MULTIMEDIA CORE OF THE NEXT. **MCNEX**

RELIABLE CORE TECHNOLOGY
....AND SOLUTIONS

TOTAL MOBILE SOLUTION
AUTOMOTIVE SENSING SOLUTION
ACTUATOR SOLUTION
BIOMETRIC SENSING SOLUTION
SYSTEM SOLUTION
OEM.ODM.EMS

MCNEX

MCNEX

MCNEX TOWER

INCHEON . SOUTH KOREA
HEADQUARTER

BE THE GLOBAL **NO.1 IMAGE SOLUTION LEADING COMPANY** ON
A BASIS OF CONTINUOUS RESEARCH AND DEVELOPMENT

RELIABLE CORE TECHNOLOGY
AND SOLUTIONS

COMPANY NAME	MCNEX Co., Ltd.
HEADQUARTER	Incheon, South Korea
MAIN FACTORY	Ninh Binh, Vietnam
ESTABLISHED	Dec. 2004

REVENUE	USD 1.0B in 2024
IPO	Listed on Korean exchange market (KOSPI) in 2021
CERTIFIED IATF 16949 IN 2018	

MAIN CUSTOMER

SAMSUNG ELECTRONICS | HYUNDAI | KIA | HYUNDAI MOBIS
HL Klemove | Mando Halla Company | LG Electronics | DOOSAN
LS Automotive | GEELY | molex | KYOCERA
SHARP | YURA | core photonics | RYODEN GROUP

AUTOMOTIVE SOLUTION

Multi interface camera module	Shark Antenna camera system	Dual scanning camera
AHD, LVDS(GMSL, FPD-link), Ethernet, etc.	In-cabin camera system: DMS, OMS	High resolution camera: 7.4MP, 8MP
ADAS & Autonomous driving camera applications	FRU (Face Recognition unit) system	Fingerprint sensing system
SVM, MFC, Tri-focal camera system, Dual camera, etc.	DVRS system: FHD, QHD	ToF camera

MOBILE SOLUTION

SMART PHONE CAMERA MODULE	ACTUATOR	BIOMETRIC MODULE
Single, Dual, Triple, Quadruple camera	VCM, Encoder, OIS	Iris, Face recognition camera
OIS, Folded zoom, ToF camera	Folded zoom	Fingerprint & Body temp. Sensing module. Skin sensor module

SYSTEM SOLUTION

Dashcam, Golf range finder, Network Camera, Medical camera, AR/VR/MR camera, USB camera

EMS (ELECTRONICS MANUFACTURING SERVICE)

Manufacturing service for all kinds of electronics items

GLOBAL NETWORK

Contribute to human culture development by leading the IT industry.
We lead the changes for the future of the propsperous world

Incheon Songdo   KOREA HEADQUARTER
Shanghai   CHINA
NinhBinh   VIETNAM FACTORY I. II. III. IIII FAB

Yokohama | JAPAN
Taipei | TAIWAN
INDIA

● R&D   ● Manufacturing   ● Sales   ● FAE(Field Application Engineer)

SOUTH KOREA. HEADQUARTER. MCNEX TOWER

NINHBINH. VIETNAM FACTORY I.II. III.IV

SOUTH KOREA . HEADQUARTER	MCNEX TOWER. 13-39, Songdogwahak-ro 16beon-gil Yeonsu-gu, Incheon, 21984, South Korea Tel : +82-2-2025-3600 / IP Phone: 070-8630-6800 / FAX : +82-2-2025-3606
VIETNAM MAIN FACTORY I.II. III.IV	Lot CN1, Phuc Son Industrial Park, Ninh Binh City, Ninh Binh Province, Hanoi, VIETNAM Tel : +84-303-883-588 FAX : +84-303-880246

AUTOMOTIVE SOLUTION

ADVANCED DRIVER ASSISTANCE SYSTEM BY MCNEX

MCNEX ADAS is developing a various sensing technology which enhances safety and convenience to both drivers and pedestrians

- TRI-FOCAL CAMERA SYSTEM
- IN-CABIN CAMERA SYSTEM
- 8MP DUAL SCANNING CAMERA
- DVRS CAMERA
- FRU (FACE RECOGNITION UNIT)
- FINGERPRINT SENSING SYSTEM
- HIGH RESOLUTION CAMERA/ 7.4M, 8M
- MULTI INTERFACE CAMERA
- SHARK ANTENNA CAMERA

MCNEX OWNED TECHNOLOGY FOR AUTONOMOUS DRIVING

As creative pioneer, leading innovation and technology by continuous research & development create safe and convenient world that everyone dreams of

HYUNDAI KIA	PSA PEUGEOT CITROËN	(GM logo)
69 vehicle model	2 vehicle model	1 vehicle model
Mercedes-Benz	STELLANTIS	DOOSAN
1 vehicle model	1 vehicle model	2 vehicle model

TOTAL 1,041 CAMERA MODELS   ANNUAL SHIPPING 6.0 MIL MODULES

1,041 model camera modules development (supplying for all premium vehicles in Hyundai, KIA)

MILITARY VEHICLE

HEAVY EQUIPMENT

AUTOMOTIVE SOLUTION
TRI-FOCAL CAMERA SYSTEM

Trifocal camera providing 120/30/60-degree of multi-range to cover wide & tele range of forward direction.

Support a pedestrian & vehicle detect, traffic signal recognition.

Calculate various sensing data such as coordinates, speed, confidence-score, label etc.

Integrated Control signal

| CATEGORY	ITEM	SPECIFICATION
CAMERA / ECU	Resolution	1920 * 1080
	Image Sensor	CMOS FHD SENSOR
	Frame Rate	60fps
	View Angle	H:30° / 60° / 120°
	Output Format	LVDS (PoC)
	Power	DC12V (±2.0V)
	Image Format	RAW Data
	Operating Temp.	-40 ~ +105°C

AUTOMOTIVE SOLUTION
GESTURE CAMERA SYSTEM

Detect hand gestures using stereo cameras

Detect hand gestures in a low light environment using infrared (IR) technology

CATEGORY	ITEM	SPECIFICATION
CAMERA & ECU	Input Voltage	DC 7V ~ DC 24V
	FOV	82°
	Resolution	1280 * 720P @ 60fps
	IR	940nm LED
	Video Output	LVDS (PoC)
	Data Output	CAN
SENSING		Disparity Map
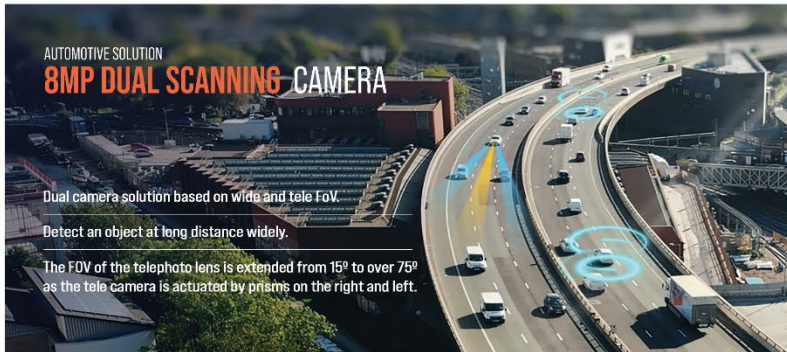
AUTOMOTIVE SOLUTION
8MP DUAL SCANNING CAMERA

Dual camera solution based on wide and tele FoV.

Detect an object at long distance widely.

The FOV of the telephoto lens is extended from 15º to over 75º as the tele camera is actuated by prisms on the right and left.
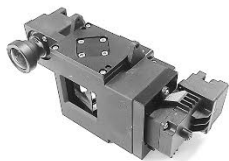
CATEGORY	ITEM	SPECIFICATION
CAMERA & ECU	Input Voltage	DC 7V ~ DC 24V
	FOV (H)	Wide 120° / Narrow 15°
	Resolution	3840 * 2160P
	Video Output	LVDS (PoC)
	Data Output	CAN
SENSING		PD, VD, TLR, TSR

AUTOMOTIVE SOLUTION
IN CABIN CAMERA DMS, OMS

Driver Monitoring System

Occupant Monitoring System

OMS (RGB-IR)

DMS (IR)

DMS (IR)

CATEGORY	RGB-IR CAMERA
Sensor	1MEGA(MONO)
Output Data	POC
Resolution	1280 x 720p
IR LED	940nm
Operating Voltage	DC 12 V ± 0.5 V

OMS (RGB-IR)

CATEGORY	RGB-IR CAMERA
Sensor	1MEGA(RGB-IR)
Output Data	POC
Resolution	1280 x 720p
IR LED	940nm
Operating Voltage	DC 12 V ± 0.5 V

AUTOMOTIVE SOLUTION
BUILT IN CAM

Built-in camera on the windshield for driving recordings.

Supports high-quality video (2M @ 30fps)

Enhanced image quality for better visibility in low light.

AUTOMOTIVE SOLUTION
● FRU–FACE RECOGNITION UNIT

Door un-locking & locking by recognizing a driver face

High endurability at outside environment

High detection at low light

CATEGORY	ITEM	SPECIFICATION
CAMERA / SYSTEM	Resolution	1280(H) X 800(V), 1Mp
	Image Sensor	¼" CMOS Mono
	Frame Rate	30fps
	View Angle	H 85°±3°, V 53°±3°
	Output Format	LVDS(POC)
	Power	DC 8V(±0.5V)
	AP	CPU Arm Cortex

BUILT IN CAM - 1st GENERATION

CATEGORY	ITEM	SPECIFICATION
CAMERA	Image Sensor	FHD CMOS
	Sensor Format	1/2.8 inch
	Resolution	1920 * 1080P @30fps
	Pixel Size	2.9um * 2.9μm
	FOV (H)	95°
	F no.	2.0
	Video Output	LVDS, YUV422
	View Mode	Front facing view

BUILT IN CAM - 2st GENERATION

ITEM	FRONT CAMERA	REAR CAMERA
Image Sensor	QHD CMOS	QHD CMOS
Sensor Format	1/1.7 inch	1/1.7 inch
Resolution Driving	2560 *1440P @30fps	2560 *1440P @30fps
Resolution Parking	2560 *1440P @10fps	2560 *1440P @10fps
Pixel Size	2.25μm	2.25μm
FOV(H)	100°	100°
F no.	1.6	1.6
Video Output	POC , RAW 12	POC , RAW 12
View Mode	Built-in front view	Built-in Rear view
G-Sensor	3-axis	-
MIC	Analog Microphone	-
Indicator LED	Blue	Blue

AUTOMOTIVE SOLUTION
FINGERPRINT SENSING MODULE

Up to 6 fingerprints can be registered

High durability

Implementing an auto-security solution

World's first in automotive applications

CATEGORY	ITEM	SPECIFICATION
FINGERPRINT SENSING SYSTEM	MCU	32bit RISC CPU
	Max Register no.	6 ↑
	Interface	SPI
	OS	AUTOSAR
	Communication	CAN, SPI
	FRR/FAR	FRR 1%, FAR 1/100,000 ↓
	Operating temp.	-40~85℃
	Touch type	Capacitance

AUTOMOTIVE SOLUTION
HIGH RESOLUTION CAMERA
8M

- Provide high-resolution data for object sensing and detection at distances of over 200 meters
- Protect the camera from harsh environments, such as humidity, water, and snow
- Enhance sensing performance in harsh environments
- Minimize thermal focal shift
- Application: Front camera

CATEGORY	ITEM	SPECIFICATION
CAMERA / ECU	Input Voltage	DC9V ~ DC25V
	Fov(H)	120°
	Pixel Resolution	7.4/8M pixel
	Video Output	LVDS (POC)
	Data Output	CAN
	SENSING	PD, VD, TLR, TSR

AUTOMOTIVE SOLUTION
SHARK ANTENNA CAMERA

Embedded camera in a shark antenna for replacing a room mirror & back-up camera

CATEGORY	ITEM	SPECIFICATION
CAMERA	Resolution	1280(H) X 800(V), 1Mp
	Image Sensor	¼" CMOS Mono
	Frame Rate	30fps
	View Angle	H 85°±3°, V 53°±3°
	Output Format	LVDS(POC)
	Power	DC 8V(±0.5V)
	-	-
	-	-

AUTOMOTIVE SOLUTION
MULTI INTERFACE CAMERA
NTSC, AHD, LVDS, Ethernet

- AHD / LVDS / Ethernet camera
- Low cost and high video quality
- Compatibility with existing networks.
- Application: Surround View and Back-up camera and Blind Spot camera

CATEGORY	ITEM	SPECIFICATION
AHD CAMERA	Fov	192° (H)
	Pixel Resolution	1280* 720P @30fps
	Video Output	AHD
	Approach	Rear view monitoring
LVDS CAMERA	Fov	192° (H), 120° (V)
	Pixel Resolution	1280 * 724P @30fps
	Video Output	LVDS (PoC)
	Approach	SVM, Rear view
ETHERNET CAMERA	Fov	192° (H), 137° (V)
	Pixel Resolution	1280 * 944P @30fps
	Video Output	Ethernet
	Approach	SVM, Rear view

Enhanced images to improve the detection of pedestrians and lane markings on the road under abnormal lighting or inclement weather conditions

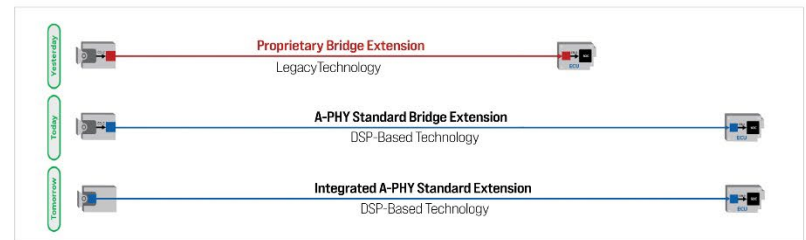Application of nano-optical metastructure-based polarizing filter technology.

Scenario 1. Loss the line marking on the road in reflected light

Scenario 2. Loss the line marking on the road in rainy weather

| Conventional RGB camera | Polarized Camera | Conventional RGB camera | Polarized Camera |

CATEGORY	ITEM	SPECIFICATION
CAMERA	Image sensor	UHD CMOS
	Sensor Format	1/1.72 Inch
	Resolution	3840 *2160P @30fps
	Pixel size	2.1μm
	FOV (H)	100°
	F no.	1.6
	Polarizer	4 in 1 method 4 polarization
	Application	Front camera

A-PHY increases the bandwidth without changing the cables and connectors by raising the PAM level

A-PHY defines two noise immunity profiles for low gear and high gear system design types

Proprietary Bridge Extension
Legacy Technology

A-PHY Standard Bridge Extension
DSP-Based Technology

Integrated A-PHY Standard Extension
DSP-Based Technology

ITEM	FRONT CAMERA	REAR CAMERA
Image Sensor	QHD CMOS	QHD CMOS
Sensor Format	1/1.7 inch	1/1.7 inch
Resolution Driving	2560 *1440P @30fps	2560 *1440P @30fps
Resolution Parking	2560 *1440P @10fps	2560 *1440P @10fps
Pixel size	2.25μm	2.25μm
FOV(H)	100°	100°
F no.	1.6	1.6
Transmission	A-PHY(POC, UTP,STP)	A-PHY(POC, UTP,STP)
A-PHY IC	Valens VA7031	Valens VA7031
G-sensor	3-axis	-
MIC	Analog Microphone	-
Indicator LED	Blue	Blue
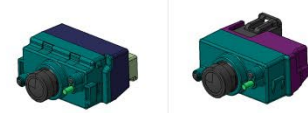
TOTAL MOBILE SOLUTION

VARIOUS CAMERA MODUL
8M FF ~ 108M OIS
WITH STABLE YEILD

HIGH PERFORMANCE I MICROMINIATURIZATION I SLIM I AF APPLIED

SMART PHONE CAMERA MODULE
SINGLE, DUAL, TRIPLE, QUADRUPLE CAMERA
OIS, FOLDED ZOOM, TOF CAMERA

ACTUATOR
VCM, ENCODER, OIS, FOLDED ZOOM

BIOMETRIC MODULE
IRIS, FACE RECOGNITION CAMERA
FINGERPRINT SENSING MODULE

**LEADING MOBILE CAMERA & SECURITY
SOLUTION PROVIDER**
Make a dream come true on a basis of change and innovation

TOTAL MOBILE SOLUTION

SMART PHONE **CAMERA MODULE**
SINGLE, DUAL, TRIPLE, QUADRUPLE CAMERA
OIS, FOLDED ZOOM, ToF CAMERA

CAMERA MODULE LINE-UP_**FIXED FOCUS** MODEL

NEW TREND, ULTRA SLIM
10M FF ULTRA SLIM

8M FF	10M FF	10M FF	12M FF
12M FF	13M FF	13M FF	32M FF

TOTAL MOBILE SOLUTION

SMART PHONE CAMERA MODULE

SINGLE, DUAL, TRIPLE, QUADRUPLE CAMERA
OIS, FOLDED ZOOM, TOF CAMERA

NEW TREND, ULTRA SLIM

CAMERA MODULE LINE-UP_AUTO FOCUS MODEL

48M AF	48M AF	48M AF	50M AF

CAMERA MODULE LINE-UP_OIS MODEL

10M OIS	12M OIS	12M OIS	48M OIS
50M OIS	50M OIS	64M OIS	108M OIS

CAMERA MODULE LINE-UP_MULTI MODEL

64M AF / 12M AF	64M AF / 12M FF / 5M FF
48M AF / 12M FF / 5M FF	24M AF / 10M FF / 8M FF / 5M FF

ACTUATOR SOLUTION

VCM, ENCODER, OIS
STABLE PRODUCTION YIELD OF VARIOUS CAMERA MODULE
8M OIS ~ 200M OIS, OPTICAL ZOOM IN / OUT

ULTRA SLIM
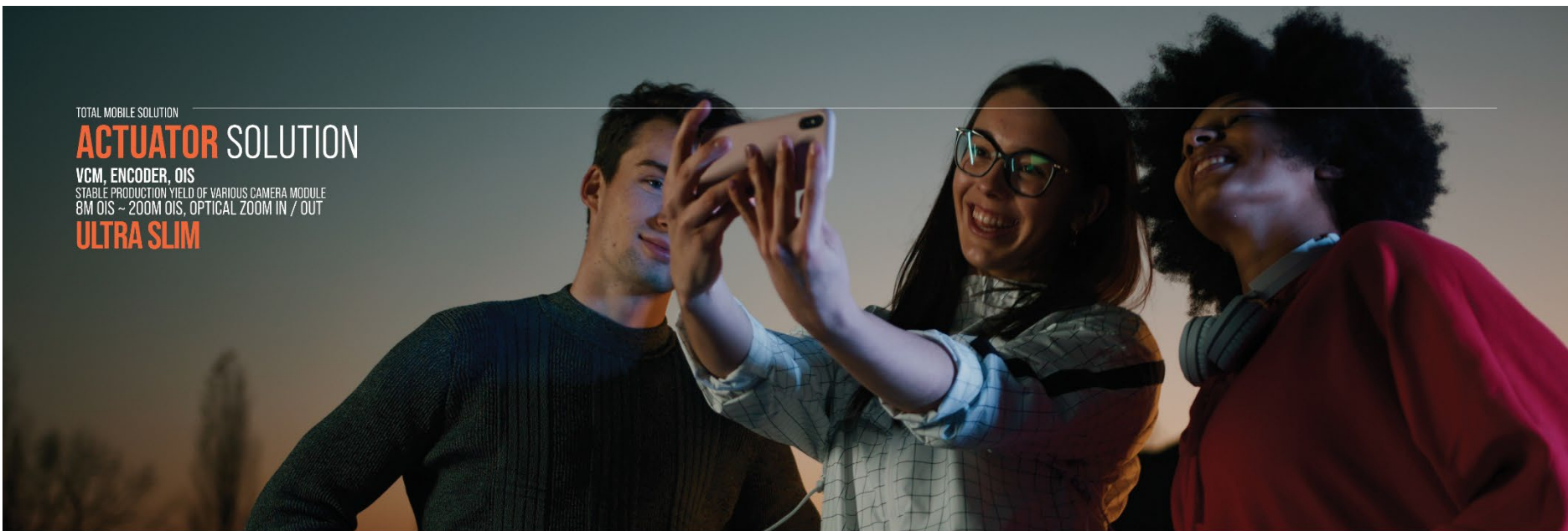
PRODUCT	TYPE	RESOLUTION	DIMENSION
	CVCA (BALL)	40M	9.1 X 9.74 / 3.76T
	OIS (BALL)	64M	13.7 X 13.1 / 4.65T
	OIS (BALL)	12M	13.7 X 13.1 / 4.65T
	OIS (BALL)	10M	11.1 X 11.1 / 5.65T
	OIS (BALL)	64M	13.5 X 13.5 / 4.8T
	OIS (BALL)	8M	10.0 X 10.0 / 4.3T
	OIS (BALL)	48M	12.5 X 12.1 / 4.3T
	OIS (BALL)	12M	11.3 X 11.7 / 3.95T
	OIS (BALL)	64M	13.5 X 13.5 / 4.8T

PRODUCT	TYPE	RESOLUTION	DIMENSION
	OIS (BALL)	50M	14.8 X 15.3 / 4.1T
	OIS (BALL)	12M 3X	11.1 X 11.1 / 4.8T
	OIS (BALL)	108M	13.9 X 13.9 / 4.8T
	ZOOM (BALL)	12M 5X	36.2 X 14 / 6.2T
	OIS (BALL)	200M	18.0 X 18.7 / 4.9T
	ZOOM(BALL)	50M 10X	24.05 X 14.6 / 5.65T
	OIS(BALL)	50M	13.4 X 13.4 / 4.1T
	OIS(BALL)	200M	17.9 X 16.0 / 3.9T

TOTAL MOBILE SOLUTION
FOLDED ZOOM ACTUATOR

FOLDED ZOOM ACTUATOR - 5X
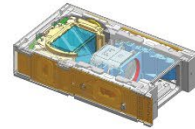
- Up to X5 Optical Zoom-in
- Lower height using Prism mechanism
- Enhanced Image distortion as matching Pivot center and Optic center

AF SPEC

ITEM	UNIT	SPEC
Rated Stroke	um	Min. 2520
Hysteresis	um	Max. 12
Linearity	um	Max. 20
Holding Current	mA	Max. 40
Actuating Tilt	Min	Max. 10
-	-	-
-	-	-

OIS SPEC

ITEM	UNIT	SPEC
Rated Stroke	Deg	X : Min. 5 (± 2.5)
Rated Stroke	Deg.	Y : Min. 3 (± 1.5)
Hysteresis	Deg.	Max. 0.10
Linearity	Deg.	Max. 0.11
Max current	mA	Max. 100
Phase margin	Deg.	Min. 30
Loop Gain	dB	Min. 20

FOLDED ZOOM ACTUATOR - 10X
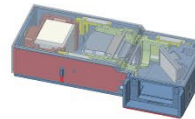
- Up to X10 Optical Zoom-in
- Lower height using Prism mechanism
- Enhanced Image distortion as matching Pivot center and Optic center

AF SPEC

ITEM	UNIT	SPEC
Rated Stroke	um	Min 2410
Hysteresis	um	Max 12
Linearity	um	Max 20
Holding Current	mA	Max 40
Actuating Tilt	Min	Max 10

OIS SPEC

ITEM	UNIT	SPEC
Rated Stroke	Deg	Min 2.4 (±1.2)
Hysteresis	Deg	Max 0.10
Linearity	Deg	Max 0.11
Max current	mA	Max 100
Phase margin	Deg	Min 25
Loop Gain	dB	Min 20
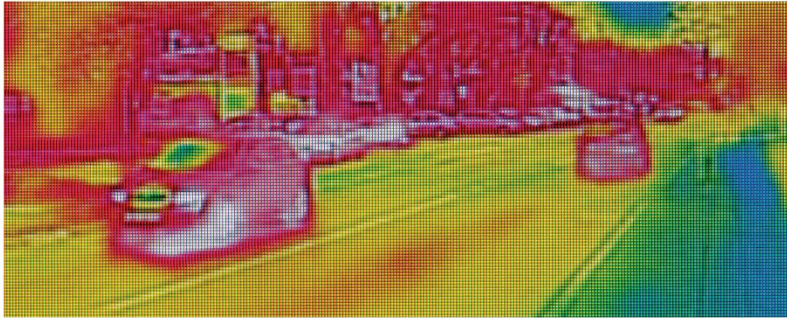
ToF CAMERA

ToF CAMERA MODULE

- Demonstration of the effective use of optical FOWLP in ToF sensor applications.
- A module that is 20% smaller and 230 μm thinner is achievable

SPECIFICATION

ITEM	MIN	NORMAL	MAX	UNIT	REMARK
PKG Height	222	270	318	UM	
Ball Pitch X	-	500	-	UM	
Ball Pitch Y	-	500	-	UM	
Total Ball Count	-	314	-	EA	
Resolution		320X240		PX	QVGA
Modulation Frequency of VCSEL Driver	20		100	MHZ	
VCSEL Wavelength		940		NM	

KEY FEATURES

Size	Removal of PCB, substrate-less
	3D stacking of ToF sensor and the driver IC
	Thickness reduction more than 230um / Area reduction more than 20%
Easy mounting	No Ceramic Carrier or substrate PCB needed
	Use ACF film or SMT process to electrically assemble the FOWLP onto the F-PCB
Mass-production	The optical FOWLP is fabricated by the wafer level process with mass- production capability.

ToF CAMERA

Labels: RX Lens, Diffuser, Holder, PCB, RX Sensor, VCSEL, Tape, Bottom Cover

SPECIFICATION

ITEM	SPEC
Package Rx	S5K63DSX03-FGX9(S.LSI), 1/6.4", 3.5μm
	BP_Filter : 3.37 x 2.81 x 0.21T,
Package Tx	VCSEL
	Driver IC
RF-PCB	6-2-6Layer RFPCB
Capacitor	2.2uF, 10V
	0.47uF, 6.3V
	1uF, 10V
Resister	10k Ω
	2.2k Ω
	100 Ω
Connector	34Pin Header
EEPROM	128Kbit
Lens	5P, 85.1°(H) X 69.0°(V) / 98.9°(D)
Housing	13.15 x 7.7 x 4.93T, M6.0xP0.25, SEA-20N
Bottom COVER	13.15 x 7.55 x 2.87T, SUS316
Diffuse(Flood)	90.6°(H) X 66.8°(V) / 4.5 x 4.9 x 0.3T

KEY FEATURES

|		
Features	Compact package size	Stacking internal components to reduce the module's overall area (About -20%)
		A slimmer module can be achieved due to reduction of Lens' thickness by 0.3mm
	Higher bandwidth & Low heat	Noise reduction / Increase durability regarding high temperature
	Mass Production & Low Cost	Ease securing capability for mass production Cost reduction

SPECIFICATION

ITEM	SPEC
Package Rx	S5K63DSX03-FGX9(S.LSI), 1/6.4", 3.5μm
	BP_Filter : 3.37 x 2.81 x 0.21T,
Package Tx	VCSEL
	Driver IC
RF-PCB	6-2-6Layer RFPCB
Capacitor	2.2uF, 10V
	0.47uF, 6.3V
	1uF, 10V
Resister	10k Ω
	2.2k Ω
	100 Ω
Connector	34Pin Header
EEPROM	128Kbit
Lens	4P, 77.8°(D)
Housing	13.15 x 7.7 x 4.93T, M6.0xP0.25, SEA-20N
Bottom COVER	13.15 x 7.55 x 2.87T, SUS316
Diffuser(Flood)	3.12 x 3.5 x 0.3T

KEY FEATURES

Features	Compact package size	A slimmer module can be achieved due to reduction of Lens' thickness by 0.3mm
	Mass Production & Low Cost	Ease securing capability for mass production Cost reduction
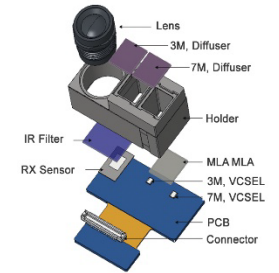
SPECIFICATION

ITEM	SpEC
Package Rx	S5K63DSX03-FGX9(S.LSI), 1/6.4", 3.5um
Package Rx	Milan (Flood)
	Trident (Spot)
RF-PCB	6-2-6Layer RFPCB
Driver IC	DW9916
Package Rx	2.2uF, 10V
	0.47uF, 6.3V
	1uF, 10V
	1nF, 10V
Package Rx	10k Ω
	2.2k Ω
	100 Ω
Connector	34Pin Header
EEPROM	128Kbit
Lens ass'y	4P, 100deg(H) X 83deg(V) / 121deg(D)
Housing	16.6x10.75x5.25T, M6.5xP0.25, SEA-20N
Band Pass Filter	7.1 x 7.1 x 0.21T
Diffuser(near)	100deg(H) X 80deg(V) 3.3 X 2.6 X 0.85T
Diffuser(far)	100deg(H) X 80deg(V) 3.7 X 2.6 X 0.8T
MLA(near)	2.6 x 3.3 x 0.7T
MLA(far)	2.6 x 3.7 x 0.7T

KEY FEATURES

Features	Compact package size	A slimmer module can be achieved due to reduction of Lens' thickness by 0.3mm
	Mass Production & Low Cost	Ease securing capability for mass production Cost reduction

BIOMETRIC SENSING SOLUTION

FINGERPRINT SENSING MODULE
FACE RECOGNITION MODULE
IRIS SCAN MODULE

FINGERPRINT SENSING MODULE

CAPACITANCE FINGERPRINT SENSING MODULE

SPECIAL COATING TECHNOLOGY (NON-SPRAY COATING)

WIRE BONDING TECHNOLOGY FOR LOW LOOP CONTROL

SPECIALIZED PROCESS FOR FINGERPRINT SENSOR MODULE

GREAT PACKAGE PROCESSING AND INTERNALIZED PACKAGE

CAPACITANCE LINE UP

OPTICAL FINGERPRINT SENSING MODULE

HIGH VISIVILITY BY IN-DISPLAY TYPE

INSTINTIVE USAGE (DIRECT TOUCH TYPE TO OLED PANEL)

HIGHER RESOLUTION THAN CAPACITANCE TYPE: 750 Dpi

NO EFFECT TO OLED YIELD BECAUSE MODULE IS NOT CONTACT TO A PANEL.

OPTICAL LINE UP

ULTRASONIC FINGERPRINT SENSING MODULE

VERY THIN THICKNESS

FOD FINGER PRINT MODULE

ULTRASONIC TYPE

HIGH PERFORMANCE

SPEC	
Operating temperature	-20℃ ∽ 85℃
Interface	SPI, VDD(3.3v),GND
Module Size (mm)	33.93 x 27.02 x 0.137t(Sensor)
Sensing Size (mm)	4.94 x 5.20

33.93

27.02

MC 4510_OC
GUW5228_PPCB_R01

FACE AUTHENTICATION SOLUTION

CO-WORK WITH INTEL REAL SENSE (intel) REAL SENSE
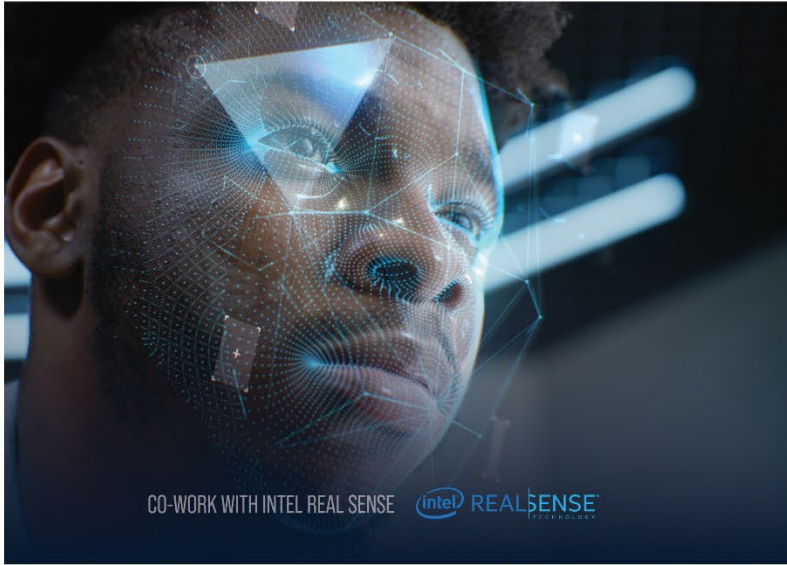
FEATURES

1:1M FAR (False Acceptance Rate)	Low cost design
Highly Secure : Encrypted feature points	Working in all lighting condition : indoor, outdoor, dark etc.
Strong anti-spoofing	Passed Google Certification Test
Vast and Unique 3D & 2D IR databases	

CURRENT PERFORMANCE

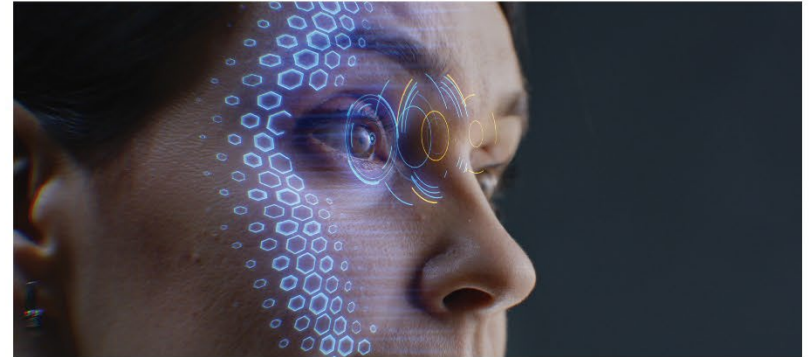Face Recognition: FAR 1:1M, TAR 99.41%, FRR 0.59%

Anti Spoofing : SAR (Spoof Acceptance rate)< 1%

Distance: Max 70cm

ITEM	CONDITION
SIZE(mm)	12.7 x 7.2 x 3.25t (Focus 60cm)
PIXEL	2M
SENSOR	OV02A10 (1/5", 1.75µm)
Field of View	85.2°
F#	F2.0
TTL	2.7mm

IRIS CAMERA MODULE

FEATURES	HIGH SECURITY / HIGH RECOGNITION RATE
Optimized Solution for "ALL EYE COLOR"	Unable to forge / falsify using photo, video, etc
Applied IR-LED & Band pass filter of 810nm wavelength range	Low rate of error recognition
Running VT / IRIS Camera via Switching function	Impossible to find same patterned iris
High recognition rate regardless of light from indoor-outdoor	After infancy, iris is no longer changed

SMART SECURITY

VT CAM (5M)   IRIS CAM (5 M, IR PASS FILTER)
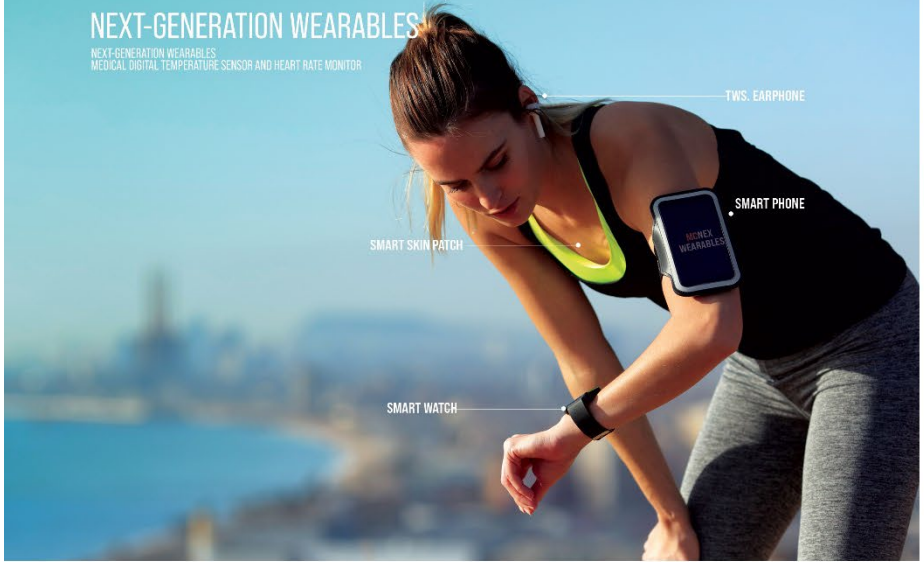
IR LED

BODY TEMPERATURE **SENSOR MODULE**

NEXT-GENERATION WEARABLES

NEXT-GENERATION WEARABLES
MEDICAL DIGITAL TEMPERATURE SENSOR AND HEART RATE MONITOR

TWS. EARPHONE

SMART PHONE

SMART SKIN PATCH

SMART WATCH

Very small size (for wearable)	Accurate non-contact temperature measurement
Health tracker	Optimization of space utilization

FEATURES

	SPEC
CH / FOV	4 Cell / 70°
Operating temperature	-20℃ ~ 85℃
Medical accuracy	Satisfied
Interface	I2C, VDD(3.3v),GND
Module Size (mm)	5.20 x 13.32 x 1.78(t)
Deco Size (mm)	4.20 x 4.32

SKIN SENSOR

87%

SKIN SENSOR

Very small size (for TWS)	SMD Type
Skin detector	Accurate skin contact / fabric contact detection

FEATURES

	SPEC
CH / FOV	2 Ch
Operating temperature	TBD
Interface	I2C, VCC, GND
Module Size (mm)	2.50 x 1.50 x 0.80(t)

2.50

1.50
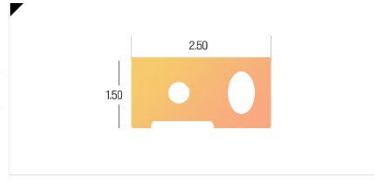
PPG MODULE
HEART PULSE. BODY FAT SENSOR MODULE

Heart Pulse, Oxygen Saturation, Body Fat	Module Type
Optical, Impedance Type	1Ch ~ 8Ch Custom

FEATURES

	SPEC
PD CH	1Ch ~ 8 Ch
LED	Green, Red, IR
Operating temperature	-20℃ ~ + 60℃
Interface	SPI/I2C, VCC, INT, GND
Module Size (mm)	Design By Custom

SYSTEM SOLUTION

IMAGE SOUTION + 6G. ICT

As creative pioneer, leading innovation and technology by continuous research , development create safe and convenient world that everyone dreams of

SYSTEM SOLUTION

DASHCAM
GOLF RANGE FINDER
NETWORK CAMERA
MEDICAL CAMERA
AR/VR/MR CAMERA
USB CAMERA

eyeCLON

MCNEX's core value is to let the world experiencing the best image system solution for more convenient world
Eyeclon is the brand made by MCNEX Co. Ltd. with the technical competence in the camera module industry.

QHD 3CH DASH CAM WIFI 2.4GHZ WIRELESS CONNECTION
MD - Q
RADAR SENSOR
CAPACITIVE TOUCH
GPS+GLONASS+QZSS

Model		MD-Q
Resolution		Front: 2560x1440/Rear: 1920x1080(2ch)
Image Sensor	Front	SC500AI / 135°(D) x 113°(H) x 61°(V) @30fps
	Rear	SC223A (1/2.8")/ 146°(D) x 116°(H) x 62°(V) @30fps
LCD		2.0" TFT IPS LCD with Capacity Touch
GNSS		Built in support(GPS,BEIDOU,QZSS)
Memory Capacity		Micro SD Card up to 256GB
Motion detection		3 Axis Acceleration Sensor & Radar Sensor
Power		DC 12V/24V
Operating Temp		-20°C ~ 60°C
Dimension, weight		56x42x29mm / 119g
ADAS		LDWS, FCWS, FVSA

METAVERSE. 6G. AR. VR. MR. XR SOLUTION

PRECISE HAND - TRACKING SOLUTION

HAND TRACKING

Detects joint and movement of hands by Stereo Camera
Super delicate detection of each hand joints
Precise operation under low light through IR LED
Wide FOV enables detecting entire movement of arm and hands

DUAL CAMERA MODULE FOR AR&VR

Application	AR, VR, MR, XR
Module Size	105mm x 10mm x 6.5mm
Pixel Size	1/4" CSP
Resolution	1 Mega pixel
I/F	USB3.0 & MIPI
F#	2.0
View Angle	180°
IR LED	850nm, 150°

COMPACT/ENHANCED COVERAGE ToF CAMERAS FOR AR&VR

ITEM	SPEC
Image Sensor	S5K63DSX03-FGX9(S.LSI), 1/6.4", 3.5um
Package Rx	Milan (Flood)
	Trident (Spot)
RF-PCB	6-2-6Layer RFPCB
Lens ass'y	4P, 100deg(H) X 83deg(V) / 121deg(D)
Housing	16.6x10.75x5.25T, M6.5xP0.25, SEA-20N
Band Pass Filter	7.1 x 7.1 x 0.21T
DIFFUSER(near)	100deg(H) X 80deg(V) 3.3 X 2.6 X 0.85T
DIFFUSER(far)	100deg(H) X 80deg(V) 3.7 X 2.6 X 0.8T
MLA(near)	2.6 x 3.3 x 0.7T
MLA(far)	2.6 x 3.7 x 0.7T

ULTRA SLIM & ULTRA WIDE CAMERA FOR AR &VR

ITEM	SPEC
Module Size	7.95 x 8.55 x 1.97T(Holder Top)
	7.95 x 8.55 x 3.19T(Lens Top)
Sensor	IMX825-AQ2H5-S(SONY) 1/3.19". 0.13T
Lens	M5.5 x 0.2P, F.2.2, 120°
Holder	7.95 x 8.55 x 1.75T, M5.5 x 0.2P
IRCF	NJS-201, 5.53 x 4.72 x 0.11T
PCB	4-2-4 Layer PCB
Connector	KN69B06-26DP_2-0.35V, 26Pin
EEPROM	M24C64X-FCU6T/TF, 64kbits

SMART GLASSES
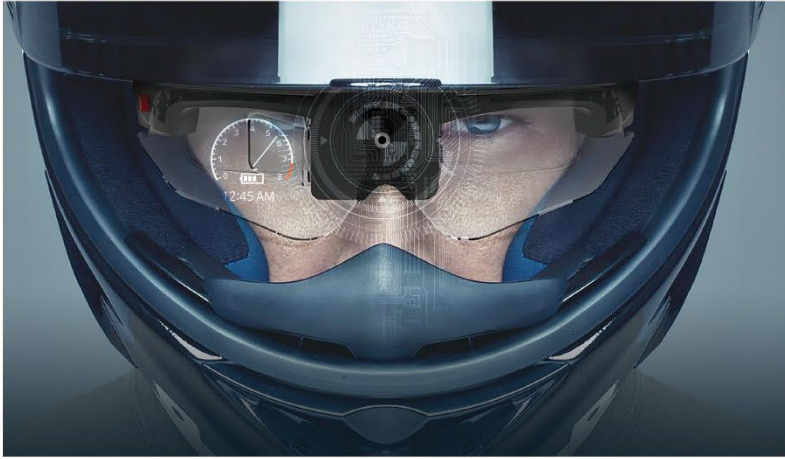
HIGHLY SIMPLIFIED OPTIC STRUCTURE TO ENSURE

1. High efficiency of image data transmitting
2. Unique system lens to deliver 2D and 3D images
3. Lighter and smaller smart glass device

CENTER-MOUNTED OPTIC MODULE TO PROVIDE

1. Wider view angle compared to side-mounted ones
2. Unique system lens to deliver 2D and 3D images
3. Fit in any stylish design for any application

CENTER-MOUNTED OPTIC MODULE

Our center-mounted optic module enables wide view angle for our glasses, solving one of the most difficult challenges faced by other smart glasses

Center-mounted optic module also allows us to design our glasses more stylish, compared to other models that are bulky and inconvenient to handle
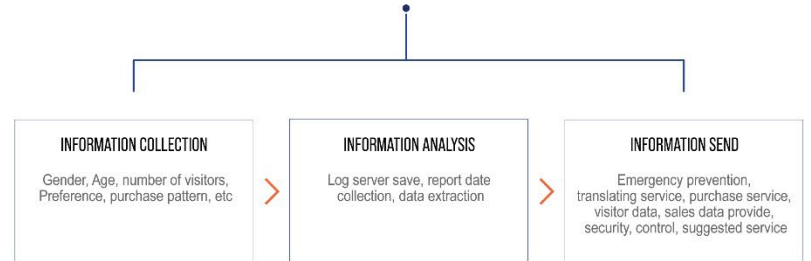
BEST-IN-CLASS OPTIC DESIGN

Our patented technology enables us to use extremely thin beam splitter (2mm) as part of the optic module, making our glasses light weight and more comfortable to wear

Even with our minimum-sized optic module, the virtual images are created far enough from your eyes which makes refocusing of your eyesight unnecessary in order to view images

SMART MEDIA

IOT. ICT
CONVERGENCE OF IMAGE SOLUTION AND ICT TECHNOLOGY

INFORMATION COLLECTION
Gender, Age, number of visitors, Preference, purchase pattern, etc

INFORMATION ANALYSIS
Log server save, report date collection, data extraction

INFORMATION SEND
Emergency prevention, translating service, purchase service, visitor data, sales data provide, security, control, suggested service

SMART DID | CES BOOTH IN 2019
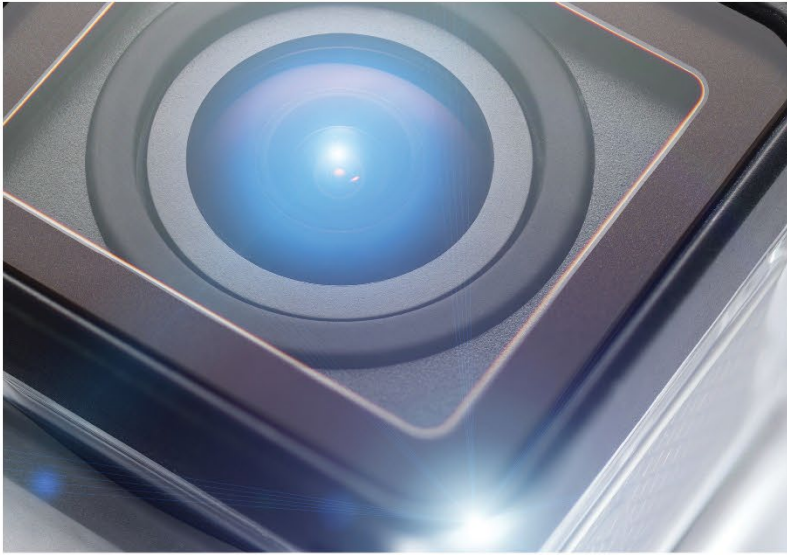
USB CAMERA MODULE

8MP UHD 120° USB CAMERA BOARD

Item	USB Camera SPEC
Form factor	PCB Module Type
PCB SIZE	40mm x 15mm x1.0T
Camera Resolution[MAX]	8MP(3264x2448)
Image Sensor	1/4, Pixel size: 1.12um
Video Max frame rate	MJPEG: 8MP 30fps @(3264x2448), 4:3,
	5MP 30fps @(2592x1944)
	Full HD 60fps@(1920x1080) / 2MP 60fps @(1600x1200)
	HD(1280x720) 120fps, VGA(640x480) 120fps
MIC	Option
I/O Interface	USB 2.0
Camera Interface[AP-Camera]	MIPI(CSI-2/4 lane)
Lens spec	4P, F2.2

Application : Smart TV, USB Laptop, Tablet PC, Robot Vaccum Cleaner, Monitor, etc.

5MP USB CAMERA BOARD

Item	USB Camera SPEC
Form factor	PCB Module Type
PCB SIZE	50mm x 7mm x 0.8T
Camera Resolution[MAX]	5MP(2592x1944)
Image Sensor	1/5, Pixel size: 1.12um
Video Max frame rate	30fps @ 5Mp (2592 x 1944) / 30fps @ quad HD (2560 x 1440)
MIC	2MIC Support
I/O Interface	USB 2.0
Camera Interface[AP-Camera]	MIPI(CSI-2/4 lane)
Lens spec	4P, F2.4

Application : Smart TV, USB Laptop, Tablet PC, Robot Vaccum Cleaner, Monitor, etc.

8MP USB CAMERA BOARD

Item	USB Camera SPEC
Form factor	PCB Module Type
PCB SIZE	40mm x 12mm x1.0T
Camera Resolution[MAX]	8MP(3264x2448)
Image Sensor	1/4, 200um, Pixel size: 1.12um
Video Max frame rate	MJPEG: 8MP 10fps @(3264x2448),4:3
	5MP 10fps @(2592x1944)
	2MP 60fps @(1600x1200) / YUY2: 5fps @(1600x1200)
MIC	Option
I/O Interface	USB 2.0
Camera Interface[AP-Camera]	MIPI(CSI-2/4 lane)
Lens spec	4P, F2.2

Application : Smart TV, USB Laptop, Tablet PC, Robot Vaccum Cleaner, Monitor, etc.

GOLF LASER RANGEFINDER

**HIGH SPEED. HIGH ACCURACY
2 COLOR OLED**
PERFORMANCE

VOICE RECOGNITION GOLF RANGE FINDER

BUDDYCLON
GOLF GPS RANGE FINDER
All the functions needed for golf ranging

GV.1

VOICE RECOGNITION GOLF RANGEFINDER
WATER-RESISTANCE, GPS+GLONASS+QZSS, VOICE RECOGNITION, POGO CHARGING CABLE, BLE 5.1
ALTITUDE REFLECTION DISTANCE MEASUREMENT

android iOS

GPS, GLONASS , BEIDOU, QZSS	VOICE RECOGNITION	POGO CHARGING CABLE	BLE 5.1	ALTITUDE REFLECTION DISTANC MEASUREMENT

FEATURES

- High Quality Optical Lens(lens & Prism)
- Bright adjustable 2Color OLED(Red, Green)
- Calculate a distance reflecting altitude as supporting Slope Mode
- High Speed measuring distance
- Meter/Yard
- High Accuracy
- Water&dust proof: IP54
- CR2 Battery(Replaceable)
- Anti-hand shaking(Pin seeker , Jolt)
- Slope mode/non slope mode/scan mode
- Indicator LED(Slope mode: LED On)

Item	Spec
SIZE / Weight	107.35x38.17x69.03mm/T.B.D
Battery	CR2
View LCD	2Color OLED
Range	0~1,200YD
Accuracy	0.3YD~0.5YD~1YD
Speed (sec)	0.1S~0.3S~0.5S
Optic zoom	X6
FOV	7°
Water/dust proof	IPX54
Slope Mode	Support
Operating Temp.	-20°C ~ 50°C

FEATURES

- Measure a distance to a green hall by voice command
- Support multi satellite system, Gain over 24 satellites
- Map update through Blue Tooth
- Calculate a distance reflecting altitude
- Meter/Yard
- Measure a ball travel distance (Long Key)
- Setting menu on a smart phone by app.
- Auto detect a golf course and hall
- Select a green (left green/right green/both)
- Support Pogo charging port(Magnetic pogo type)

Item		Spec
SIZE		Φ44~Φ35, 12.4mm(H)
Weight		22.5g
GPS		GPS, GLONASS, QZSS, BEIDOU
Voice recognition		O ("Hi-Alice")
BlueTooth		O (BLE 5.1)
Battery		Chargeable Lithium Polymer
Charging type		Pogo Cable 4pin
Operating time at full charging		10hr~
Trigger type for distance Guide		Voice command or Button
I/F	Wireless	Blue Tooth
	Cable	USB

OEM. ODM. EMS

TECHNOLOGY RESEARCH AND QUALITY MANAGEMENT SYSTEM

We serve our customers better by listening to them, developing genuine understanding through trusted relationships, and responding to their needs.

VIETNAM FACTORY OVERVIEW

CAPABLE OF RESPONDING TO THE VARIOUS NEEDS OF CUSTOMERS "NEW PRODUCTION AND TOLL PROCESSING AVAILABLE" AREA

NINHBINH. VIETNAM FACTORY I.II. III.IV
LOCATION - NINH BINH, HANOI

MANUFACTURING SITE	Phuc Son Industrial Park, Ninh Binh City, Vietnam			
FACTORY SIZE	Land Area		Building Area	Employees
	150,000 ㎡		127,338 ㎡	6,124
ITEM & CAPACITY	Mobile Camera	Actuator	Biometric	Automotive Camera
	30M / Month	11M / Month	9M / Month	1.5M / Month

3TH FACTORY TOTAL AREA 24,000 ㎡

2 FLOOR - 12,000 ㎡

3 FLOOR - 12,000 ㎡

OEM. ODM. EMS
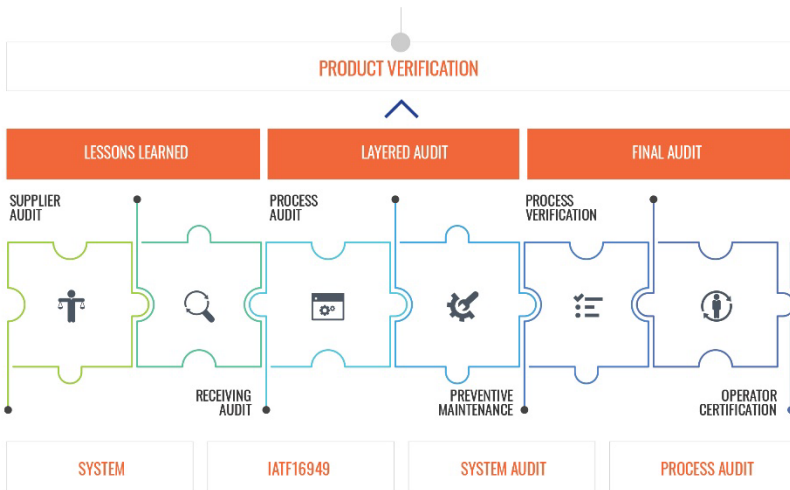# COMPETITIVENESS

<div style="border:1px solid #ff5500">

VERIFIED QUALITY
MANAGEMENT SYSTEM
Robust quality management system established through co-work with SAMSUNG, HKMC, Japan & US Customer + **HKMC 5 Star (Quality system)**

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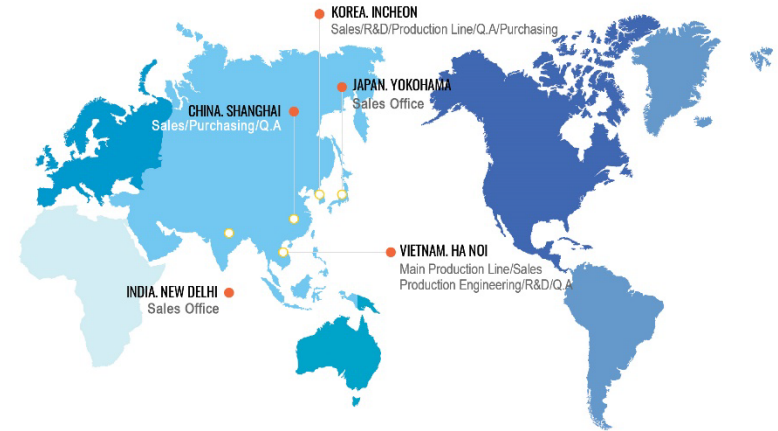
FACTORY SYSTEM. ERP. MES. PLM SYSTEM FULLY ESTABLISHED

ERP (Enterprise Resource Planning)	**MES** (Manufacturing Execution System)	**PLM** (Product Lifecycle Management)

FACTORY CERTIFICATES	IATF16949	ISO14001	ISO45001	OHSAS18001	ISO26262

DEVELOPMENT / PRODUCTION QUALITY MANAGEMENT PROCESS

PRODUCT VERIFICATION

LESSONS LEARNED	LAYERED AUDIT	FINAL AUDIT
SUPPLIER AUDIT	PROCESS AUDIT	PROCESS VERIFICATION
	RECEIVING AUDIT	PREVENTIVE MAINTENANCE	OPERATOR CERTIFICATION

SYSTEM	IATF16949	SYSTEM AUDIT	PROCESS AUDIT

GLOBAL NETWORK – ON-TIME DELIVERY

KOREA. INCHEON
Sales/R&D/Production Line/Q.A/Purchasing

JAPAN. YOKOHAMA
Sales Office

CHINA. SHANGHAI
Sales/Purchasing/Q.A

VIETNAM. HA NOI
Main Production Line/Sales
Production Engineering/R&D/Q.A

INDIA. NEW DELHI
Sales Office

Factory/R&D	Korea(Seoul), Vietnam(Hanoi)
Sales office	Korea(Seoul), Vietnam(Hanoi), China(Shanghai), Japan, Taiwan

Cost competitiveness	Factory located in bonded area	Standard laboring days in Vietnam : 6days a week & Low laboring cost
Labor friendly factory environment	No laboring dispute since establishment of Vietnam Factory [2013 ~ now]	
	"Excellent enterprise award for labor environment"	MES System
Logistics advantages	Through FTA, can be shipped any country without worrying (US / CN / EU / AU / Pacific, etc.)	
	Vietnam-US tariff agreement –> (Cheap tariff due to TPP contract)	
	Fast custom clearance : 1~2days earlier custom clearance than others(Factory located in bonded area)	

Enough space in MCNEX's 3rd Vietnam Factory for **"New project & New customer"**

VARIOUS EXPERIENCE OF IMAGE SOLUTION TECHNOLOGY

Co-work with HKMC for ADAS camera system   Co-work with Microsoft for stereo camera development for AR, VR application

Selected as a standard module of iris recognition camera system into Qualcomm AP chip

Development of camera system for ADAS application with TI, NXP & Socio Next AP

Co-develop with Corephotonics for front camera   Camera module development for Autonomous driving level 3 / Level 4

18years of experience in the field of camera module: Single / Dual / Tri-Focal / Quadruple

Abundant experience of government project for advanced technology