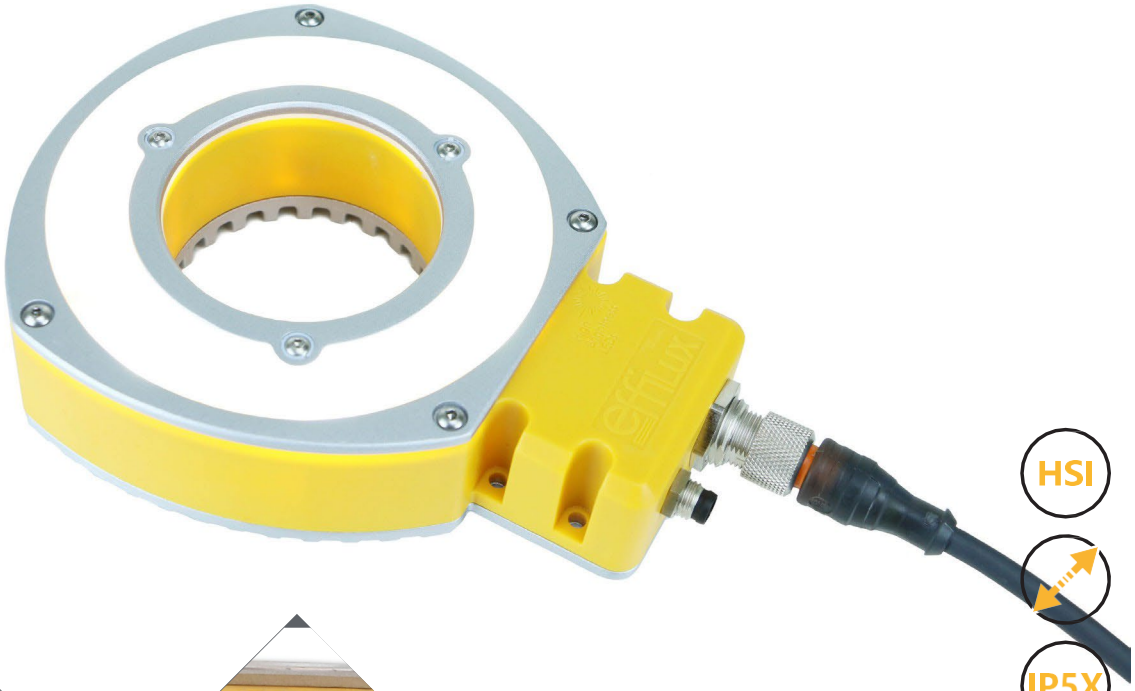
DATASHEET

Efficient Led Lighting

effiLux



HSI

IP5X

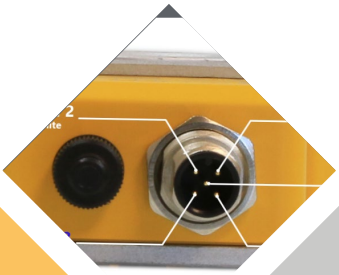
CE

RoHS

UKCA

Single Broadband VIS-NIR LED

Flexible light



Adjustable angle

Easy-to-mount

Uniform spectral emission

Suited for HSI machine vision

effiRING-HSI

Hyperspectral VIS-NIR LED ring light

PART NUMBER KEY

Standard version

EFFI-RING-HSI - WW - PP

Window	Lens position
TR (Transparent)	**P0** (90°)
SD (Semi-diffuse)	**P1 (**45°)
OP (Opaline)	**P2** (25°)
	P3 (10°)

Available options: References

OPTICS	
Polarizer accessory	EFFI-RING-HSI-**TR**-PP-**POL2** (Cf. page 5)
Extended spectrum version (400-1000nm)	EFFI-RING-HSI-**910-970**-WW-PP (Contact Effilux, available upon request)
ELECTRONICS	
STR version	EFFI-RING-HSI-ZZZ-WW-PP-**STR** (Direct control no LED protection)
NPN trigger Version	EFFI-RING-HSI-WW-PP-**NPN**
Kit with diffusers	EFFI-RING-HSI-**KIT** (Cf. page 4)

TECHNICAL SPECIFICATIONS

effiRING-HSI	
Illumination Mode	Strobe or Continuous
Spectrum	400-900nm (standard version) *Extended or custom spectrum available upon request. Please contact Effilux.*
Power Supply	24V DC +/- 10%
Max. Power Consumption	72W
Connector	M12 - 5pin
Driver version	AutoStrobe
Response Time	<25µs (Rising: 15µs / Falling: 10µs)
Max duty cycle	30 % in AutoStrobe mode
Input signal	PNP trigger input: Light ON: from 5V to 24V / Max. signal consumption: 1mA
Weight	400g
Dimensions	117mm x 151mm x 40mm Inside diameter: 58mm
Material	Device body: Aluminum allow / Window: PMMA
Fastener	M4 screw (4 on heat sink & 4 on outgrowth)
IP rating	IP65
Working temperature	0°C to 40°C
Heating time	Spectral stability is reached after an hour of operation at ambient temperature (25°C)
Regulations	CE - RoHS - REACH - WEEE - IEC 62471 - China RoHS
Country of Origin	France

Many possible configurations in just one light

Diffusers

TR : Transparent

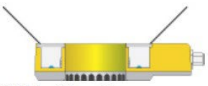
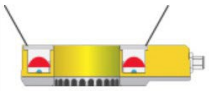
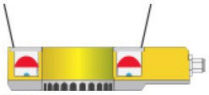
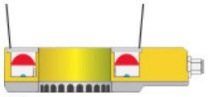
SD : Semi-diffuse

OP : Opaline

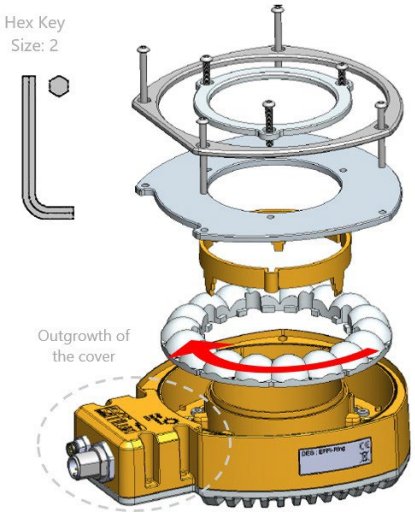
Depending on the uniformity needed for the application, the user can easily change the diffuser to satisfy the application requirements.

Lens position

The EFFI-Ring-HSI offers flexible lens positioning to control the beam angle. The user can adjust it by himself: the angle can be widened by moving the lens closer to the LEDs or narrowed by moving the lens further away from the LEDs.

Position	P0*	P1	P2	P3
Angle	 90° * without lens	 45°	 25°	 10°

How to change the configuration of your EFFI-Ring-HSI ?



The EFFI-Ring offers flexible lens positioning to control the beam angle and different type of diffusers to adapt the uniformity. The user can easily change the diffuser and the lens position in the field.

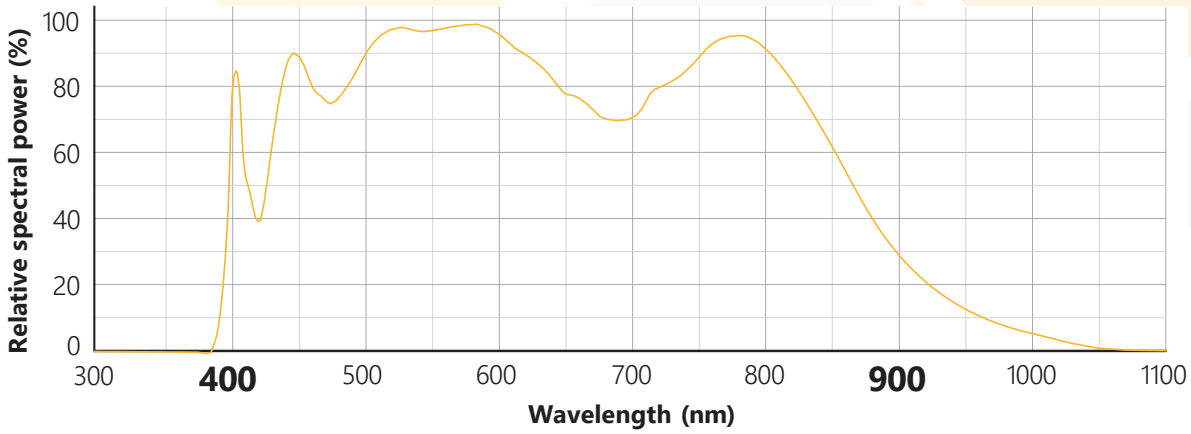
kit option

With the KIT option, the light will be delivered as a package including TR, SD and OP windows, and assembled in the default configuration with the lens plate positioned at P2 and the SD diffuser.

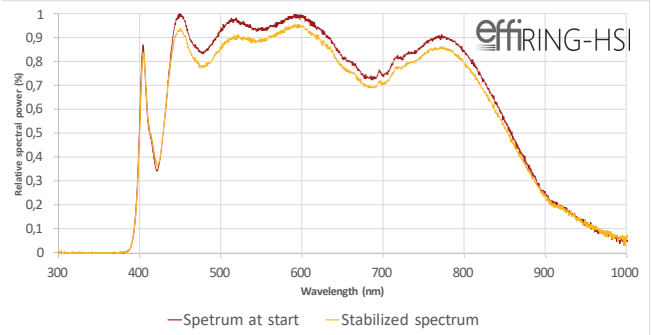
The KIT replaces WW-PP in the part number. Example: EFFI-RING-HSI-WW-PP becomes EFFI-RING-HSI-KIT

Spectrum

EFFI-Ring-HSI standard spectrum



Evolution of the broadband spectrum during stabilization time



The EFFI-Ring-HSI requires time to stabilize his spectral emission. Please note that during this stabilization, the spectral power may decrease by maximum 15%.

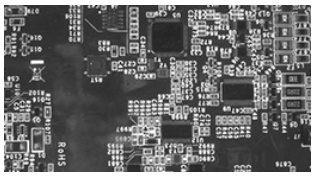
At ambiant temperature 25°C, in continuous mode this stability is reached an hour after switching on the product.

Option: Polarizer accessory

Using polarizers, on the Effilux light and on the camera, it is possible to eliminate glare on your workpiece making it easier to acquire a suitable image for the application.

The user can insert directly the polarizer inside the EFFI-Ring-HSI, under the window.

Without polarizer



With polarizer

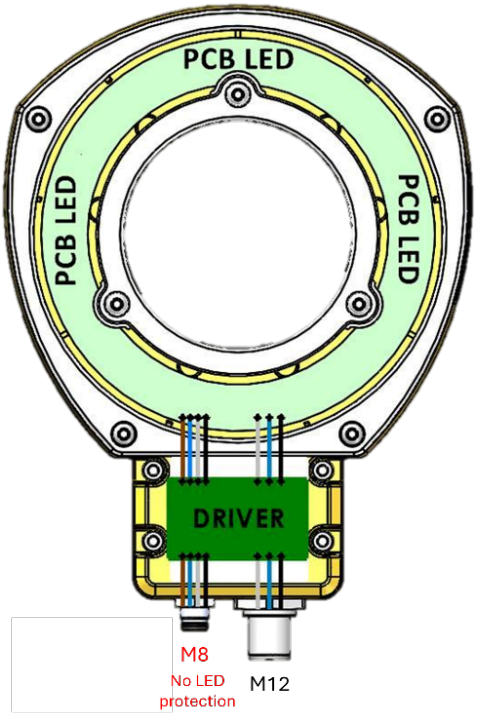
Important notes:

- With the EFFI-Ring-HSI, it is necessary to use a NIR polarizer and a VIS polarizer (Common PN: EFFO-RING-HSI-POL2-XXX).
- The polarization is optimal with a transparent window, the use of diffuser can depolarize the light.

Wiring layout - Standard version

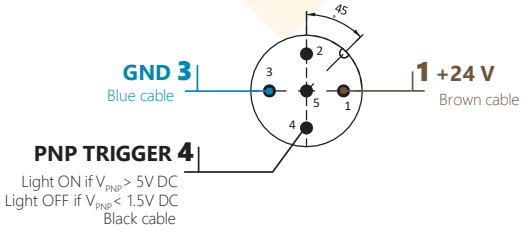
The EFFI-Ring-HSI requires 24V DC input power. Note the trigger pin needs to be connected either to the 24V DC signal for Continuous mode or to a PNP Trigger signal for AutoStrobe mode.

The M12 is for a standard use while the M8 is for a direct control of LED without direct use of built-in drivers.



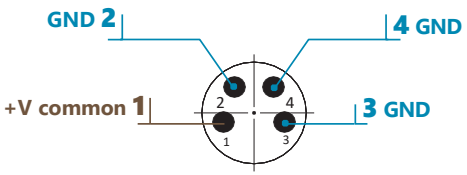
M12 (A-coded)- 5 pins

male connector

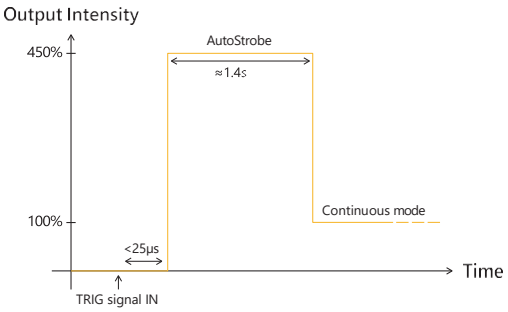


M8 - 4 pins (Direct control - Expert mode)

male connector - **WARNING:** no LED protection!



AutoStrobe feature



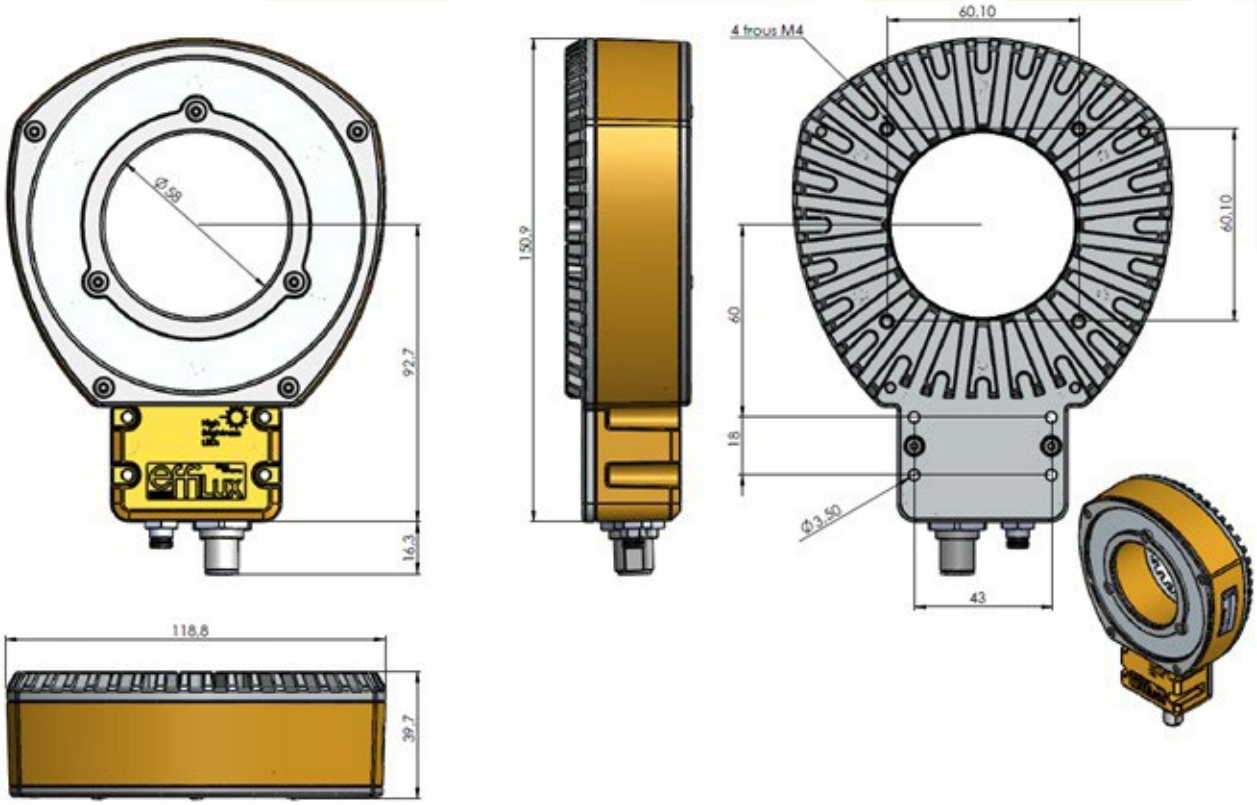
The integrated driver with AutoStrobe feature allows for 450% increased intensity while being strobed when compared to continuous mode. Strobing time lasts for 1.4 secondes.

Respect a duty cycle of 30% in strobe mode.

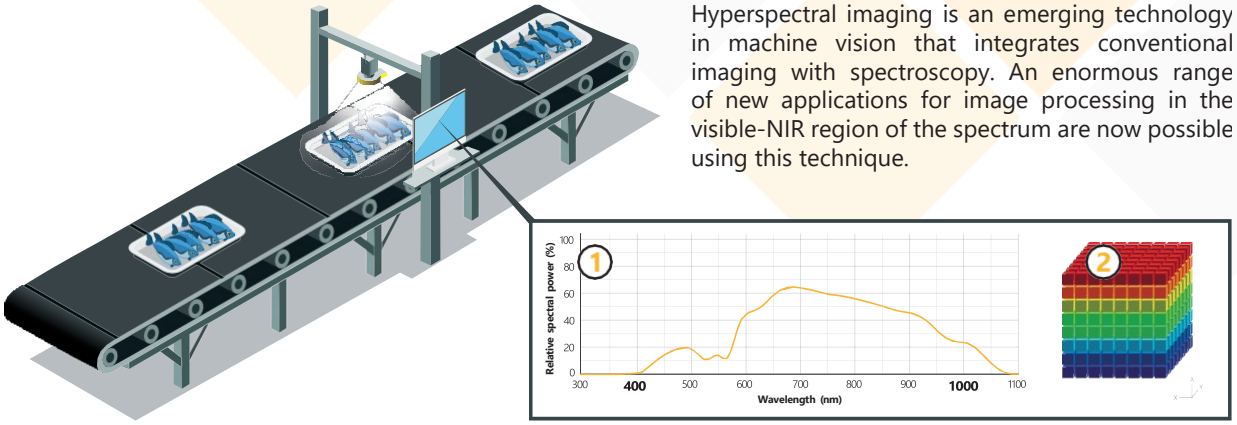
Response time	
Rising time	15µs
Falling time	10µs

MECHANICAL SPECIFICATIONS

General dimensions



Collect more data with hyperspectral imaging



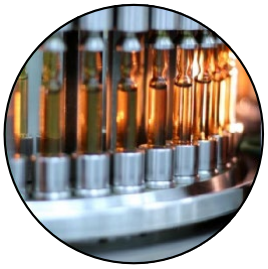
Hyperspectral imaging is an emerging technology in machine vision that integrates conventional imaging with spectroscopy. An enormous range of new applications for image processing in the visible-NIR region of the spectrum are now possible using this technique.

Here an example of an application using Effilux HSI lighting for optical control on fishes.

HSI lightings coupled with hyperspectral cameras allow to access both spectral and spatial information at the same time (2: hyperspectral data cube). In this case, spectral signature (1) can be access in a rapid and efficient way to ensure the good quality of products.

Hyperspectral illumination for a wide variety of domains

Some examples



Medical and pharmaceutical analysis

Waste sorting and recycling

Hyperspectral microscopy

Food sorting and quality analysis

Defect inspections

ACCESSORIES

Please refer to the specific documentation for additional information on the accessories of the EFFI-Ring-HSI.

Diffusers

Transparent: EFFO-RING-TR
Semi-diffuse: EFFO-RING-SD
Opaline: EFFO-RING-OP

Polarizer / Linescan

Polarizer:EFFO-RING-HSI-POL2

Extension Cables

2meters: EFFC-CAB-M12-FM-5-DD-L2
5meters: EFFC-CAB-M12-FM-5-DD-L5
10meters: EFFC-CAB-M12-FM-5-DD-L10

Fasteners*

Camera support: EFFM-1-0024
Camera support: EFFM-1-0025
Camera support: EFFM-1-HORI

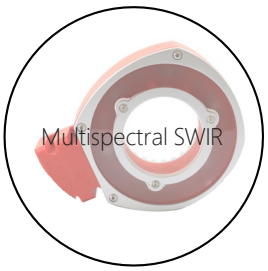
Power supplies

Power supply: EFFI-PWR- ...
Compact power supply: EFFI-SPWR-090W-24V-102-YY*

*See the drawings on ANNEX page 11

**YY = type of outlet: UK, CH, EU, US

CUSTOMIZATIONS



REGULATIONS

In accordance with machinery directive, the CE and UKCA marks indicate that the product complies with the relevent EU and UK legislation.
Please refer to the "General warnings & precautions for use" for detailed informations regarding standards and regulations.

CONTACT INFORMATION

Please refer to the specific documentation (datasheet, user manual, drawing and general warnings & precautions for use) for complementary information.
Contents of this document are base on information available as of June-2021 and may be changed without prior notice.

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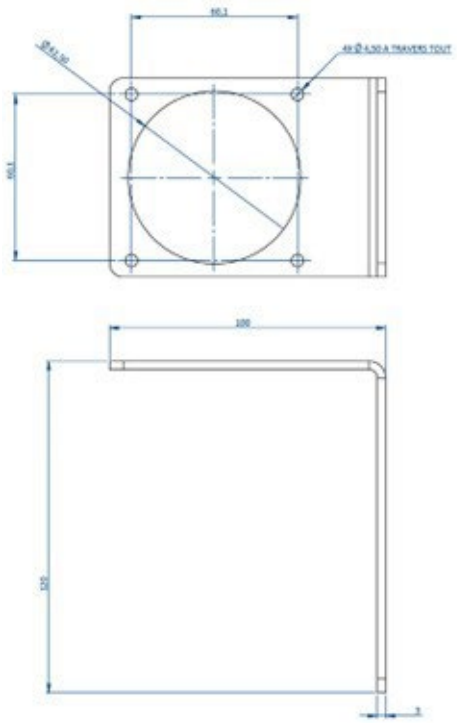
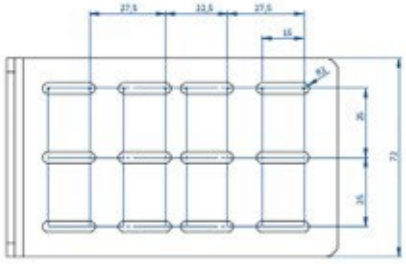
ANNEX - MECHANICAL ACCESSORIES DIMENSIONS

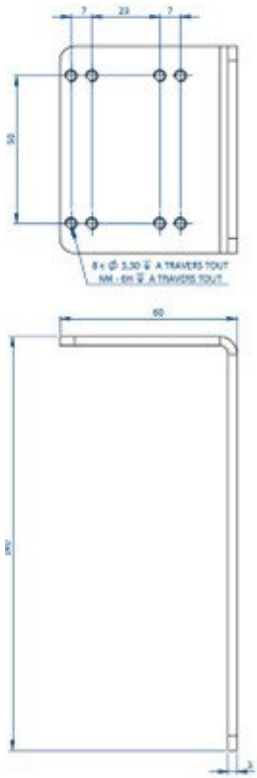
dimensions of camera supports

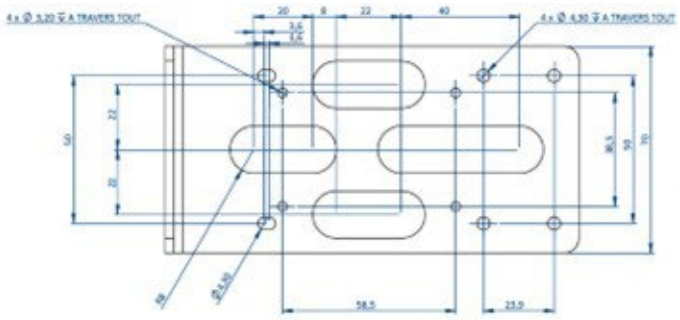
EFFM-1-0024





EFFM-1-0025

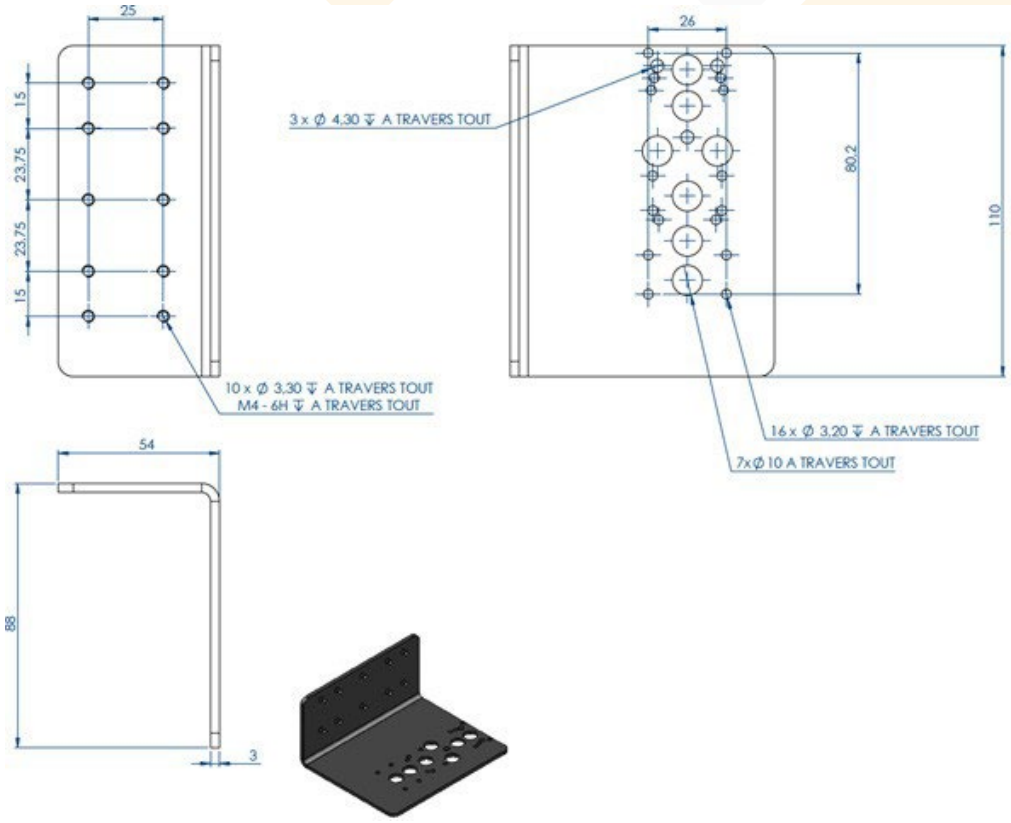




ANNEX - MECHANICAL ACCESSORIES DIMENSIONS

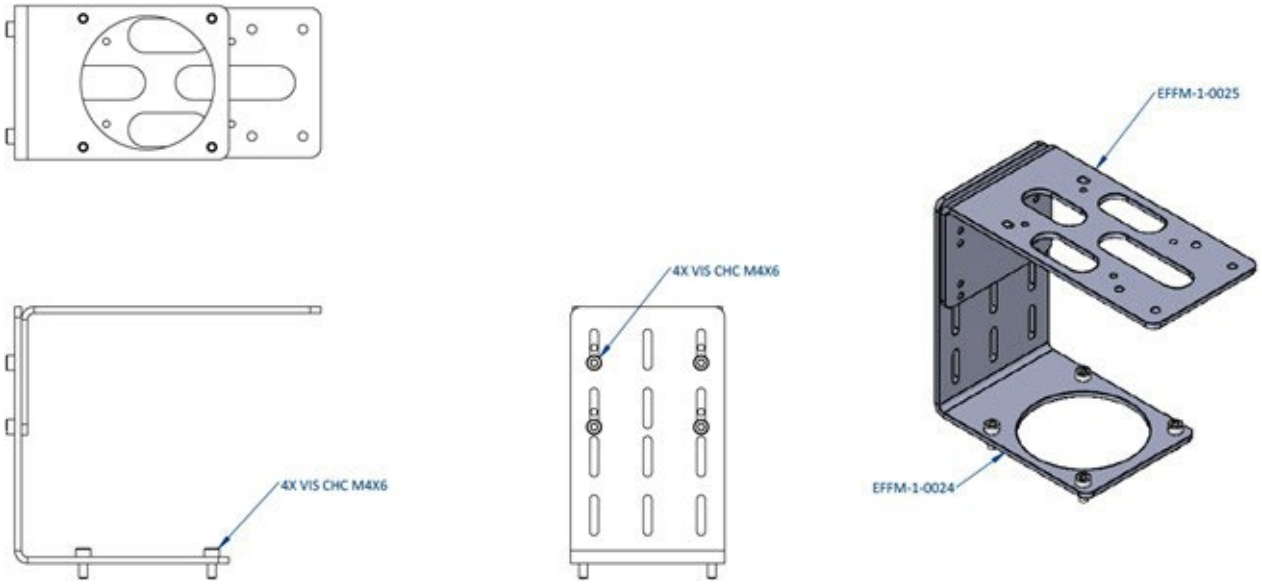
dimensions of camera supports (CONTINUED)

EFFM-1-0026



dimensions of combined camera supports

EFFM-1-HORI : EFFM-1-0024 + EFFM-1-0025



dimensions of combined camera supports (CONTINUED)

EFFM-1-VERT : EFFM-1-0024 + EFFM-1-0026