2.2MP HD-SDI Miniature Bullet Camera with 3.6mm Lens

HXMB22MPV2

User Manual

Please read these instructions carefully before operating the unit
and keep for further reference.

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Please read this instruction carefully before operating the product and keep it for further reference. All examples and pictures used here are for reference only. The contents of this manual are subject to change without notice.

CAUTION:

- A regulated DC12V 300mA power supply is recommended for use with this camera for the best picture and the most stable operation. An unregulated power supply can cause damage to the camera and the product warranty will be void.

- It is recommended that the camera be used with a monitor that has a CCTV quality 75Ω video impedance level. If your monitor is switched to high impendance then please adjust accordingly.

- Do not attempt to disassemble the camera to gain access to the internal componets. Refer servicing to your distributor.

- Never face the camera towards the sun or any bright or reflective light. It may cause a smear on the picture and possible damage to the image sensor.

- Do not remove the serial sticker for the warranty service.

- Do not expose the camera to rain or other types of liquid.

- The apparatus must be connected to a main socket-outlet with a protective earth connection.

- Any changes or modifications in construction of this devies which are not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE:

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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Contents

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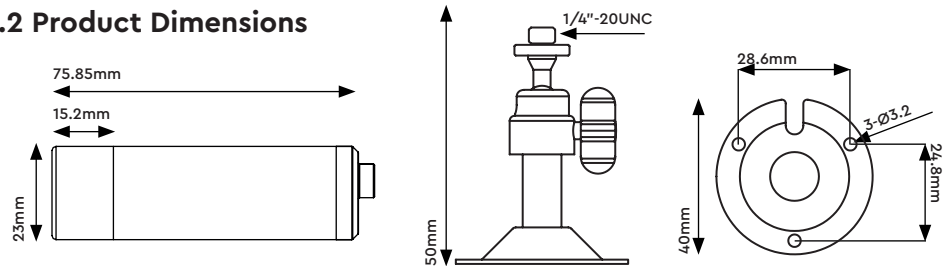
The Genie HXMB22MPV2 is a 2.2MP HD-SDI miniature bullet camera with 3.6mm lens.

1.1 Product Features
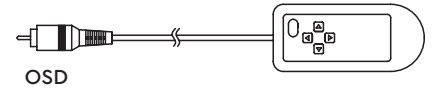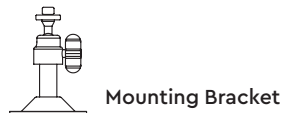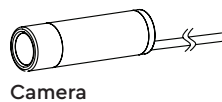
- 1/2.8" Progressive Scan CMOS
- 1080p (1920×1080) @30 (25) fps
- HD-SDI (100m @ RG59) / EX-SDI 1.0 (300m @ RG59) / CVBS
- 2.2MP HD-SDI Miniature Bullet Camera with 3.6mm Lens
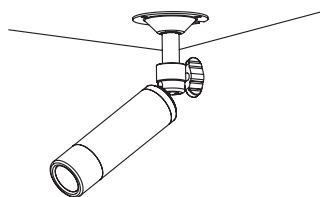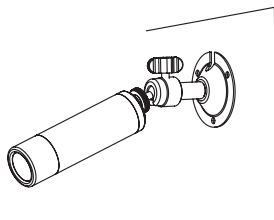- Electronic Day & Night
- 3D DNR, Defog
- IP67

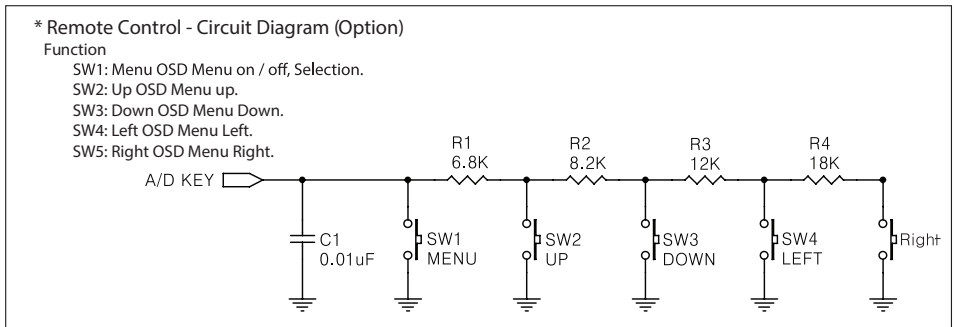### 1.2 Product Dimensions

1.3 Components

Camera

Mounting Bracket

OSD

Screws

User Manual

1.4 Mounting Position

Wall Mounting

Ceiling Mounting

1.5 Specification

Camera	Image Sensor	1/2.8" Sony Exmor R Progressive Scan CMOS
	Resolution	HD-SDI/EX-SDI 1.0: 1080p @ 30fps (25fps) / 720p @ 60fps (50fps) / 720p @ 30fps (25fps) TV out: CVBS NTSC/PAL
	Electronic Shutter	AUTO / FLICKER / MANUAL /(1/30(25)~1/30,000)
	Digital Slow Shutter (DSS)	OFF~ x32
	Minimum Illumination	0.1 Lux (F2.0, AGC20dB, DSS:x2)
	Lens	3.6mm fixed lens, F 2.0
	Angle of View	112.3 (D) x 93.7 (H) x 49.3 (V)
	Effective Pixels	1945 (H) x 1097 (V)
Functions	White Balance	AUTO/PUSH LOCK/MANUAL
	WDR/BLC	OFF/BLC/HLC
	Auto Gain Control (AGC)	OFF~42dB
	Day & Night	AUTO/COLOUR/B&W (Electronic D&N)
	Noise Deduction	3D-DNR (OFF/LOW/MIDDLE/HIGH)
	Motion Detection	OFF/ON (4 Zones)
	Privacy Mask	16 Zones
	Image Rotation	OFF/H-FLIP/V-FLIP/HV-FLIP
	Defog	OFF/ON (AUTO/MANUAL)
	Sharpness	Adjustable 0~10
	OSD Control	Joystick, RS-485 Control
	Language	4 languages
	Video Output	HD-SDI/EX-SDI1.0/CVBS
Others	Ingress Protection	IP67
	Temperature	Operating: -10°C~+50°C Storage: -20°C~+60°C
	Power Source	DC12V (±10%)
	Power Consumption	Max. 190mA @ DC12V
	Dimension	23 × 75.85 mm
	Weight	Approx. 90g

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2.1 Monitor Connection
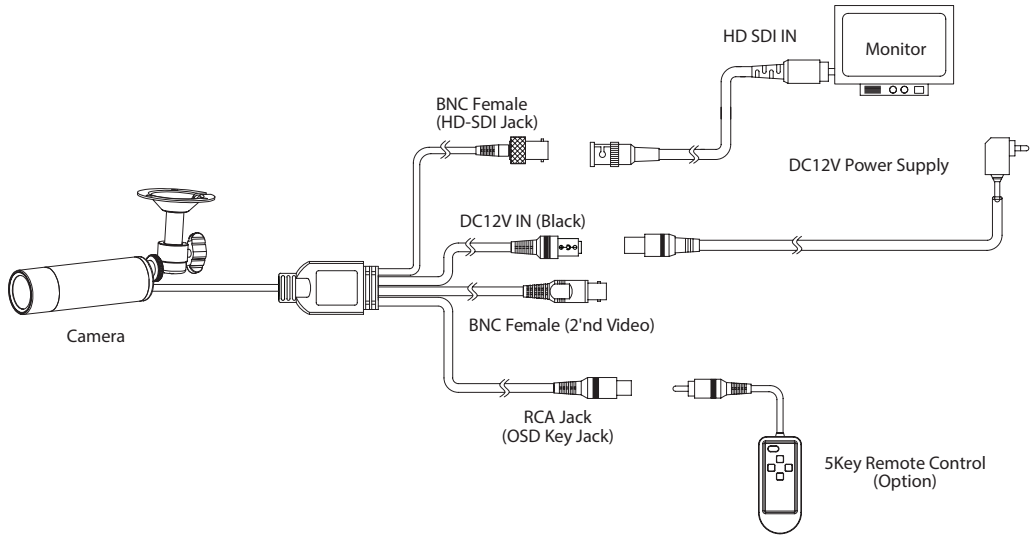
HD SDI IN
Monitor
BNC Female
(HD-SDI Jack)
DC12V Power Supply
DC12V IN (Black)
Camera
BNC Female (2'nd Video)
RCA Jack
(OSD Key Jack)
5Key Remote Control
(Option)

* Remote Control - Circuit Diagram (Option)
Function
SW1: Menu OSD Menu on / off, Selection.
SW2: Up OSD Menu up.
SW3: Down OSD Menu Down.
SW4: Left OSD Menu Left.
SW5: Right OSD Menu Right.

R1 6.8K R2 8.2K R3 12K R4 18K

A/D KEY

C1 0.01uF SW1 MENU SW2 UP SW3 DOWN SW4 LEFT Right

When you install the camera, please glue up the end of cable to keep it stable in order to protect the camera from any humidity problems.

2.2 RS-485 Type
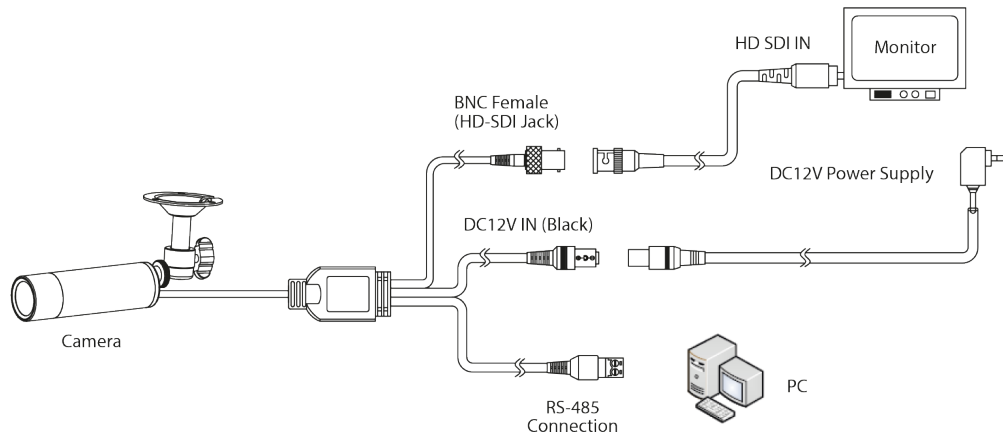
HD SDI IN Monitor
BNC Female
(HD-SDI Jack)
DC12V Power Supply
DC12V IN (Black)
Camera
RS-485
Connection
PC

When you install the camera, please glue up the end of cable to keep it stable in order to protect the camera from the humidity problems.

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MAIN MENU	1st Sub MENU	2nd Sub MENU	3rd Sub MENU	4th Sub MENU	5th Sub Menu
EXPOSURE	BRIGHTNESS	0 ~ 20			
	AE MODE	NORMAL/DEBLUR			
	AE WINDOW (RS-485 Only)	AE Window OSD	OFF,ON		
		AE WINDOW V START	1~255		
		AE WINDOW V END	WIN V START ~255		
		AE WINDOW H START	1~255		
		AE WINDOW H END	WIN V START ~255		
		RETURN			
	SHUTTER	AUOTO			
		FLICKER			
		MANUAL	SHUTTER SPEED	1/30,1/60,1/120,1/250,1/700,1/1000,1/1600,1/2500,1/5000,1/7000,1/10000,1/30000	
			RETURN	BACK / EXIT	
	DSS	OFF,X2~X32			
	AGC MAX	OFF~42dB			
	INITIAL				
	RETURN				
WHITE BALANCE	MODE	AUTO			
		PUSH LOCK			
		MANUAL	COLOR TEMP	LOW,MIDDLE,HIGH	
			RED GAIN	0~20	
			BLUE GAIN	0~20	
			RETURN		
	PUSH AUTO	CONTROLLER			
	COLOR GAIN	0~20			
	INITIAL				
	RETURN				
HLC/BLC	OFF				
	BLC	LEVEL	0~10		
		BLC POSITION	H-POS	0~20	
			V-POS	0~20	
			H-SIZE	0~20	
			V-SIZE	0~20	
			RETURN		
		HLC COLOR	- - -		
		INITIAL			
		RETURN			
	HLC	LEVEL	0~20		
		BLC POSITION	- - -		
		HLC COLOR	BLK, D.GRAY, L.GRAY, WHT, YEL, CYN, GRN, MAG, RED, BLU		
		INITIAL			
		RETURN			
DNR	OFF / LOW / MIDDLE / HIGH				
DAY & NIGHT	AUTO	DWELL TIME	0~20		
		DAY->NIGHT	1~28		
		NIGHT->DAY	0~27		
		NIGHT COLOR	B/W, COLOR		
		INITIAL			
		RETURN			
	COLOR				
	B&W	DWELL TIME	- - -		
		DAY->NIGHT	- - -		
		NIGHT->DAY	- - -		
		NIGHT COLOR	B/W, COLOR		
		INITIAL			
		RETURN			
IMAGE	SHARPNESS	0~10			
	D-ZOOM	1.0X~16.0X			
	FREEZE	OFF, ON			
	GAMMA	0.45/0.50/0.55/0.60/0.65/0.70/0.75			
	FLIP	OFF,H-FLIP,V-FLIP,HV-FLIP			
	ACE	OFF,LOW,MIDDLE,HIGH			
	DEFOG	OFF			
		ON	MODE	AUTO,MANUAL	
			LEVEL	LOW,MIDDLE,HIGH	
			RETURN		
	SHADING	OFF			
		ON	WEIGHT	0~100	
			RETURN		
	INITIAL				
	RETURN				
SPECIAL	FOCUS ADJ	OFF,ON			
	CAM TITLE	OFF			
		ON	CONTROLLER		
			LOCATION	CONTROLLER	
			RETURN		
	PRIVACY	BOX	OFF		
			ON	ZONE NUM	0~15
				ZONE DISP	OFF,ON
				H-POS	0~60
				V-POS	0~60
				H-SIZE	0~60
				V-SIZE	0~60
				COLOR	0~13
				TRANS	0~3
				RETURN	
		POLYGON	OFF		
			ON	ZONE NUM	0~7
				ZONE DISP	OFF,ON
				POS0-X	0~120
				POS0-Y	0~120
				POS1-X	0~120
				POS1-Y	0~120
				POS2-X	0~120
				POS2-Y	0~120
				POS3-X	0~120
				POS3-Y	0~120
				Y LEVEL	0~20
				CB LEVEL	0~20
				CR LEVEL	0~20
				TRANS	0~3
				RETURN	
		INITIAL			
		RETURN			

MAIN MENU	1st Sub MENU	2nd Sub MENU	3rd Sub MENU	4th Sub MENU	5th Sub Menu
SPECIAL	MOTION	OFF			
		ON	DET WINDOW	WINDOW USE	0~3
				WINDOW ZONE	OFF,ON
				DET H-POS	0~60
				DET V-POS	0~60
				DET H-SIZE	0~60
				DET V-SIZE	0~60
				RETURN	
			SENSITIVITY	0~10	
			QUICK ZOOM	ZOOM SPEED	LOW, MIDDLE, HIGH
				TRACKING	OFF,ON
				REPEAT	OFF,ON
				RETURN	
			MOTION OSD	OFF,ON	
			TEXT ALARM	OFF,ON	
			INITIAL		
			RETURN		
	DIS	OFF			
		ON	RANGE	10%,20%,30%	
			FILTER	LOW,MIDDLE,HIGH	
			AUTO C	OFF, HALF, FULL	
			INITIAL		
			RETURN		
SYSTEM	LANGUAGE	ENG, CHN, CHN(S), JPN			
	COMM. ADJST (RS-485 ONLY)	CAM ID	0~255		
		BAUDRATE	2400, 4800, 9600, 19200, 38400, 57600, 115200		
		APPLY			
		RETURN			
	FRAME RATE	1080_30P, 1080_25P, 720_60P, 720_50P, 720_30P, 720_25P			
	SDI OUT	HD-SDI, EX-SDI			
	APPLY				
	REBOOT	PUSH BUTTON			
	RETURN				
FACTORY DEF					
EXIT					

3.1 Function Description

0. SETUP
- EXPOSURE: Go sub menu for camera exposure control.
- WHITE BALANCE: Go sub menu for camera white balance control.
- HLC/BLC: Go sub menu for camera HLC or BLC action.
- DNR: Control noise reduction setting.
- DAY & NIGHT: Go sub menu for camera day & night control.
- IMAGE: Go sub menu for adjust image functions.
- SPECIAL: Go sub menu for special feature control.
- SYSTEM: Go sub menu for system control & information.

1. EXPOSURE
- BRIGHTNESS: Adjust image brightness value.
- AE MODE: Adjust AE control Mode.
- AE WINDOW(RS-485 ONLY) Adjust AE Window.
- SHUTTER : Select shutter speed control type.
> SHUTTER SPEED: Adjust shutter speed at manual shutter mode.
- DSS: Adjust digital slow shutter control level.
- AGC MAX: Adjust max gain level for brightness control.

2. WHITE BALANCE
- MODE: Select white balance control mode.
    – AUTO: Full auto control mode in color temperature rage 2300K~10000K.
    – PUSH LOCK: Enable fix the control setting for specific environment. Push & release, for fix WB control setting.
    – MANUAL: Enable WB control setting by user's intention.
> COLOUR TEMP: Select colour temperature range for WB control at manual mode.
> R-GAIN: Adjust red colour gain for WB control at maual mode.
> B-GAIN: Adjust blue colour gain for WB control at manual mode.
- COLOUR GAIN: Adjust image brightness value.

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3. HLC/BLC
Setting HLC/BLC function.
- LEVEL : adjust HLC/BLC Level.
- BLC POSITION: Act in Backlight compensation mode.
> H-POS: Select BLC control zone vertical position.
> V-POS: Select BLC control zone horizontal position.
> H-SIZE: Select BLC control zone vertical size.
> V-SIZE: Select BLC control zone horizontal size.
- HLC COLOUR: Adjust HLC COLOUR.

4. DNR: Reduce image's noise.

5. DAY & NIGHT
- MODE: Select DN (Digital Day & Night control) mode.
    – AUTO: Camera controlled automatically to decide day or night environment using
      AGC calculation data.
    – COLOUR: Fix to mode at day environment setting. Make video image act in color.
    – B&W: Fix to mode at night environment setting. Make video image act in B/W.
- DWELL TIME: Delay Time for change day or Night Mode at Auto mode.
- DAY->NIGHT: Threshold level for Change Day to Night.
- NIGHT -> DAT: Threshold level for Change Night to Day.
- NIGHT COLOUR: Select colour at night condition.

6. IMAGE
- SHARPNESS: Adjust image sharpness level.
- DZOOM: Select digital zoom magnification.
- FREEZE: OFF/ON
- GAMMA: Gamma Curve Select.
- FLIP: Select Vertical Mirror Setting or Horizontal flip setting.
- ACE: Digital wide dynamic range control.
- DEFOG: Enable Defog compensation.
> LEVEL: Defog compensation Level change at Auto / Manual mode.
- SHADING: Enable lens shading compensation.

7. SPECIAL
- FOCUS ADJ: ON/OFF Focus Adjust chart.
- CAM TITLE: Setting Camera Title.
- PRIVACY: Adjust privacy mask status.
BOX
> ZONE NUM.: Select private mask zone number.
> ZONE DISP.: Select zone mask display on/off.
> H-POS: Select zone horizontal position.
> V-POS: Select zone vertical position.
> H-SIZE: Select zone horizontal size.
> V-SIZE: Select zone vertical size.
> COLOUR: Select mask zone colour.
> TRANS: Select transparent level.
POLYGON
> ZONE NUM.: Select private mask zone number.
> ZONE DISP: Select zone mask display on/off.
> POS(0~3)X: Adjust X-POSITION
> POS(0~3)Y: Adjust Y-POSITION
> Y LEVEL: Select mask colour (Y Level)
> CB LEVEL: Select mask colour (CB Level)
> CR LEVEL: Select mask colour (CR Level)
> TRANS: Select transparent level.

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- MOTION
> DET WIDOW: Setting Motion window.
> SENSITIVITY: Select the motion detect sensitivity level.
> QUICK ZOOM: Setting Motion Quick zoom function.
> MOTION OSD: Select the display Motion OSD.
> TEXT ALARM: Select the display Motion Text alarm.
DIS
> RANGE: 10%/20%/30%, Set the compensation range.
> FILTER: LOW/MIDDLE/HIGH, Correction filter for the worst case of the
  image.
> AUTO C: OFF/HALF/FULL. Auto Centering to distinguish camera shake
  from PANNIG.
  FULL: The camera always corrects the direction in which the image is
  positioned at the center of the image.
  HALF: The center of the correction area is completely corrected
  (PANNING is ignored) and only the periphery is centered.

8. SYSTEM
- LANGUAGE: ENG, CHN, CHN(S), JPN
- COMM.ADJST (RS-485) Adjust COM Function.
- FRAME RATE: 1080_30P, 1080_25P, 720_60P, 720_50P, 720_30P, 720_25P
- SDI OUT: HD-SDI / EX-SDI
- APPLY: Apply all video setting changed at once. Use the Set button to
  apply.
- REBOOT: Reboot the camera.

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1. Communication Specification

RateBaud	Default 9600bps
Data bits	8 bits
Stop bits	1 bits
CAM ID	Default "1"
Parity Check	None
Supported Protocol	PELCO-D, PELCO-P

2. PELCO protocol for OSD remote control

• PELCO-D

	BYTE 1	BYTE 2	BYTE 3	BYTE 4	BYTE 5	BYTE 6	BYTE 7
UP KEY	0 x FF	Cam ID	0 x 00	0 x 08	0 x 00	0x0B~0x3F	ChkSum
DOWN KEY	0 x FF	Cam ID	0 x 00	0 x 10	0 x 00	0x0B~0x3F	ChkSum
LEFT KEY	0 x FF	Cam ID	0 x 00	0 x 04	0x0B~0x3F	0 x 00	ChkSum
RIGHT KEY	0 x FF	Cam ID	0 x 00	0 x 02	0x0B~0x3F	0 x 00	ChkSum
MENU ENTER KEY	0 x FF	Cam ID	0 x 00	0 x 07	0 x 00	0 x 5F	ChkSum

- Cam ID : 0x00 ~ 0x1F
- ChkSum : The Check Sum is the 8 bit (modulo 256) sum of the payload bytes (Byte2 ~ Byte6) in the Command.
- [0x0A~0x3F] means accept any value(between 0x0A ~ 0x3F) on command action.

• PELCO-P

	BYTE 1	BYTE 2	BYTE 3	BYTE 4	BYTE 5	BYTE 6	BYTE 7	BYTE 8
UP KEY	0 x A0	Cam ID	0 x 00	0 x 08	0 x 00	0x0B~0x3F	0 x AF	ChkSum
DOWN KEY	0 x A0	Cam ID	0 x 00	0 x 10	0 x 00	0x0B~0x3F	0 x AF	ChkSum
LEFT KEY	0 x A0	Cam ID	0 x 00	0 x 04	0x0B~0x3F	0 x 00	0 x AF	ChkSum
RIGHT KEY	0 x A0	Cam ID	0 x 00	0 x 02	0x0B~0x3F	0 x 00	0 x AF	ChkSum
MENU ENTER KEY	0 x A0	Cam ID	0 x 00	0 x 07	0 x 00	0 x 5F	0 x AF	ChkSum

- Cam ID : 0x00 ~ 0x1F
- ChkSum : The Check Sum is an XOR sum of Byte1 ~ Byte7
- [0x0A~0x3F] means accept any value(between 0x0A ~ 0x3F) on command action.

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