Xnergy
Autonomous Power Technologies

IGNITING NEXT-GEN ROBOTICS WITH INFINEON & XNERGY

Presented by Dr Hu Xiaolei,
CTO & Co-Founder, Xnergy

8 July 2025

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01

ABOUT XNERGY



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WHO ARE WE

A Singapore DeepTech Energy start-up sprung off from NTU (ERI@N) since 2018, specialising in building Adaptive Energy Solutions that fuels robotics & autonomous mobility.

We are adopted by more than **100** mobile robot companies in more than **35** different countries.



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WHO ARE WE

Mission

To be the gold standard in intelligent universal energy solutions for electrified autonomy and robots.

Vision

To power a new era where energy is limitless, enabling robots to operate seamlessly within intelligent energy network.

40+
INDUSTRIES SERVED

1M+
SUCCESSFUL CHARGES

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02

ROBOTICS & WIRELESS CHARGING

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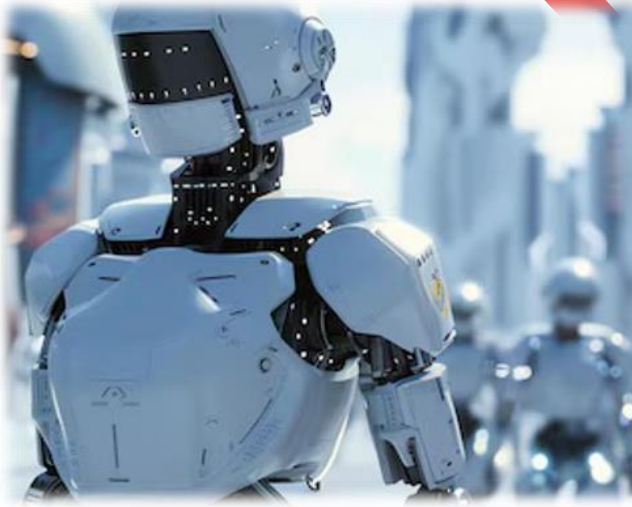
TODAY'S ROBOTIC LANDSCAPE

Market and Regulatory Trends

- Robotics growth CAGR: **20%**
- Global robotics market projected to reach **US$200 billion** by 2030[1]
- **Re-shoring of manufacturing trends against global labour shortages** will be matched with increased automation/robotics for cost-competitiveness
- **Trade and tax incentives** for robotics adoption.
- **Global decline in adoption cost of industrial robots at 3%** annually according to reports from Statista and The Robot Report, driven by technological advancements, increased competition and economics of scale



1. https://statzon.com/insights/global-robotics-market-growing-rapidly

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TODAY’S ROBOTIC LANDSCAPE

Technological Trends

- Current state of advanced robots for autonomous operations are faced with challenges that include:

  • High Power Consumption
  • Battery Limitations
  •Versatile Energy Autonomy in unstructured environments



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A STRONG CALL FOR WIRELESS CHARGING

Recurring issues of contact charging solutions

- Safety risks arising from exposed electrodes
- Limited lifespan and frequent maintenance causing high total cost of ownership
- Susceptible to environment conditions
- Lack of unified interoperable charging standards

A revolutionary charging solution is needed

- Safe operation
- Low/no maintenance for low total cost of ownership
- Environmental friendliness & versatility
- Universal, plug & play



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WIRELESS CHARGING TO ROBOTS SHOULD BE AS EFFORTLESS AS HUMANS BREATHING AIR

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OUR PRODUCTS

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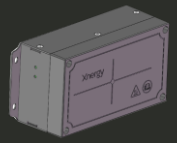
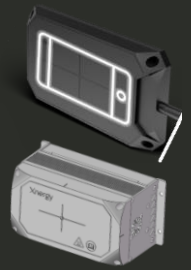
CATERING FOR DIVERSE POWER NEEDS

GR: <1kW



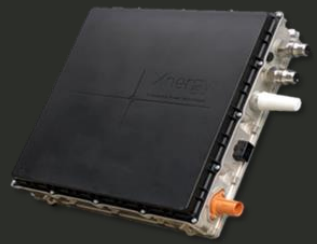
PH/(MINI) 1-2kW



BE/DR: 3-9kW



TB: 10-22kW

















600W 1kW 1.5kW 3kW 7kW 11kW 22kW

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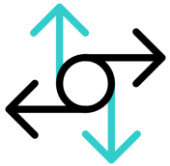
PRODUCT FEATURES

SAFE



- Magnetic coupling w/o exposed electrode
- Built-in over temperature/voltage/current and short circuit protection
- Certified by TUV SUD, UL, etc.

VERSATILE



- No metallic particles generated from contact
- Can operate in harsh environments (e.g. metal filings and/or contaminants)
- IP65 rated design

LOW MAINTAINANCE



- No mechanical contact / movement = no wear and tear
- Minimum maintenance required (cooling fans only)

UNIVERSAL



- One transmitter for all charging voltages (24V/48V/72V)
- Multiple commutation protocol supported (Modbus, CAN Open, I/O)



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APPLICATIONS



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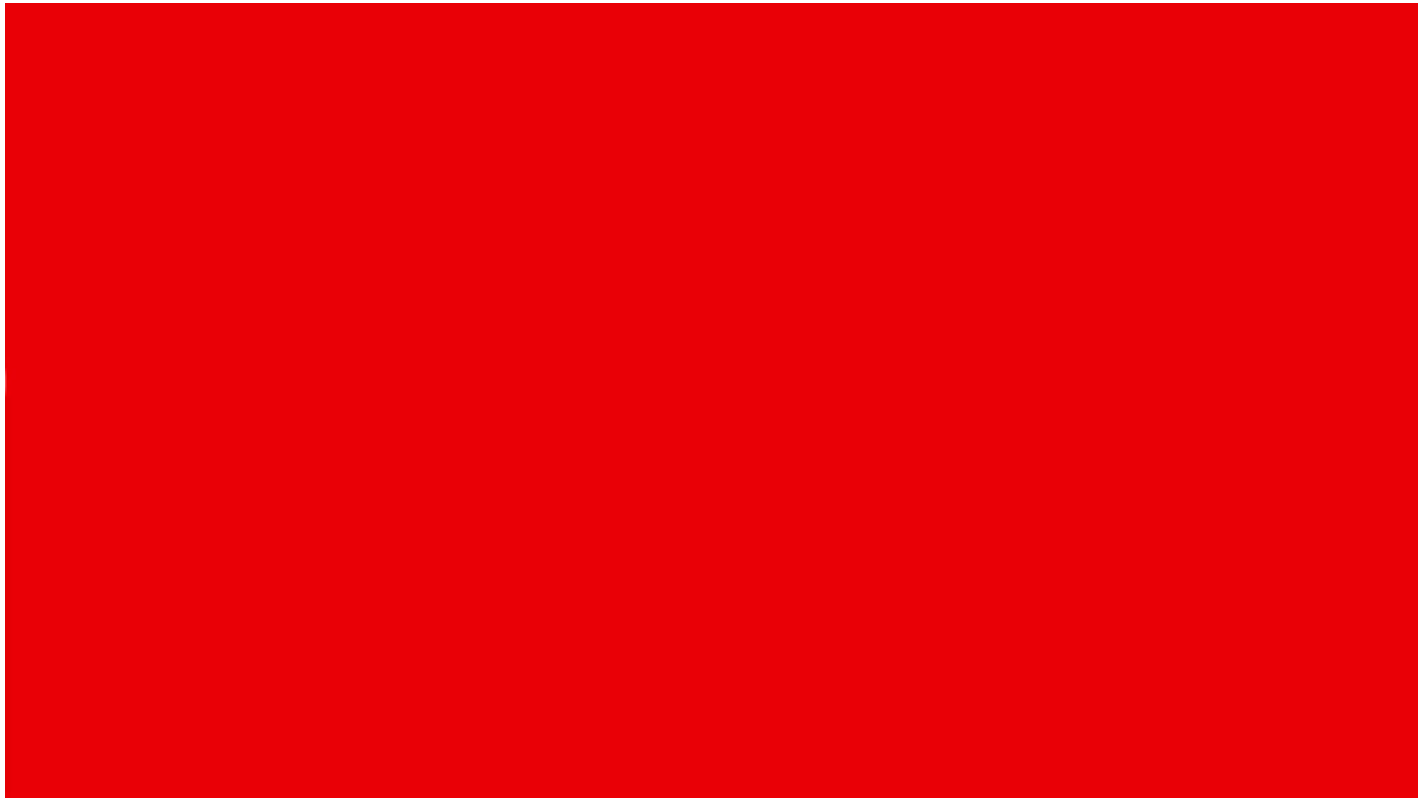

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OUR APPLICATIONS



Industrial



Medical



Logistics



Services



Security



Others

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05

ROBOT DESIGN & DEPLOYMENT

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ROBOT DESIGN & DEPLOYMENT



SAFETY

Designed to comply with regional and international safety standards (e.g. CE, UL).



FASTER TIME TO MARKET

Accelerates ROI while quickly adapting to customer needs and tech shifts.



SCALABILITY

One charging solution cross different type of robots.

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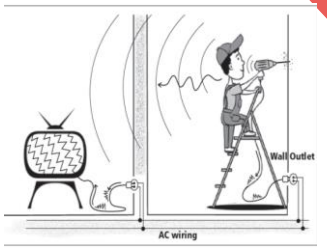
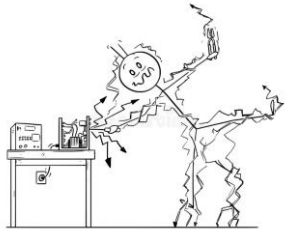
STANDARDS & CERTIFICATION

Emission Conducted & radiated emission Harmonics emission **Immunity** Conducted & radiated immunity Voltage, dips & interruptions Surge Electrostatic discharge Etc.	**CISPR 11**- **(**ISM) **/CISPR32**	**FCC**	EMC
	EN 301489- Radio equipment and services		
RF Output Power, Occupied Channel Bandwidth Unwanted emissions Etc.	**EN 300 328** - Wideband transmission; equipment at 2.4GHz ISM band		
Electrical field Magnetic field	**EN 62311** - EMF exposure to human		Health
Injury from electrical, thermal, mechanical energy	**EN 62368 -** Safety for comm equipment		Safety







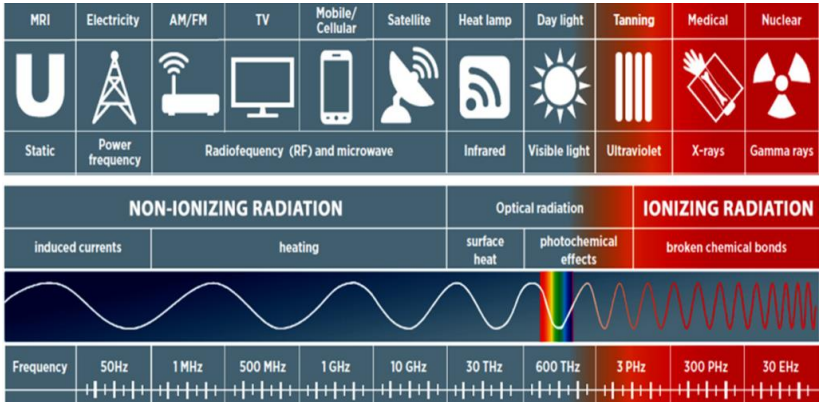
SAFETY

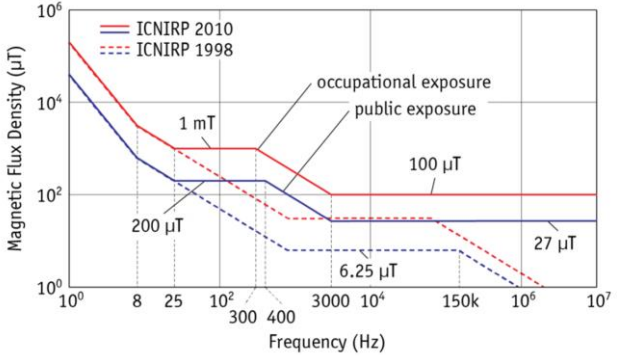
ICNIRP
INTERNATIONAL COMMISSION ON NON-IONIZING RADIATION PROTECTION

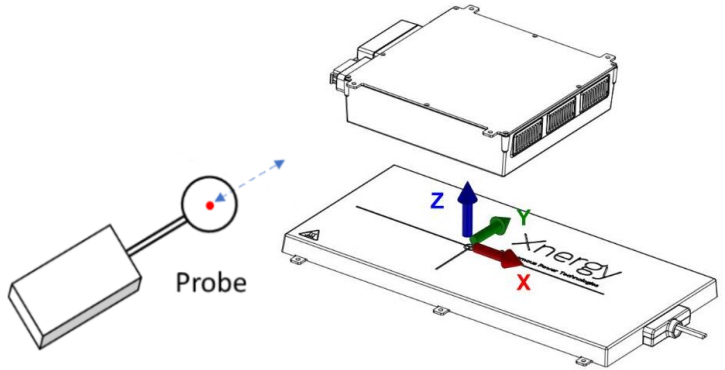
Limit for human exposure to electromagnetic fields (EMF)

Product level safety
- Protective earthing, etc. like other electrical equipment

Electromagnetic field safety
- Thermal and non-thermal effect, slight warming, nerve & muscle stimulation at high exposure







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CATERING FOR DIVERSE POWER NEEDS

A range of turnkey solutions



Portable briefcases



Briefcases and smart cabinets

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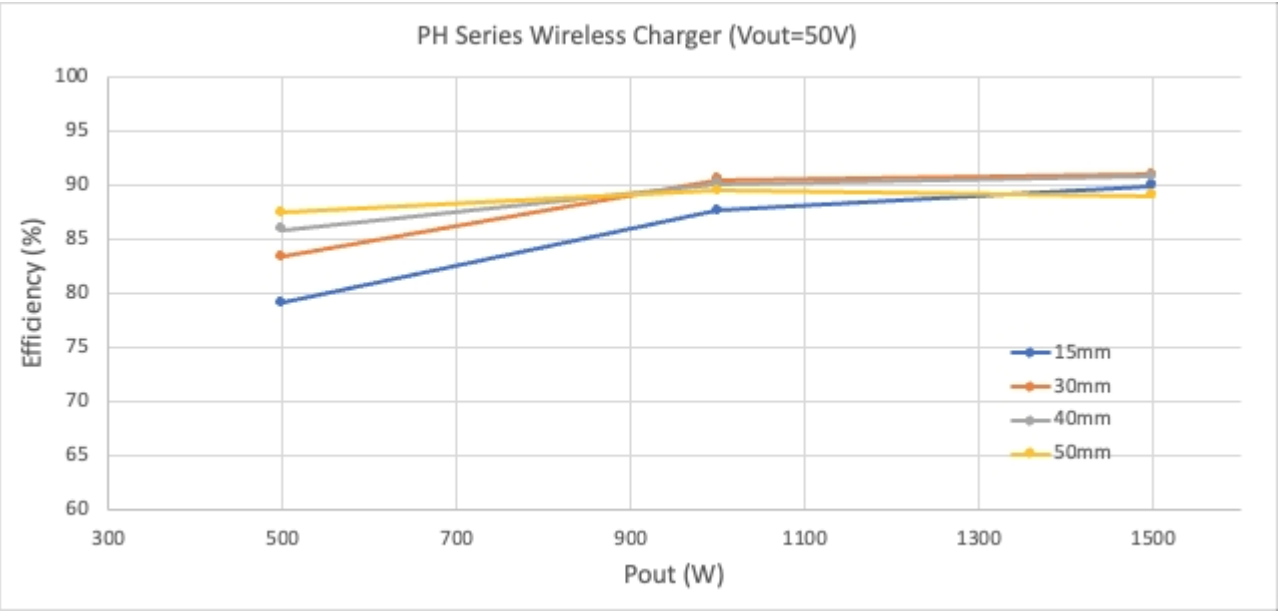
WIRELESS CHARGING EFFICIENCY



- **90% charging efficiency** is achieved for the PH series

* Airgap tested at centre alignment. DC is measured at output of the RPU.

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JOIN US

We are expanding the team and are looking for distribution partners in US, Japan, Korea and Europe. We are also looking for talent in the following areas and locations:

- **Singapore:** R&D, Solutions, Sales, Product - battery
- **China:** R&D, Solutions,
- **Korea:** Sales, Solutions
- **Japan:** Sales, Solutions
- **US:** Business Development, Solutions

Interested applicants can contact HR at **+65 9010 9574** for a confidential discussion.

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THANK YOU

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