KIPCO

RADAR & EOTS

Headquarters Changwon Branch

- 18 Jukjeon-ro 68beon-gil, Uichang-gu, Changwon-si, Gyeongsangnam-do, Republic of Korea
- TEL : +82-55-251-9171
- FAX : +82-55-251-9060

Dongtan Branch

- 32-7 Dongtangiheung-ro, Hwaseong-si, Gyeonggi-do, Republic of Korea
- TEL : +82-70-5038-3953
- FAX : +82-70-8260-2760

Gumi Branch

- A-1 BLDG, Suite 101, 30 Imsu-ro, Gumi-si, Gyeongsangbuk-do, Republic of Korea
- TEL : +82-55-251-9171
- FAX : +82-55-251-9060

www.kipcokorea.com • e-mail : kipco@kipcokorea.com

www.kipcokorea.com/

Number One Global Leading Surveillance System Manufacturer

KIPCO

KIPCO

RADAR & EOTS

“The Future of Defense and Space in Republic of Korea”

“KIPCO Aerospace and Defense” stands as a leading system manufacturer of space surveillance radar and EOTS.

With a vision to be the "number one surveillance system manufacturer” in the fields of radar and electronic optics, KIPCO has acquiring several companies to enhance capabilities, and continue to invest research and development to be a leading player in the space surveillance radar and EOTS in Korea.

With its accumulated advanced technological capabilities and system manufacturing expertise in communication electronics and the Aerospace industry, KIPCO owns a range of facilities including machining lines for the production of mechanical parts assembly and testing lines for electronics production, and for integrated system control and testing. This enables us to provide in-house one stop services.

KIPCO aims to stand as a trusted global company in the world market by providing specialized solutions based on excellent technological expertise and quality

Company history

2023.10	Selection of a master of the root company (Minister of Trade and Industry)
2022. 11	Selected as a Top 100 Regional Innovative Leading Company by the Ministry of SMEs and Startups
12	Establishment of EOTS plant
	Recipient of the Defense Industry Contribution Award (Changwon Free Economic Zone)
2021. 07	Acquisition of LICT (radar/satellite specialist company)
09	Certified as a Venture Company
12	Excellent Partner Award (Hanwha Systems)
2019. 09	Certified as a Specialized Company in Materials and Components
12	Awarded for the Industrial Innovation Campaign (Korea Chamber of Commerce and Industry)
2017. 10	Acquisition of From2 (information and communications company)
2015. 02	Established of Military Telecommunication System Plant
2014. 07	Selected as an Excellent Company in Gyeongnam for Employment (Gyeongnam Regional Small and Medium Business Administration)
2013. 09	Acquisition of Campnet (wireless communication equipment company)
	Selected as a Desired Company for Employment in 2013 (INNOBIZ)
2012. 07	Establishment of R&D Center
2011. 11	Certified as a Technology Innovative SME (INNOBIZ)
2010. 06	Establishment of R&D Center
2008. 01	AS 9100 Certification
2006. 05	Mass production of aircraft engine components
2004. 04	Incorporation and relocation of Changwon Branch
1989. 03	Establishment of Kookil Precision

Vision

Radar

Over 30 years, to meet the diverse customer's demands, we are dedicated to the development of advanced radar systems integrated into ground and maritime based on RF and digital technology.

- Detecting and Tracking Radar
- Research and Development of high power TRM, Digital Transceiver Module, Light Weight Cooling System

Electronic/Optical

Based on state-of-the-art stabilization technology, precision drive control technology, and know-how in manufacturing the Gimbal System, we are responding to the military's surveillance and reconnaissance needs by participating in the development and mass production of K2 patrols, incompatible EOTS, TADS of helicopters, EOTGP of KF-21, and C130-H DIRCM

- EOTS
- Vehicle-mounted high-energy laser gun

Satellite Communication

We are actively engaged in the production of military communication systems and satellite communication system through continuous technological development and mergers and acquisitions.
In addition, we are dedicated to research and development in the field of satellite communication to prepare for the space age.

- Satellite-to-satellite Laser Communication Terminal
- Ground terminal laser transceiver devices
- Research and Development of high-Speed Light Wave Surface Development Mirror

KIPCO
RADAR & EOTS

KIPCO
RADAR & EOTS

Number One Global Leading Surveillance System Manufacturer

Locations

1. Changwon Branch

Machine Division

- Address : 18 Jukjeon-ro 68beon-gil, Uichang-gu, Changwon-si, Gyeongsangnam-do, Republic of Korea
- TEL : +82-55-251-9171
- FAX : +82-55-251-9060

2. Dongtan Branch

Radar Division / Management Support

- Address : 32-7 Dongtangiheung-ro, Hwaseong-si, Gyeonggi-do, Republic of Korea
- TEL : +82-70-5038-3953
- FAX : +82-70-8260-2760

3. Gumi Branch

Electronic/Optical Division

- Address : A-1 BLDG, Suite 101, 30 Imsu-ro, Gumi-si, Gyeongsangbuk-do, Republic of Korea
- TEL : +82-70-8787-0399
- FAX : +82-70-8611-0399

RADAR

Radar

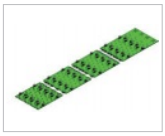
Leader of Space Surveillance AESA Radar

Through the merger and acquisition of a radar company based on mechanical and communication technology accumulated over 30 years, we have acquired a wider range of technologies, including RF (Radio Frequency), digital hardware, software, and machinery.
Based on this expertise, we are currently developing the first Korea Space Surveillance AESA Radar System.
In particular, we are developing and producing the key modules of AESA radar, such as the high-power S-BAND 400W GaN TRM and digital processing unit, as well as the cooling system, using our own technology at a competitive price.
In addition, we have implemented a full digital radar by applying RF SOC technology, eliminating up, down converters and mixers.
We have also developed a compact and lightweight modular cooling system.
KIPCO will continue to strive for the development of new technologies and the production of advanced products,
not remaining satisfied with the present. We aim to become a leading system manufacturer recognized not only in Korea, but across the world.

L-SAM Multi-function Radar

Signal Receiver Antenna Module

Acquisition of target signals and reception of calibration signals for 36 sub-array radar, frequency down-conversion of reflected radar target signals, digital signal conversion for transmission and reception calibration signals



Control and power integrated PCB assembly

Connection of high-voltage power for DC power distribution unit and transmission-reception filter assembly RS422 control signal connection between antenna controller transmission-reception filter assembly

Simulation signal generator for control signal processing unit

Generator of simulated targets and jamming signals for testing radar controller and simulation signal generator

Digital down-conversion and optical transmitter for control signal processing unit

DDC and pulse compression, high-speed serial communication functions

LAMD

Frequency generator and calibrator

Generation of calibration signals and conversion of received signals from calibration radar into digital signals for transmission to antenna control/beamforming unit

Fan assembly

Sensor assembly

Delivery of varied sensor information such as temperature, humidity, and flux to the power control unit

GPS receiver module

Flow sensor

Temperature sensor

Temperature and humidity sensor

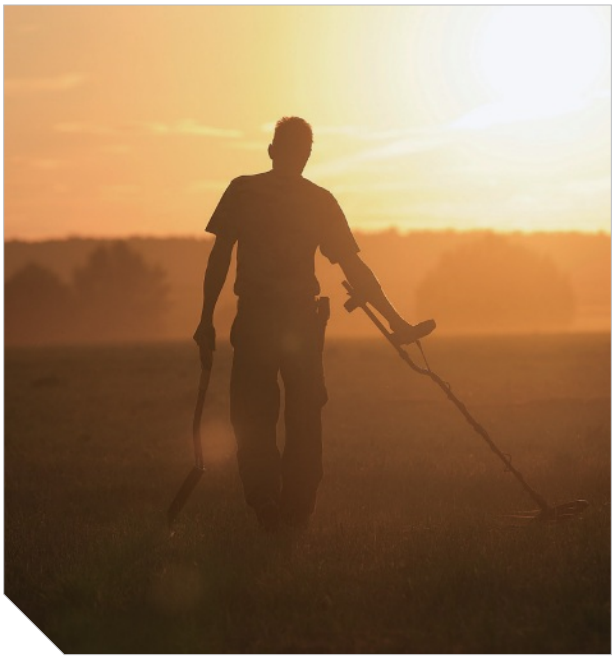
Antenna power control unit

Acquiring sensor information and controlling the antenna power supply unit and frequency generator/calibrator

Cooling system for LAMD(60kW)

A cooling system for the transmission-reception unit of the antenna set, effectively removing heat generated by supplying cooling water to the cooling plate circuit

Portable Ground Penetrating Radar for detecting mine



Main equipment

Portable mine detector using ground penetrating radar(GPR) technology

Upper housing assembly

Consists of an arm bracket for user interface and wearability

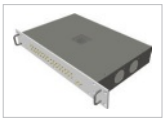
Integrated housing assembly

Consists of a GPR signal processing module and detection antenna

Space Surveillance Radar

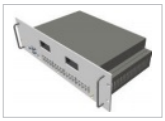
TRM(Transmit/Receive Module)

signal high-power signal amplification and signal low-noise amplification



DTM(Digital Transceiver Module)

Applies RFSoC for generating radar transmission signals and converting signal I/Q data



BSU(Beam Steering Unit)

Multiplexing the received I/Q data and converting to optical signals, following by channel-specific phase and signal magnitude control for beamforming

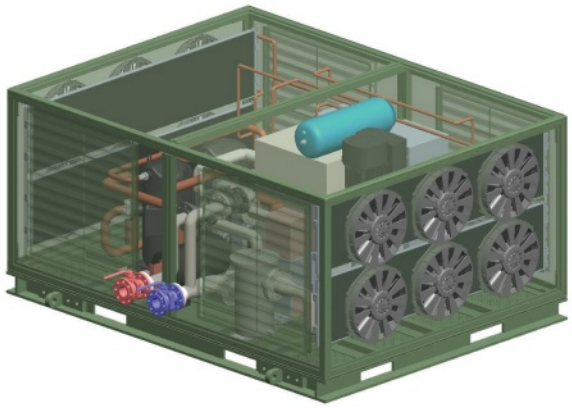
CGB(Clock Generator Board)

Generating synchronization and timing signals to supply to the DTM

Cooling system for Space Surveillance Radar(100kW)

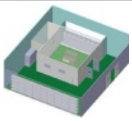
A cooling system for TRM, effectively removing heat generated by supplying cooling water to the cooling plate circuit

Cooling system for radars



Condenser fan

PF Heat Exchanger

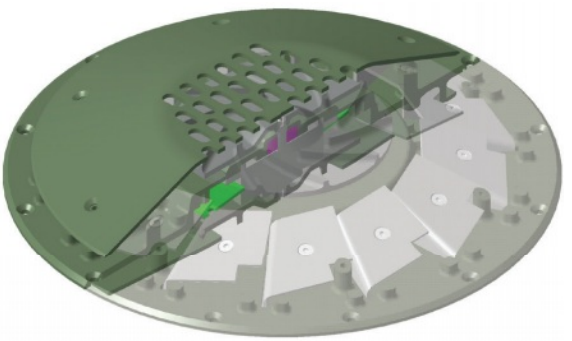


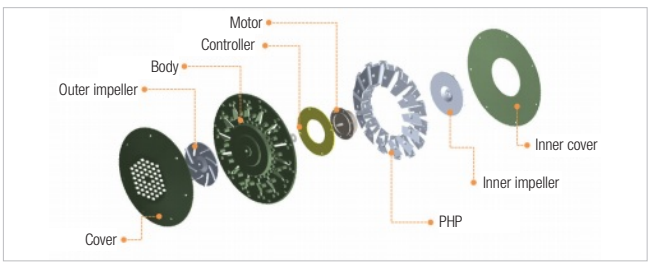
Performance test equipment

Specifications
- Cooling capacity : 60~100kW
- Operating temperature : -32~63℃
- Size : W 2,900 × L 2,200 × H 2,100
- Weight : 2,800 kg

Characteristics
- New material application and optimal design to achieve weight reduction and miniaturization
- High temperature / desert area operable
- Power-saving Dual System Application
- Application of Outdoor Condensation Prevention Design
- Applying a Cooler Stand-by System

EOTS Heat Exchanger





EOTS Heat Exchanger Decomposition

Specifications
- Cooling capacity : 60~100kW
- Operating temperature : -32~63℃
- Size : Ø227 × 45,7mm

Characteristics
- Application of new technology pulsating heat pipe PHP (patent application)
  Induction of capillary phenomenon through small diameter tubular without wick structure and heat exchange to evaporation/condensation due to self-vibration of liquid/phase
- High efficiency heat transfer without power
  Reduce noise by 20% in and out of motor rotation
- High temperature / desert area operable

EOTS
EOTGP/ TADS / DIRCM

EOTS
Leading Company in EOTS

KIPCO is developing advanced EOTS such as EOTGP for Korea Jet Fighter, TADS for Light Armed helicopter, DIRCM for C130-H and , Laser Gun for air defense, and EOTS for Tanks KIPCO is a leading system manufacturer in the field of Electronic Optic System including stabilization control, Gimbal System, Cooling systems, and system integration.

Wheeled anti-aircraft gun EOTS

Drive control assembly

Supporting the mobility enhancement of the latest anti-aircraft weapon system maneuver unit capable of responding to low-altitude aerial surprise attacks

- Control of 4-axis motor for target tracking and gimbal stabilization control

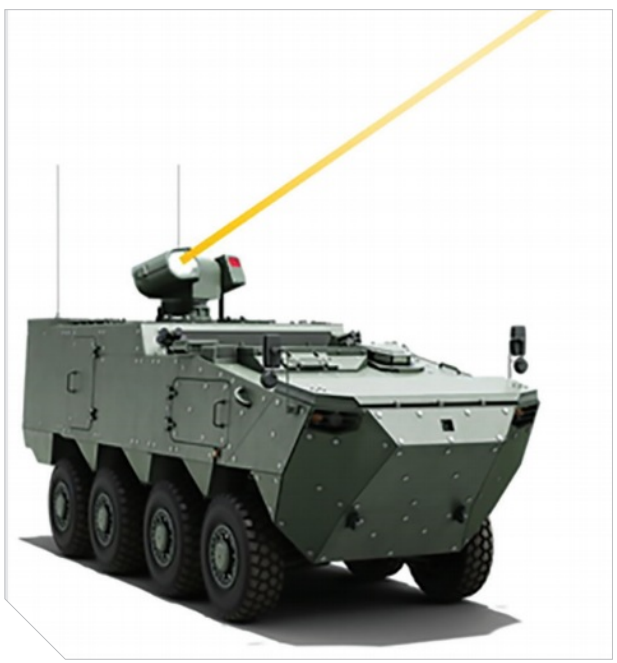
Scanning mirror assembly

scanning drive frame, mirror shaft, bearing housing fixed end /support end, retainer

GIMBAL FRAME

device that allows it to remain upright regardless of vibration

laser gun for a combat vehicle



Beam Focusing module

Target range measurement, high-power laser beam focusing

Submirror control assembly

Temperature/dew point sensor data measurement

- Step motor drive for submirror control
- Applying the Non-Differentiation Algorithm

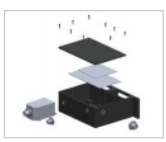
Sub-mirror assembly

Sub-mirror movement minimum/maximum distance beam focus

Mirror housing assembly

Minimize optical alignment error depending on temperature

- Loads and external vibration structures retain rigidity



Control Module

Sub-mirror assembly driven, temperature/dew point sensor linked

- Internal/external interlocking equipment power supply

Bihobokhap II EOTS

Drive control assembly

Control of 4-axis motor for target tracking and gimbal stabilization

Power supply assembly

Power supply to the drive unit, EO/IR camera, LDRF, and other components(EMI Filter Included)

Integrated assembly EOTS

Assembly of gimbal internal/external housing and optical alignment

- Driving range: azimuth angle 360° xN, high and low angles -10° to +75° or higher
- Driving speed: azimuth angle of 110°/s or more, high and low angle of 110°/s or more

PHP Heat Exchanger

Cooling capacity 140W, capable of operating domestic and in desert environments

Scanning mirror assembly workpiece

scanning drive frame, mirror shaft, bearingnd, Supporter and retainer

EOTS for Laser Gun for air defense

Gimbal drive control assembly

Control of 4-axis motor for target tracking and gimbal stabilization control

- Configuration: servo control unit and motor driving unit
- Perform sensor interface and signal processing (Giro sensor/encoder)

MWIR/SWIR drive control assembly

Control of stepper motors for tracking MWIR/SWIR optical gimbal drive

- Step motor 2ch/4ch, encoder 2ch/4ch implementation

Telescope drive assembly

Control of secondary motor for focusing adjustment in telescope drive assembly

- Step motor 1ch, encoder 1ch implementation
- Implement temperature sensor 11ch and humidity sensor 1ch

KF-X EOTGP

Front Electronic Assembly(FEUA)

Electro-Optical Targeting POD (EOTGP) Equipment
- Detects/tracks targets and irradiates lasers to precisely guide laser-guided bombs
- Pre-integrated control assembly performs EOTGP pre-integrated control

Assembly of aircraft electrical interconnectivity and EMI filters

It is installed on the rear electronic box side of the EOTGP and acts as an EMI filter for the KF-21 system linkage and AC power and DC power supply

Optical signal interconnect assembly

Converting optical signals to electrical signals

Rear connection assembly

Interconnecting Korea Fighter Jet System signals to EOTGP signals

Front Integrated Control Assembly(FICA)

Conduct general management of front electronic assembly and servo control
- Configuration: Front integrated control circuit card, servo control circuit card
- Front Integrated Control Card: High-performance DSP, IMU interworking function (performing navigation algorithm), System interworking (Ethernet communication) function
- Servo control circuit card: Roll, Pitch, Yaw 3-axis motor (3ch) drive signal generation function, stabilization controller, speed and position control algorithm function provided

TADS for Light armed Helicopter

System control assembly

Target Acquisition & Designation System (TADS) devices mounted and operated in small armed helicopters (LAHs)

Servo control assembly

Drive control of 4-axis motor for target tracking and gimbal stabilization
- Configuration: servo control circuit card, motor driving circuit card
- Generation of internal and external elevation/diagonal 4-axis motor (5ch) drive signals
- Equipped with stabilization controllers, speed and position control algorithms, IMU interlocking function, and encoder angle information acquisition function

High-speed stabilization control unit

Directional Infra-Red CounterMeasures (DIRCM) The role of disabling the infrared explorer mounted on the anti-aircraft missile

SATELLITE LASER COMMUNICATION

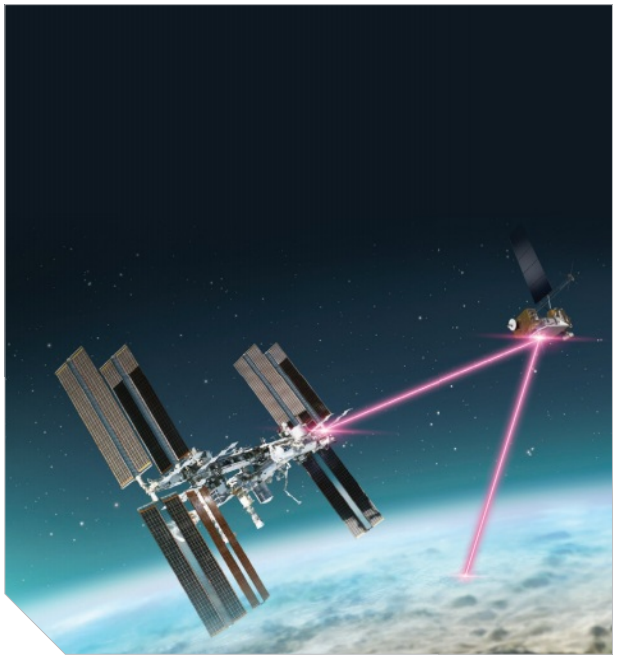
Satellite Communication

A Key Company in the Satellite Communication Equipment Industry

KIPCO has sequentially acquired wired telecommunication company, wireless communication company, and security company. We have been conducting research, development, and mass-produce technological investment in military communication equipment such as data transmission equipment, military radios, and mobile relay equipment.

As a result, KIPCO has established itself as a key manufacturer of military tactical communication systems and is striving to become a leading player in space development in South Korea for the upcoming space age. We are also accelerating research and development for satellite-to-satellite communication, ground-to-satellite terminal devices, and laser communication development.

Satellite-to-satellite laser communication terminal(ISL:Inter Satellite Links)



Operational control unit

The PAT assembly operation control board of the satellite terminal PAT for low-orbit satellite-to-satellite laser communication is equipped with DSP, which is linked to external mounting computers and terminal controllers to control the operation of the PAT unit and report status information

Drive signal generator

Integrated interface board and PCIe interface in 19-inch standard rack to control Windows GUI interworking

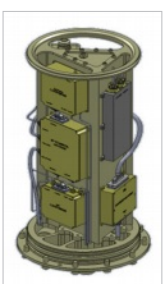
Servo control, motor drive unit

Azimuth/elevation motor and FSM-1/FSM-2 drive control

Ground terminal laser transceiver device

4-axis FSM (fast scan mirror) drive control

Sub-marine RF system



Radio frequency up down converter

- X-band Radio frequency up down converter
- Design by EXT-REF LO generator
- Designed by Military specification
- Designed by low noise and high gain specification
- Design by Broad band control

High-power amplification

- X-band 500Mhz BW amplifier
- High power 80w amplifier (SSPA)
- Design by Broad band control
- Designed by Military specification
- Design based on SSPA

AEROSPACE PARTS

Aircraft Components

Top industry expertise in the machining of aircraft engines and titanium aircraft components

KIPCO has successfully achieved localization of aircraft components that were previously heavily dependent on imports. Through these efforts, we are now producing various aviation parts including aircraft engine cases and impellers.

AEROSPACE PARTS

TITANIUM VANE

The component that rotates the incoming air in a specific direction within a compressor

TITANIUM IMPELLER

The component that uses water, steam, or other fluids to generate power and rotate a wheel

Important equipment

GROB : G350

MAZAK : VARIAXIS-730

temperature and humidity chamber

1000 class clean room

Equipment

1. Machining equipment

Name	ECO 600	LYNX 650	DNM 500	VC 500- 2PALETTE
Shape				
No. of units	10 EA	4 EA	4E A	6 EA
Use	3AXIS	3AXIS	3AXIS	3AXIS
Manufacturer	DMG	DOOSAN	DOOSAN	DOOSAN

Name	VM 960L	XF 6300	XF 8500	KF 7300 - 8 PALETTE
Shape				
No. of units	2 EA	6 EA	1 EA	1 EA
Use	3AXIS	5AXIS	5AXIS	5AXIS
Manufacturer	DOOSAN	Hyundai WIA	Hyundai WIA	Hyundai WIA

Name	G550	G350	DMU 65monoBLOCK	DMU 160 P
Shape				
No. of units	2 EA	4 EA	1 EA	4 EA
Use	5AXIS	3AXIS	5AXIS	5AXIS
Manufacturer	GROB	GROB	DMG	DMG

Name	DMU 210 P	D2-8PALLETE	PUMA 700 LM	PUMA GT2600	LYNX 220
Shape					
No. of units	1 EA	8 EA	1 EA	2 EA	2 EA
Use	5AXIS	5AXIS	2AXIS- CNC	2AXIS- CNC	2AXIS- CNC
Manufacturer	DMG	HWACHEON	DOOSAN	DOOSAN	DOOSAN

Equipment

2. Measurement equipment

Name	GLOBAL LITE 9.15.8	LK V 10.10.8	LK V 20.15.10	LK V 8.7.6
Shape				
No. of units	1 EA	1 EA	1 EA	1 EA
Use	CMM 3D-measurement device	CMM 3D-measurement device	CMM 3D-measurement device	CMM 3D-measurement device
Manufacturer	HEXAGON	NICON	NIKON	NIKON

Name	ENDEAVOR 9.9.7	KMV-4030 CNC	TESA-HITE	VECTRE - TOUCH	PH-3500
Shape					
No. of units	1 EA	1 EA	1 EA	1 EA	1 EA
Use	CMM 3D-measurement device	contactless measurement device	Contact 2D-measurement device	2D-measurement device	Projection measurement device
Manufacturer	SHEFFIIELD	KM	HEXAGON	TRIMOS	MITUTOYO

3. Facilities equipment

Name	Small chamber	large chamber	Thermal shock chamber	Class 1000 cleanroom
Shape				
No. of units	1	1	1	1
Use	Temperature/humidity testing	Temperature/humidity testing	High-temperature/room-temperature/cold-temperature testing	Maintaining constant temperature, humidity, and clean air
Manufacturer	Temperature/humidity testing of small modules	Temperature/humidity testing of large modules	High-temperature/room-temperature/cold-temperature testing	Assembly and alignment of electronic/optical precision components