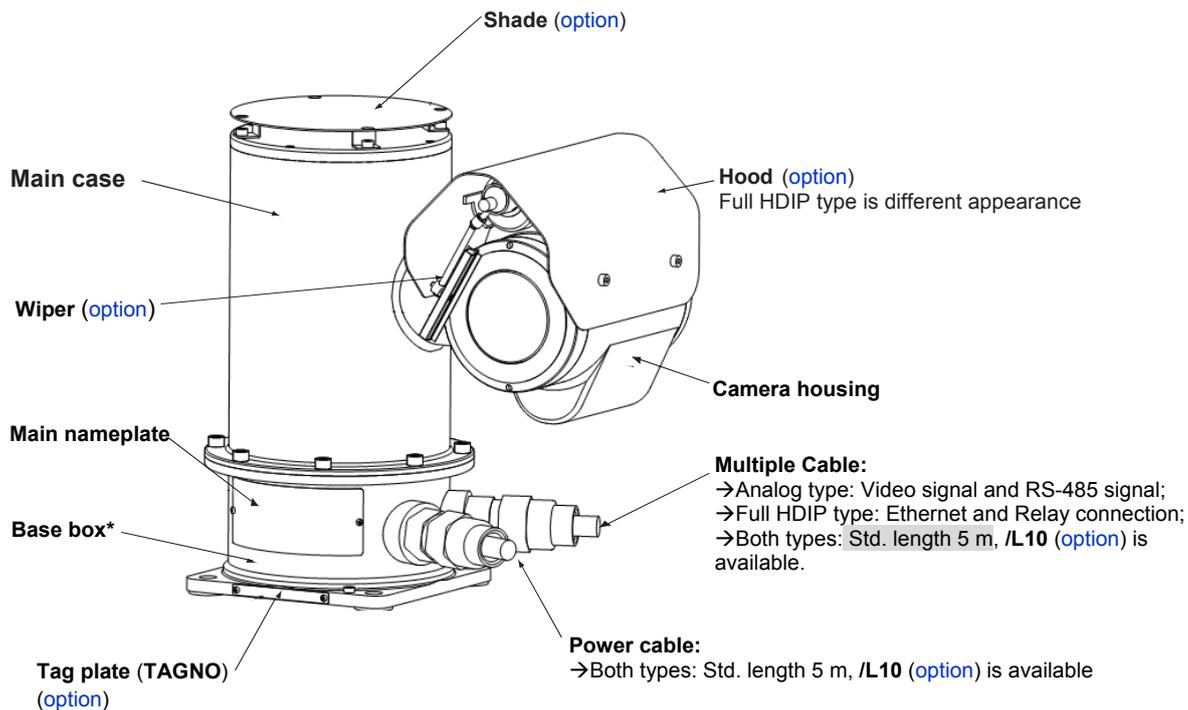
Unit: mm



Note1) After cabling is completed, close the Upper lid by a force of around **30N·m** so as to become securely tight.

Note2) Do not step on the Upper lid.

■ Designating option codes for making your order



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