YOUNG POONG
ELECTRONICS CO., LTD.

Strategic changes and new concept of challenges focused on National Defense Objective

Good Mindset
to impress our customers

YoungPoong Electronics is a specialized company in the field of electric and electronic control systems for ground, aerospace, marine and guided weapon market, contributing to strengthening military defense capability by securing the state-of-the-art technologies leading miliTECH4.0.

Global Technology Innovation Leading Enterprise

Sustainable Growth

More growth with YoungPoong

Customer Impression

More innovation for Customers

Corporate value Creation

More challenge for tomorrow

CONTENTS

EXCELLENT VALUE CREATOR FOR CUSTOMERS

Based on our enhanced quality control process and quality management system (DQMS, KS Q 9100:2018 (AS9100D, EN9100:2018 and JIS Q 9100:2016), PMS Level4+, Software Process Level2, etc.) for more than 30 years, we make ceaseless effort for customers' productivity and added value through constant change and technological innovation with passion.

Provide Global Service

Strengthen Manufacturing / Quality Competitiveness

Expand into New Business

Establish Smart Management Environment

HISTORY

Since 1986

- **Head Office & Plant** Changwon
  Product development & Manufacturing & Quality Assurance

- **R&D Center** Daejeon
  Research & Development

- **Sales Office** Seongnam
  Sales & Marketing, R&D

1986	Establish Young Poong Electronics
1997	Incorporation of going business
1999	ISO9001 certified
2005	Establish R&D center in Daejeon, DQMS certified(DTaQ)
2006	INNO-BIZ certified
2007	Venture Company certified
2011	AS9100 certified, CMMI Level 3 certified
2012	Build R&D Center in Daejeon
2013	J-STD-001 Specialist acquired, IPC-A-610 Trainer acquired
2014	Selected as Small but Strong Company
2015	PMS Level4+ certified, Software Process Level2 certified
2016	Selected as Innovative Company
2018	Excellent Employment Company certified
2019	KICOX Global leading company certified, Designated as Promising Export Small and Medium Enterprise
2020	Selected as Small but Strong Company in Changwon-city / Export Business for Defense material, Main-Biz certified
2021	Selected as Material·Parts·Equipment Specialized Company, IPC/WHMA-A-620 Trainer and IPC-7711/7721 Specialist acquired, ISO 14001 certified
2022	CMMI Level 3 renewed

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2007	Presidential Silver Award for Quality Competition
2010	Minister of National Defense Award for Parts Localization
2012	Presidential Award for Excellent Localization Development
2017	Presidential Award for Defense Quality Management Defense Agency for Technology and Quality Award for Defense Quality Management
2018	Defense Acquisition Program Administration Award for ISI Localization Development
2020	Defense Agency for Technology and Quality Award for Military Supplies Field Quality · Technology Innovation Contest

R&D DIRECTION

Powered by Technological Innovation

To secure high reliability in various systems and meet special performance and environmental conditions in each product, the company continues to improve performance through R&D and full reliability by thorough verification.

Motion Control
· Servo control, inverter design and interface technology
· PID, Feed Forward, TDC and Robust control algorithm design technology
· Disturbance overcoming algorithm design technology for tracking control and attitude stabilization
· Complex modeling and simulation technology for optimal performance
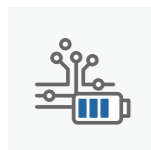
Power Management
· High-efficiency power converter design technology to minimize power loss
· Two-way power conversion algorithm for reusing regenerative energy
· Hybrid power efficiency optimization and power distribution algorithm

Embedded Software
· GUI design technology that provides optimized user convenience
· Real-time application technology for real-time data acquisition and processing
· Target tracking and shooting control technology by image acquisition and image processing

Turret & Actuator
· Optimized power transmission system and structure design technology
· M&S technology for mechanical structure and rigidity analysis
· High torque stabilization system design and simulation technology for overcoming disturbances
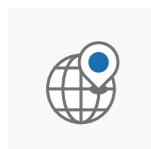
Inertial Sensor Application
· INS/GPS individual and complex navigation system design technology
· Navigation sensor bias and mis-alignment compensation algorithm design technology
· Navigation and attitude calculation optimization algorithm design technology using techniques such as Kalman filter and complementary filter

OUR SERVICE PORTFOLIO

Customized Solutions for the Best Performance

The company implements customer satisfaction through performing successful missions in response to the rapidly evolving technological development.

Mission-Critical Role

Design Analysis

Software Development

Production

Quality Assurance

Test & Evaluation

Maintenance

01	02	03	04	05
Motion Control	Guided Weapon Control	Missile Launcher System	EO/IR System	Avionics (Rotary-Wing)

05	06	07	08	09
Avionics (Fixed-Wing / ETS)	Unmanned System	Navigation System	HMI (Human-Machine Interface)	Embedded System

01

Motion Control

- · Servo Drive Technology
- · Sensor Monitoring Technology
- · Actuator - Design & Analysis Technology
- · Multi-Axes Trajectory Motion Technology
- · Electromechanical Stabilization Technology
- · Turret & System Power Control Technology

Multi-Axes Servo Control Unit

Servo Control Unit drives the motor (location and speed control, etc.) and monitors sensors so that various ammunition loading and supply devices can be activated within a robotic ammunition carrier

Launcher Control Unit

Monitors conditions of components including various sensors, power supplies and motors, and controls azimuth and elevation drive of launchers according to the command of the main controller
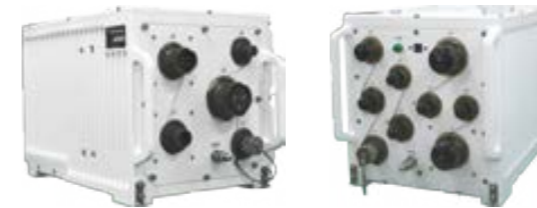
Servo Amplifier & Servo Control Unit

Controls azimuth of turrets and elevation driving and stabilizing of cannons by controlling the motor based on profiles created according to the location command of the main controller


Turret/System Power Control Unit

Power conversion and power distribution (left) for turret control and power monitoring and distribution (right), for equipment of each component system within the carrier

Turret Control Unit

Monitors conditions of components including various sensors, power supplies and motors, and controls azimuth and elevation drive of turrets according to the command of the main controller
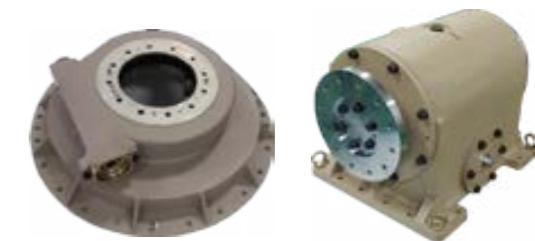
Turret Driving Gear Box for Elevation

Planetary gear type reducer, high mechanical efficiency and close to zero backlash, suitable for equipment requiring precision

02
Guided Weapon Control

· Canard Precision Control Technology
· High Torque Fin Drive Technology
· Multi-Axes Actuator Drive Technology
· Optimized Control Technology for PGM
· Multi-Axes Precision Thrust Control Technology

Guidance Fin Driver

Controls electrical and hydrodynamic operators simultaneously with the fin control unit of ground-to-ground guided missiles
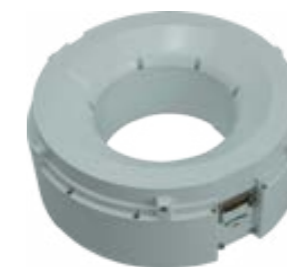
Guidance Fin Driver

Performs precision control of four-axis electrical operators with the wing control unit of ground-to-air guided missiles

Rocket Canard Controller

Performs precision control of the canard actuator of four-axis guided rockets through two DSPs and a high-efficiency inverter module
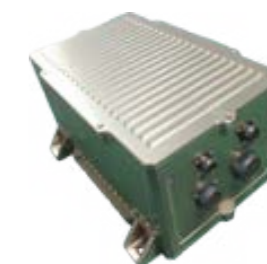

Fin Drive Unit

Compact precision actuator for small guided missiles as four-axis motor actuator of guided missiles, comprising small BLDC motor, ball screws and moment arm

Rocket Canard Controller

Controlling 4 axes of guided rocket's canard with two DSPs and offering high space efficiency thanks to using Rigid-Flexible PCB

Multi-Axes Precision Thrust Controller

Thrust actuator for an instantaneous change of direction of intercept missiles during launching and target tracking

03

Missile Launcher System

· Power Monitoring & Control Technology

· VME Standard Board and Motherboard Design Technology

· Various Types of Communication Technology
  (SDLC and Ethernet, CAN, Optical, Serial etc.)

· H/W Optimizing, Miniaturizing and Lightening Design Technology

· Wiring Design and Manufacturing Technology for
  Complex Mix Signals of Various Types

· MicroProcessor, FPGA Application Circuit Design Technology

· Signal Processing and Converting Technology

· Machine Design and Analysis, Circuit Simulation Technology

Launcher Control Unit

Performs communication relay between control consoles and launchers, and monitors and controls launcher condition

Module Control Box

Supplying power for launching systems and the opening and shutting of the hatch of the launcher, controls of every variety of valves

Missile Interface Unit

Delivering shooting order to ballistic missiles with launching system, controlling and monitoring of its situation

Module Control Box/Hatch Drive Unit

Controls hatch motors and feed valves, displays launcher condition (left) and controls the speed and location of hatch motors to open and close hatches

Missile Interface Unit

Delivers the command to identify and control the condition of guided missiles to the Module Control Box

Signal Distribution Unit

Signal distribution between Vertical Launching System (VLS) and control console

04

EO/IR System

· Precision Design Technology for Optical System

· HD-SDI Video Transmission Technology

· Multi-Image Input Processing Interface Technology

· Image Processing Technology

· Image Fusion Technology

· A·I-based Deep Learning Technology

Thermal Driver's Viewer

All-weather day and night uncooled thermal imaging sensor-built operation system. Can be installed in various types of combat vehicles and used in all-weather and battlefield conditions

Fusion System (Single)

One fusion (1 EO + 1 IR) camera mounted on the vehicle
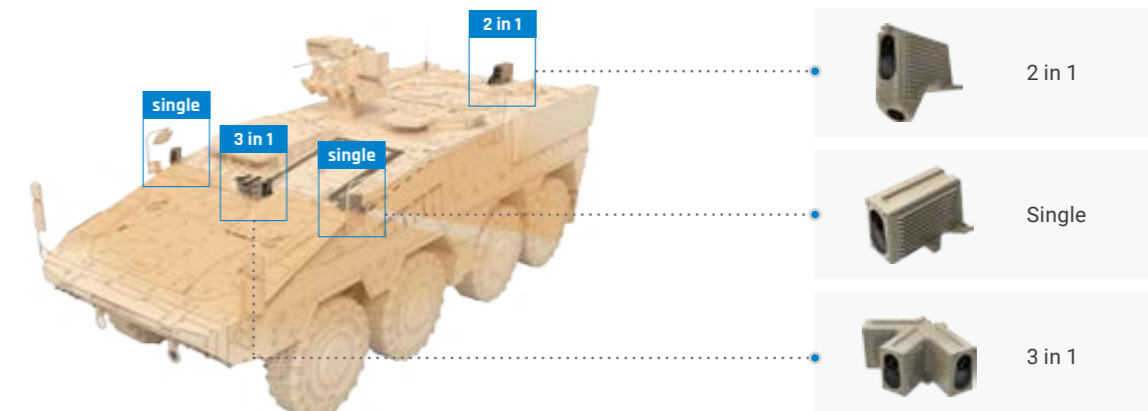FOV : 64˚(h)×50˚(v)

Fusion System (2-in-1)

One Fusion (1 EO + 1 IR) camera (up side) and one EO camera (down side) mounted on the vehicle
FOV : 64˚(h)×50˚(v) (up side), 90˚(h)×50˚(v)(down side)

Fusion System (3-in-1)

Triple fusion (1 EO + 1 IR) camera mounted on the vehicle
FOV : 180˚(h)×50˚(v)

▎Fusion System Configuration

single

2 in 1

3 in 1

single

2 in 1

Single

3 in 1

05

Avionics
Rotary-Wing

· Engine Propeller Gear Torque
  Computation Technology

· Attitude Calibration & Calculation Technology

· Air-Data Calculation Technology

· Optical NVIS Indicators Design Technology

· Sensor Monitoring & Power Control Technology

· Metal Chip Detection & Burn-Off Technology

· Avionics Communication Technology

Integrated Standby Instrument

ISI is an Attitude & Heading Reference System (AHRS) solution with Air Data Computer. It provides full inertial data (Angles, Rates, Accelerations) and Air Data (Baro altitude, Air speed, Vertical speed)

Integrated Signal Processing Unit

ISPU provides the detected/calculated engine torque signals (dual engine) and detects chip and removes (to burn chip in gear box)

Anti-Icing Controller

Anti-Icing Controller controls the power of heaters installed on the wing, rotor, windshield and engine intake of the aircraft to prevent freezing

Chip Processing Unit

Chip Processing Unit receives the chip detection signal from the chip detector mounted on the gearbox and the engine, generates chip removal signals

Switch & Light Panel Units

NVIS (SAE AS 7788) Lighting Panel Units for cockpit installation. Various types of switches and lamps can be applied according to customer requirements

Electrical Master Box

DC Power Distribution Box (DC EMB) distributes 28 VDC DC power supplied from DC generator to each power bus according to aircraft operating conditions and fault conditions with a redundancy system

05

Avionics
Fixed-Wing / ETS

· AC/DC High Power Monitoring, Distribution and
  Protection Technology

· BLDC Motor Drive and Servo Valve, Solenoid Valve
  Control Technology

· LVTD Sensing and Mechanical User-Error Prevention
  Design Technology

· H/W & S/W Actuator Model Design Technology
  for Control of Flight Control Surfaces

· Real-Time Signal Processing-Based Flight Control
  Function Technology

· Aircraft PILS/HILS Environment
  Construction Technology

· Aircraft Sensor Signal Simulation Technology

· Avionics Communication Technology

Electrical Master Unit

Distributes AC power to aircraft AC bus, AC load and
TRU Generator and provides aircraft power status
to the mission computer, composed of two units for
redundancy operation

Canopy Actuator System

Controls BLDC motor drive for fighter canopy
opening/closing

Steering Control Unit

Controls steering angles of wheels by controlling
the Servo Valve and Solenoid Valve for steering
systems as KFX's steering control

Throttle Quadrant Assembly

Provides the basic function of adjusting aero engine
thrust and secondary functions including lever
frictional force control, user-error prevention and
emergency secondary throttle

Flight Control Computer ETS

Provides real-time control / measurement of
analog and discrete input/output signals of FLCC
UUT and provides functional test and various test
environment in which interlocked with cockpit
simulator, a simulation computer, and a real-actuator


Remote Interface Unit ETS

Approves and measures through realtime
simulation of analog and discrete input/output
signals to perform the diagnostic function of RIU
and its algorithm development. It simulates various
signals of RIU, linked with the cockpit simulator as
well as system operation-related matters, linked
with various subsystems

06

Unmanned Systems

· Attitude Calibration & Calculation Technology

· Air-Data Calculation Technology

· Control Software Design Technology Based on STANAG4586

· Inertial Sensor Application & Algorithm Design Technology

· High Torque/Speed Motor Optimum Design Technology

· Drone System Optimum Design, Dynamics Model Design

· High Wind-Resistance Drone Controller Design Technology

· Anti-Drone System Technology

· Power Monitoring & Distribution Technology
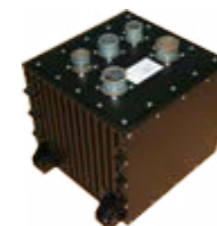
Flight Control Computer

Arithmetic control unit of attitude and flying control, Built-in Navigation Computer

Flight Control System

Automatic flight control system for automatic flight, integrated FCC & INS

UAV Ground Control Software

Various aircraft suitable for operation under a control program based on STANAG4586

Autopilot

Micro-military and industrial drone flight control computer with built-in algorithms for high wind-resistance flight control, automatic precision landing and magnetic field disturbance removal navigation, capable of supporting various drone platforms

Drone

Military and industrial surveillance and reconnaissance drone embedded with high wind-resistance flight control algorithm-applied FCC and high performance EO/IR cameras

Anti Drone System

Program to analyze acquired images and able to recognize the objects of specific targets and their geographical change hour by hour

Power Distribution Unit

Provides power supplied from batteries, generators, and EPU to the connected equipment according to the FCC's instructions and provides real-time voltage / current and power output status to the FCC

Junction Box

Connects and distributes various kinds of signals required in the interior of flight vehicles

07

Navigation System

· Sensor Integration Technology (GNSS, IMU, Air-Pressure)

· Inertial Sensor Application Technology

· MEMS(Micro Electro Mechanical) Sensor Calibration Technology

· HRG(High End Grade) Sensor Calibration Technology

· EKF-applied, Algorithm Optimization Design Technology

· GPS/INS/ADS Hybrid Navigation Algorithm Design Technology

· Miniaturizing, Lightening Design Technology

AHRS-300

Provides information of altitudes and azimuth as small and low cost Attitude Heading Reference System based on MEMS
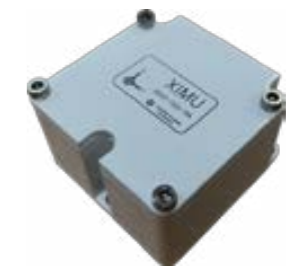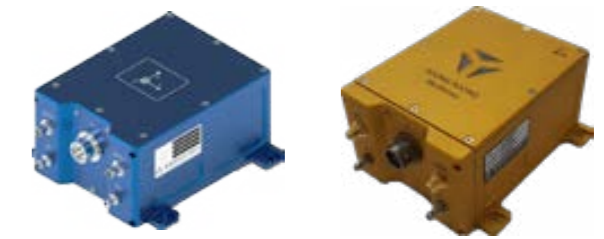
X-IMU(Inertial Measurement Unit)

High-performance inertial measurement unit by using high-end accelerometer and gyro sensor, used for gimbal system, ground launcher, stabilization control

SINU-D

Performance-enhanced version of VINU. In order to minimize the effects of vibration and shock, a damper and a GNSS heading function is additionally applied

SINU-D-A

Performance-enhanced version of VINU. In order to minimize the effects of vibration and shock, a damper and a GNSS heading function and ADC (Air Data Computer) is additionally applied

VINU(Inertial Navigation Unit)

High precision performance Navigation Unit based on MEMS IMU. Consists of GNSS receiver, pressure sensor, IMU and Magnetometer

OUROS

High precision performance Land Navigation System based on HRG Gyroscope.
Provides a long life with high impact resistance without external support, including highest accuracy and shortest alignment time in harsh conditions

08

HMI
Human-Machine Interface

· Steering Angle Detection Technology of Joystick

· Various Serial Communication Technology

· NVIS Panel Design Technology

· Ergonomic Mechanical Design Technology

· Graphic User Interface for User Convenience

Joystick

Outputs speed instruction of driving system with digital communication and provides various options of communications and switches for system

Joystick

Outputs speed command of the turret drive system through digital communication and provides various options of switches for system operation with a comfortable grip feeling through ergonomic grip design

Landing Gear Handle

Operated through equipment installed front and rear providing a control device manipulating landing gear when the aircraft is taking off or landing

Landing Gear Control Unit

Operated through equipment installed front and rear providing a control device manipulating landing gear when the aircraft is taking off or landing for KT-1 series

Multi-Function Console

Supplying HMI function for controlling command and launch

Display Unit

Enables placement of various functional switches according to customer requirements as a panel-type display for combat vehicles, meeting military environmental conditions

09

Embedded System

- · VPX & xTCA System
- · Rugged Network System
- · MOSA
- · Scalability
- · Interoperability
- · Affordability
- · Different standards, Common applications

MOSA (Modular Open System Architecture)

Allows to use commercial off the shelf hardware from multiple vendors expecting a good level of interoperability, so avoiding the need for custom designed hardware and avoiding lock in

PICMG & VITA

Advanced-TCA/Micro-TCA and OpenVPX take a similar approach. Both use switched fabrics for high speed interconnects, support different data pipe widths for various applications, and recognize the benefits of platform health management

FMC (FPGA Mezzanine Cards, per VITA 57)

Provides an extremely flexible mechanism for including interface and signal conversion capability into both TCA and VPX systems (per VITA 57)

MILTECH 304

Miniature portable tactical communication switches. Compact Military Fast Ethernet Unmanaged Switch - 4 Port

MILTECH 918

Miniature portable tactical communication switches. Compact Military Gigabit Ethernet Managed Switch - 8 Port

MILTECH 9012C

Miniature portable tactical communication switches. Compact Military Managed 12 Port Gigabit Ethernet Switch/Router with Cisco IOS External Connectivity

HERE FOR FULLY SUPPORT

Pride on the best for defense quality by advanced technology and quality management system. We are well prepared to always show excellent performance with high quality and technology accumulated over a long period of time.

32% Personnel Capability to R&D

70% Engineer with over 10 YOE

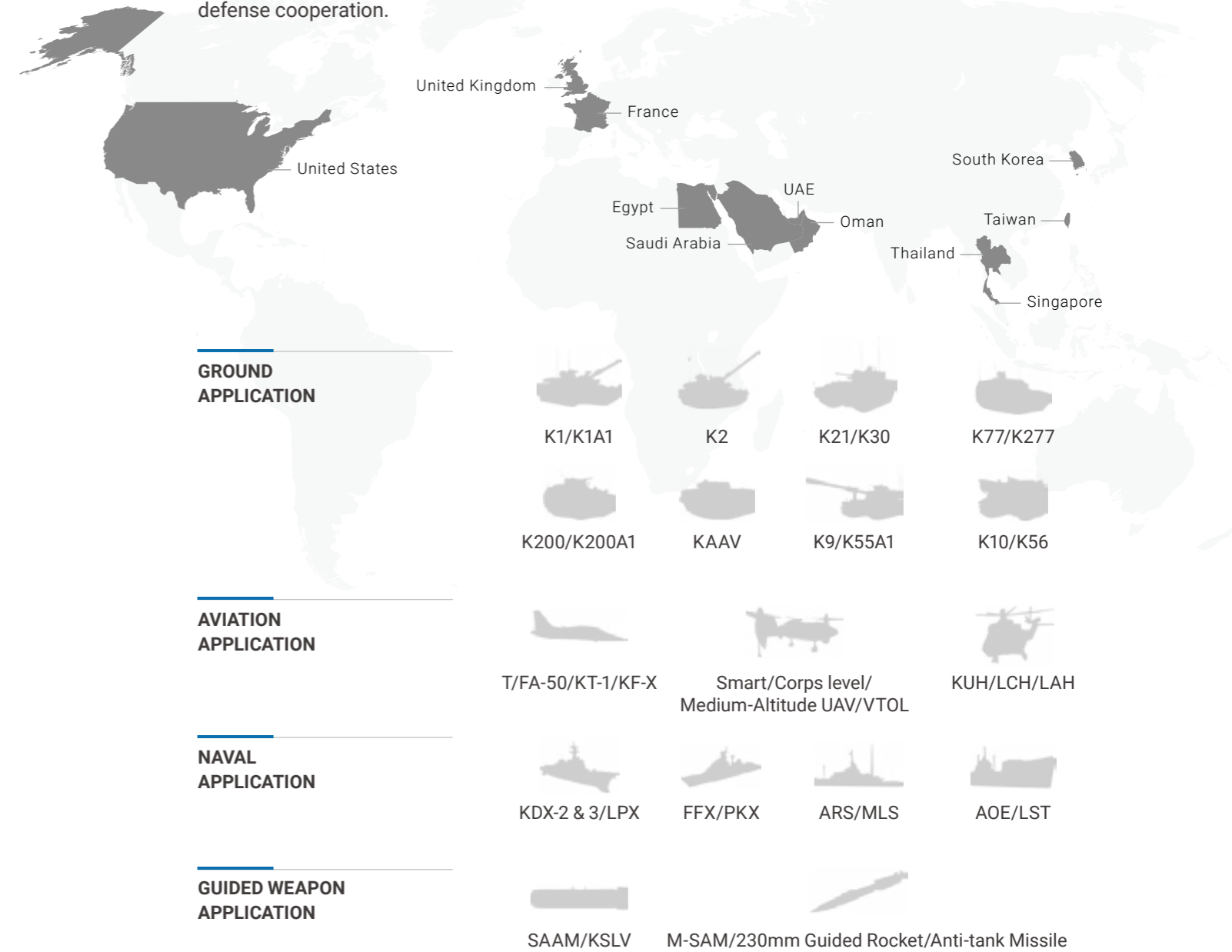**12** Intellectual property rights and certificates

128 Quality and Production experts

- Defense Quality Management System, Aerospace Quality Management System
- Establish Quality Assurance System for each phase of quality and production management activities

GLOBAL PARTNER

As a strategic partner of the international electronics industry, YoungPoong Electronics grows together with customers based on global competitiveness through strengthening international defense cooperation.

United Kingdom
France
United States
South Korea
Egypt
UAE
Oman
Taiwan
Saudi Arabia
Thailand
Singapore

GROUND APPLICATION

K1/K1A1 | K2 | K21/K30 | K77/K277

K200/K200A1 | KAAV | K9/K55A1 | K10/K56

AVIATION APPLICATION

T/FA-50/KT-1/KF-X | Smart/Corps level/ Medium-Altitude UAV/VTOL | KUH/LCH/LAH

NAVAL APPLICATION

KDX-2 & 3/LPX | FFX/PKX | ARS/MLS | AOE/LST

GUIDED WEAPON APPLICATION

SAAM/KSLV | M-SAM/230mm Guided Rocket/Anti-tank Missile

We are creating the future along with our customers, and at the center is YoungPoong Electronics.

"We will become a global leader with an attitude of Adventure, Challenge, and Winning"