

SPEC. INFO.	H55ZBME-F-HD-PR01	CC SPEC.	3161256-S501-CC-B19
			Mar.18. '13

1. Model H55ZBME-F-HD-PR01 (Option No.3 : CC Spec.)
 1-1. Product Summary 55X Zoom with Motorized 2.5x Extender Featuring AF, Atmospheric Interference Reduction and Suitable for HD-SDI (The output of Atmospheric Interference Reduction is VGA signal.)

2. Application For 1/2 Format CCTV Camera, especially for telephoto surveillance use requiring Atmospheric Interference Reduction

3. Specification

3-1. Physical (As per the attached drawing)

- (1) Dimensions 155mm(W)×138mm(H)×355mm(D)
- (2) Weight 5960g
- (3) Filter Screw Size ϕ 105mm, P=1mm
- (4) Mount C-Mount (1-32UN-2A)
- (5) Screw for Tripod 1/4 20UNC (4 positions)

3-2. Optical

※Values in () are with the built-in 2.5X extender in use.

- (1) Focal Length 12mm ~ 660mm (30.5mm ~ 1680mm)
- (2) Max. Aperture Ratio 1 : 4.0 (f =12mm) ~ 1 : 18.2 (f =1680mm)
- (3) Iris Range F4.0~F360 (continuous)
- (4) Illumination Ratio 1:8,100
- (5) Angle of View

	WIDE	TELE
Diagonal	39.9° (15.1°)	0.7° (0.3°)
Horizontal	31.1° (12.1°)	0.6° (0.2°)
Vertical	22.9° (9.0°)	0.4° (0.2°)

- (6) Picture Format 6.4mm × 4.8mm
- (7) Focusing Range Inf. ~ 7m
- (8) Back Focal Length 80.933mm (46.908mm)
- (9) Flange Back Length 17.526mm ±0.05mm

3-3. Electrical

- (1) Control Protocol and Video Signal Selection

Function Switches on the rear panel allow various options for control and video type. **IMPORTANT:** Function Switches must be set **BEFORE** power supply connection.

Function Switch position

	1	2	3	4	5	6
ON	RS-232C	RS-485	VIDEO	PAL	—	—
OFF	RS-4xx	RS-422	HD-SDI	NTSC	—	—
	Serial COM.		VIDEO Signal		N.C	N.C

Use

SW No.	ON/OFF	Use
1	ON	RS-232C communication (D-Sub 9-Pin RS-232C connector ② is used.)
	OFF	RS-485 or RS-422 communication
2	ON	Half-duplex RS-485. 7-Pin connector ④ is used.
	OFF	Full-Duplex RS-422. 7-Pin terminal connector ④ is used.
3	ON	When a camera with NTSC/PAL output is used.
	OFF	When a camera with HD-SDI output is used.

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4	ON	When the camera with PAL output is used. Also, when using a HD-SDI camera, a PAL signal is output via the BNC connector for COMPOSITE (VIDEO) output.
	OFF	When the camera with NTSC output is used. Also, when using a HD-SDI camera, an NTSC signal is output from the BNC connector for COMPOSITE (VIDEO) output.
5	—	N.C
6	—	N.C

(2) Power supply

- ① Rated voltage and current
- ② Power Connector

Lens Power (excluding auto-iris control)

DC12V and 1.5A (minimum)

2-Pin connector (PHOENIX CONTACT P/N: MCV-1, 5/2-G-3, 81).

Location: Rear panel of lens body : ㉔

(3) Iris

① Auto

- 1. Supply Voltage & Current DC8V ~ DC15V 50mA or less
- 2. Input Signal V or VS
- 3. Iris Accuracy ±20% at V signal level
- 4. Sensitivity Adjustment 0.5V(p-p) to 1.0V(p-p) at V signal level continuously adjustable
- 5. Input Impedance High Impedance
- 6. Response Speed 1.5 sec. (approx.)
- 7. Metering Average to Peak continuously adjustable
(adjusted at Average when delivered)
- 8. Close Down Iris closes down when the power is cut off and protects Image Sensor from strong light.
- 9. Electrical Connector Standard 4-pin connector
(TECHNICAL ELECTRON P/N: D4-156N-100) : ㉕

② Manual

- 1. Supply Voltage & Current DC12V 5mA or less
- 2. Close Down Iris closes down when the power is cut off and protects Image Sensor from strong light.

(4) Zoom, Focus and Built-in Extender (Motorized)

① Supply Voltage & Current

DC12V (From main power input connector)

※ Supply Voltage and operation are controlled through

Zoom	100mA or less/motor (at 25°C)
Focus	50mA or less/motor (at 25°C)
Extender	30mA or less/motor (at 25°C)

② Control Voltage

DC12V (From main power input connector)

③ Operational Speed

Zoom	approx. 4.5 sec. (end-to-end)
Focus	approx. 5.0 sec. (end-to-end)
Extender	approx. 2.0 sec.

④ Lens control/operation connection

RS-232C: D-Sub 9-Pin connector on rear panel: ㉖
TECHNICAL ELECTRON P/N: DBW20-091F200
RS-485, RS-422: 7P connector on rear panel : ㉗
PHOENIX CONTACT P/N: MCV-1, 5/7-G-3, 81

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(5) Image Control Board

① Input video connection and standard

COMPOSITE VIDEO signal: BNC connector on rear panel ⑥[IN]
 NTSC or PAL input video signal (selected by the Function Switch on rear panel BEFORE power supply connection)
 HD-SDI signal: BNC connector on rear panel ⑦[IN]
 ※ In factory default mode, video signal path bypasses the video board. To activate video processing the proper COMMAND(S) must be sent.

② Output video connection and standard

COMPOSITE VIDEO signal: BNC connector on rear panel ⑥[OUT]
 NTSC or PAL video signal (Per input selected by the Function Switch on rear panel BEFORE power supply connection)
 HD-SDI signal: BNC connector on rear panel ⑦[OUT]

NOTE for HD-SDI video: When video processing is engaged, the modified video signal is output only from the COMPOSITE VIDEO OUT connector ⑥.

- Atmospheric Interference Reduction

③ Image control signal connection and communication standard

RS-232C : D-Sub 9-pin connector - Rear Panel: ⑧
 Dedicated PAIR command set
 TECHNICAL ELECTRON P/N: DBW20-091F200

RS-422, RS-485 : 7-Pin connector – Rear Panel: ⑨
 Dedicated PAIR command
 PHOENIX CONTACT P/N: MCV-1, 5/7-G-3, 81

(Selection of RS-232C, and RS-485/RS-422 may be accomplished through Function Switch settings.)

3-4. Image Control

(1) Focus Control

① Auto/Manual Switch

Ability to select Auto Focus (hereinafter referred to as 'AF') or Manual Focus by respective 'Command'

② 'AF' Specification

Capable of 'AF', driving the focus system of the lens by inputting respective 'Command.' Focus based on the video signal output from the camera mounted to the lens.

③ 'AF' Performance

Following ①~③ are to be achieved, when 'AF' is activated and the B/W chart is placed within the 'AF' area of the monitor in the distance of 39m and under natural light condition.

1. 'AF' Speed	Avg. 5 sec from inputting 'Command' until focus is adjusted
2. 'AF' Accuracy	MTF of B/W chart after 'AF' is more than 70%
3. 'AF' Error Frequency	Error Frequency is less than 1 per 10 times of 'AF' ※When using B/W chart.

④ Manual Focus Specification

Focus position may be controlled between Near & Far by driving the focus system of the lens by inputting respective 'Command'.

(2) Manual Zoom Control & Extender Control Specification

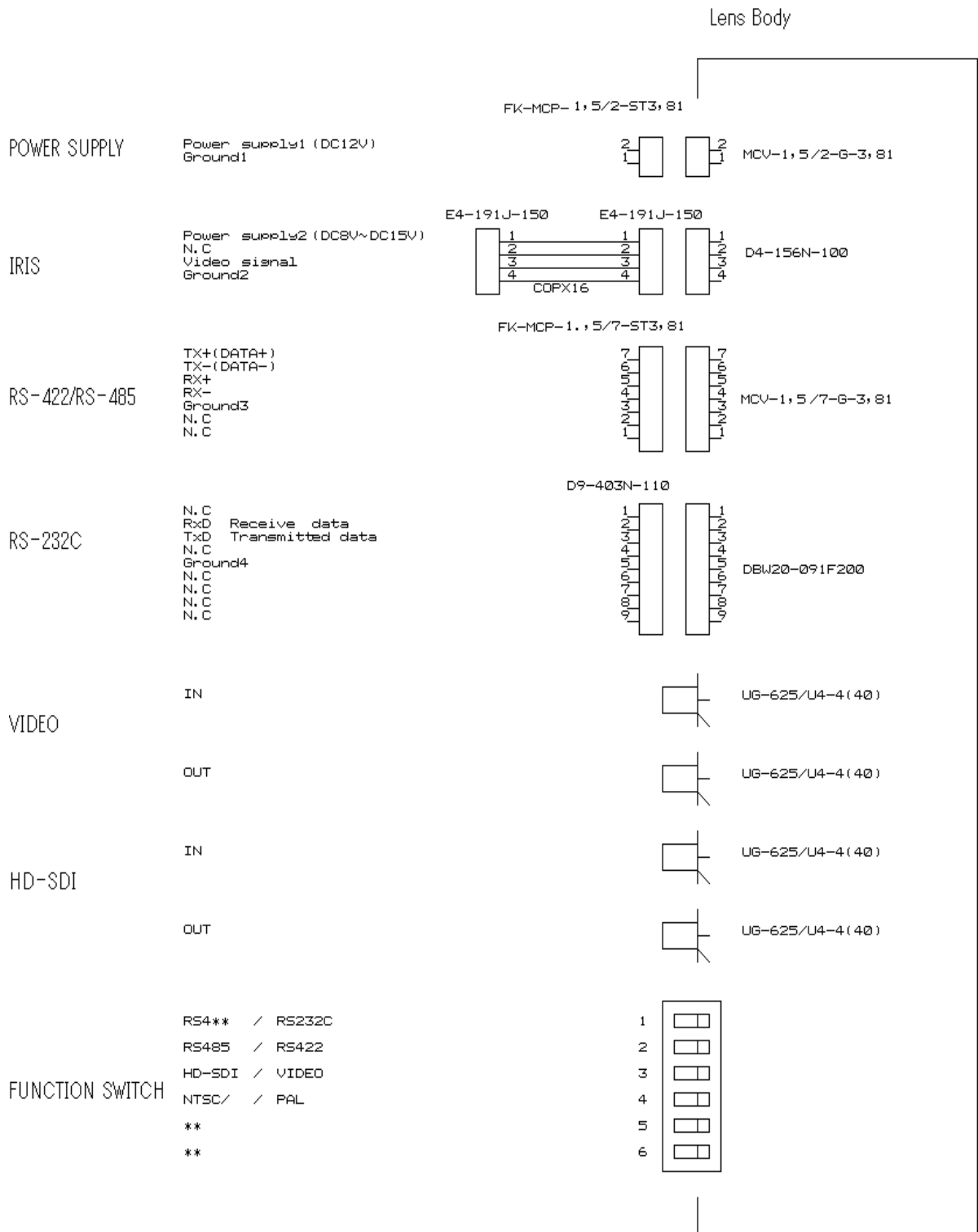
Zoom position may be controlled between Tele – Wide by driving the zoom system of the lens by inputting respective 'Command'.
 Extender may be inserted and removed by inputting respective 'Command'.

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(3) Atmospheric Interference Reduction Control Specification	<p>* This specification is related to Atmospheric Interference (i.e. fog, sand storm, etc) Reduction function. Hereinafter referred to as 'PAIR'.</p> <p>* PAIR' is an abbreviation for Pentax Atmospheric Interference Reduction.</p>
①Atmospheric Interference	Liquid (Fog/Rain) and solid (Sand/Smoke/Snow) particles and compound.
②In/Output Video Signal	With NTSC or PAL video input (color or B/W) from the camera, processed/improved video signal from the lens output terminal is available in the same NTSC or PAL format.
③ON/OFF and Mode Switch	PAIR processing ON/OFF and Auto/Manual modes are available with serial input of respective 'Command'.
④Auto 'PAIR' Function	When the camera is in use under the environmental conditions with noise as described in (6) ①, contrast of images within the 'AF' area of the screen center is automatically corrected when command for "Auto PAIR function" has been previously sent.
《Compensated Contrast Condition》	<p>The following conditional format is fulfilled before and after compensation of the Histogram, on 256 gradation luminance data of all dots within the respective 'AF' area on the monitor.</p> <p>$C = B/A = 5.0$ or more — a)</p> <p>A: Histogram width before RGB compensation (excluding unusual value)</p> <p>B: Histogram width after RGB compensation (excluding unusual value)</p> <p>※EXCEPTION: If A is more than 256/5(=51), C can be below 5.0</p>
⑤Manual 'PAIR' Function	Levels of 'Contrast', 'Color Density' and 'Tone' may be manually set from 0 to 255 by inputting respective 'Command'.
⑥User Setting Function	User may set MEMORY PRESETS for up to 3 patterns of the above 3 parameters in ⑤ by inputting respective 'Command'.

4. Connection Diagram

Please be sure to make change of a Function Switch, and connection of a connector, ONLY after turning OFF all power supplies.



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4-1. 9-pin connector

RS-232C protocol D-Sub 9-pin connector.(TECHNICAL ELECTRON P/N: DBW20-091F200)

Pin No.	1	2	3	4	5	6	7	8	9
RS-232C	—	RxD	TxD	—	GND	—	—	—	—
—	N.C	Serial COM.		N.C	GND	N.C	N.C	N.C	N.C

(1) Communication by a RS-232C standard

Position of Function Switch
Function Switch 1 : ON

Pin No.	Label	Connection
1	—	N.C
2	RxD	Please connect with RxD of a controller. (It is TxD within the lens)
3	TxD	Please connect with TxD of a controller. (It is RxD within the lens)
4	—	N.C
5	GND	Please connect with GND of a controller.
6	—	N.C
7	—	N.C
8	—	N.C
9	—	N.C

4-2. 7-pin connector

RS-422/RS-485 protocol 7-Pin connector . (PHOENIX CONTACT P/N: MCV-1, 5/7-G-3, 81)

Pin No.	1	2	3	4	5	6	7
RS-422	TX+	TX-	RX+	RX-	GND	—	—
RS-485	Data+	Data-	—	—	GND	—	—
—	Serial COM.					N.C	N.C

(1) Communication by a RS-422 standard

Position of Function Switch
Function Switch 1 : OFF
Function Switch 2 : OFF

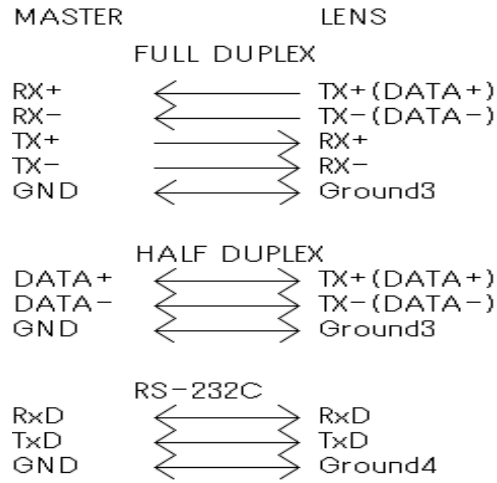
Pin No.	Label	Connection
1	TX+	Please connect to RX+ of a controller.
2	TX-	Please connect to RX- of a controller.
3	RX+	Please connect to TX+ of a controller.
4	RX-	Please connect to TX- of a controller.
5	GND	Please connect to GND of a controller.
6	—	N.C
7	—	N.C

(2) Communication by a RS-485 standard

Position of Function Switch
Function Switch 1 : OFF
Function Switch 2 : ON

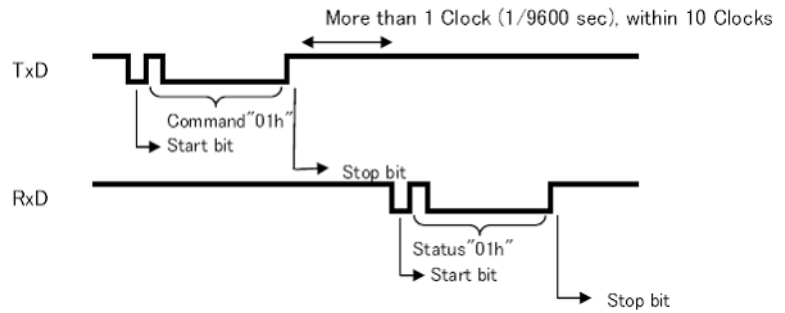
Pin No.	Label	Connection
1	Data+	Please connect to Data+ of a controller.
2	Data-	Please connect to Data- of a controller.
3	—	N.C
4	—	N.C
5	GND	Please connect to GND of a controller.
6	—	N.C
7	—	N.C

5. Communication
5-1. Communication

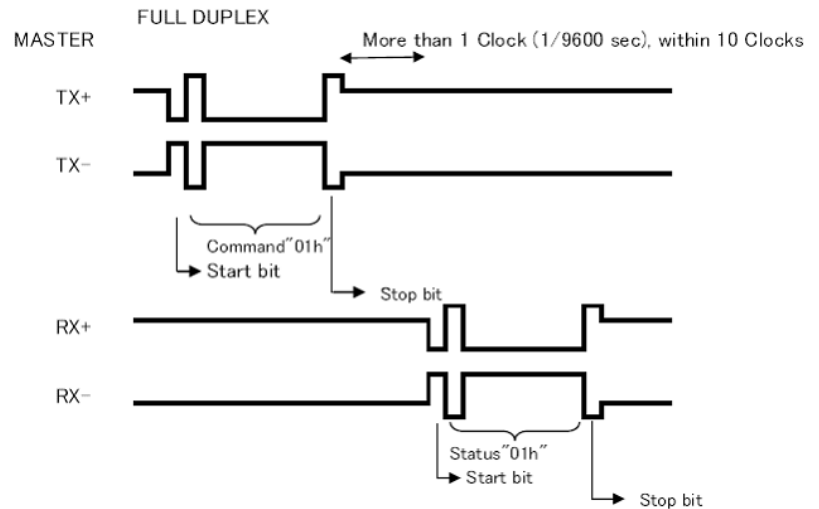


5-2. RS-232C/RS-422/RS-485 specification and a command

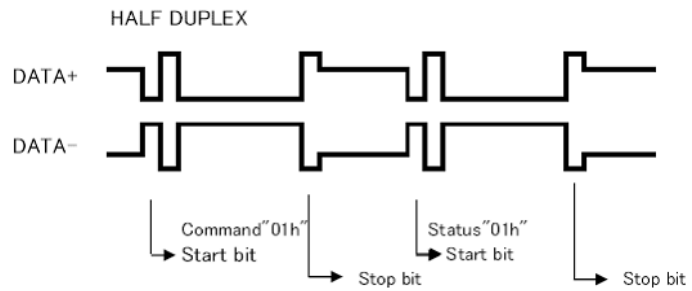
- (1) Control system RS-232C/RS-422/RS-485 protocol
- (2) Initial setting Normal H 1 : H, 0 : L
- a. RS-232C protocol



b. RS-422 protocol

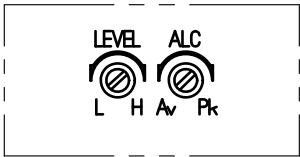
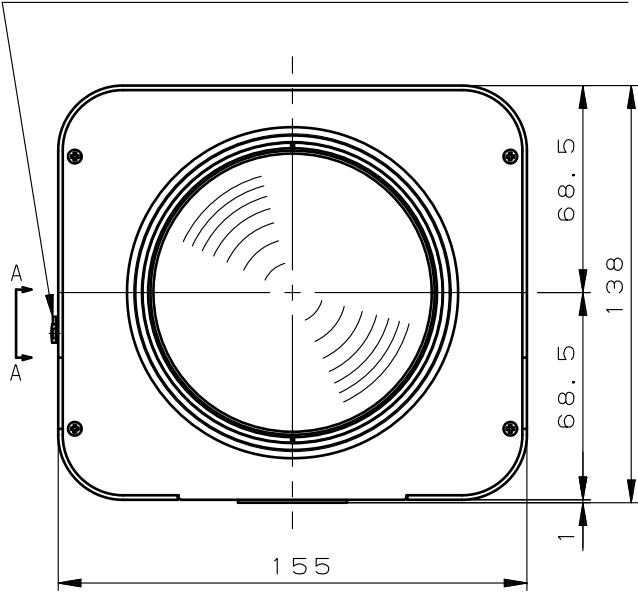


c. RS-485 protocol



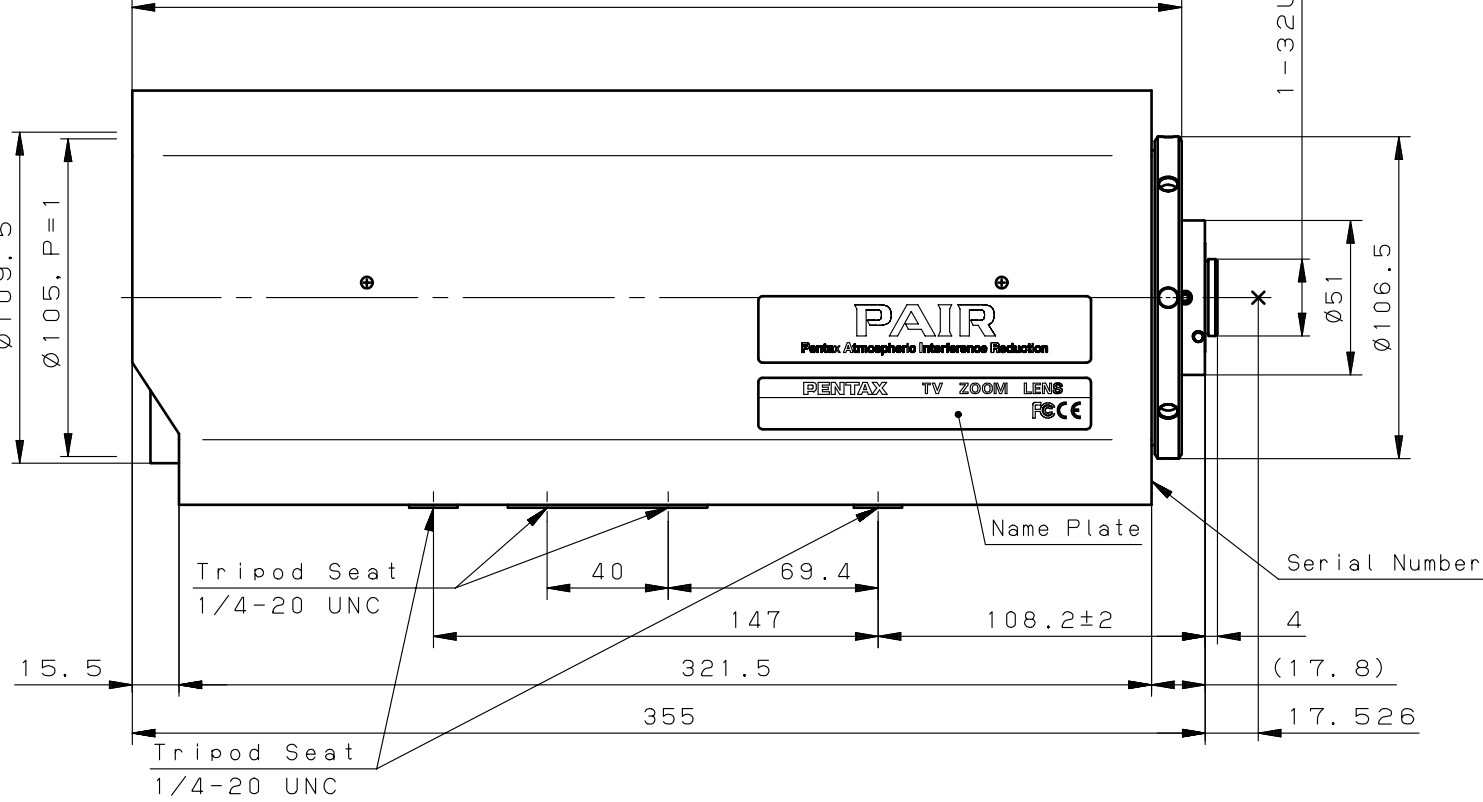
(3) Control system	The contents of control are referring to the "command & status." A command is 1~3 bytes and status is 1~3 bytes.
(4) Others	<ul style="list-style-type: none"> • 10 bits of ADC • Motor voltage of 8 bits (value generates 0 VDC ~ 12VDC in internal lens circuits)
6. Environmental Temperature Range	-10°C to +50°C
7. Accessories	
(1) Front Lens Cap	1 piece
(2) Rear Lens Cap	1 piece
(3) Connector (For power supplies)	2P connector (PHOENIX CONTACT P/N: FK-MCP-1, 5/2-ST3, 81) 1 piece
(4) Connector (For RS-232C)	9P connector (TECHNICAL ELECTRON P/N: E9-403N-110) 1 piece
(5) Connector (For RS-422/RS-485)	7P connector (PHOENIX CONTACT P/N: FK-MCP-1, 5/7-ST3, 81) 1 piece
(6) Cable (For Auto-Iris)	Cable Length: 250mm Termination: 4-Pin connector x2 (TECHNICAL ELECTRON P/N: E4-191J-150) 1 piece
(7) Function Switch Cover	1 piece (with PHILIPPS Head screw x2)
(8) Instruction manual / Command table	1 set
(9) Packing Box	1 piece

LEVEL & ALC Adjusting Window Cap



A-A (When Cap is off)

Aventurine Black



g) Function Switch

a) RS-232C

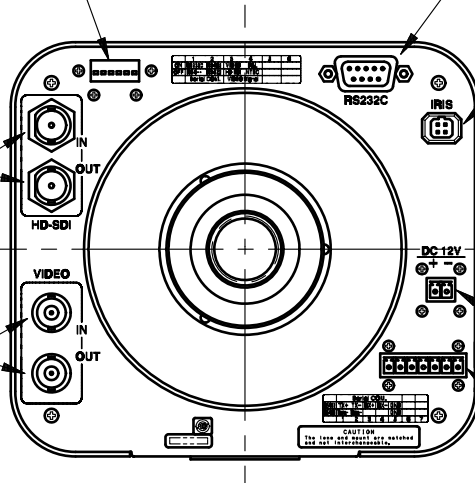
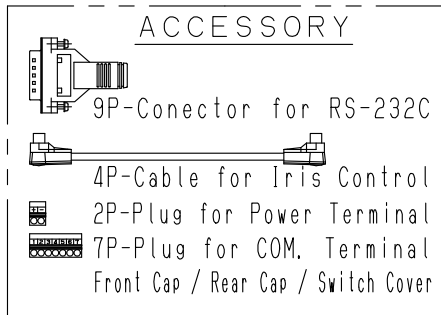
f) HD-SDI IN
HD-SDI OUT

b) IRIS Control

e) VIDEO IN
VIDEO OUT

c) Power Terminal
(DC12V)

d) COM. Terminal
(RS-485/RS-422)



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