



Enabling NFC applications and simplifying connectivity in EMVCo, IoT, Wireless Charging and Mobile by a unique Universal Reader Technology

NFC WLC POLLER SOLUTIONS	Released	E ¹ : Released N ² : Customer samples available
PRODUCT	PTX100W	PTX130W
Product description	High-performance, high-power NFC Wireless Charging (WLC) Poller solution with multi-protocol reader functionality. Universal SW device integration.	High-efficiency , high-performance, high-power NFC Wireless Charging (WLC) Poller solution with multi-protocol reader functionality. Universal SW device integration.
Technology	180nm	180nm
NFC Wireless Charging standards & features		
NFC Forum certification	-	E: - / N: WLC, Reader compliance
NFC Wireless charging		
NFC Forum WLC Poller protocol	-	N: ✓
NFC WLC Poller exclusive protocol	✓	E: ✓
Listener counterpart	Discrete Listener (WLC-LDI)	Discrete Listener (WLC-LDI) / PTX30W-N
NFC WLC static charging protocol	✓	✓
NFC WLC negotiated charging protocol	✓	✓
Symmetric transparent data channel	-	✓
Data-exchange via NFC protocols	✓	✓
FOD (Foreign object detection)	bFOD	bFOD, Poll FOD
Power regulation in steps [no. of steps]	5	E: 5 / N: 100
Low Power Listener Detection current, typ. [µA], @ 2 Hz	100 µA	<100 µA
Reader standards		
Reader / Writer	ISO/IEC 14443 A/B up to 848 kbit/s, MFCC ISO/IEC 18092, FeliCa™ up to 424 kbit/s ISO/IEC 15693 up to 26,5 kbit/s ISO/IEC 18000-3 M1	ISO/IEC 14443 A/B up to 848 kbit/s, MFCC ISO/IEC 18092, FeliCa™ up to 424 kbit/s ISO/IEC 15693 up to 26,5 kbit/s ISO/IEC 18000-3 M1
Carrier frequency [MHz]	13,56 MHz	13,56 MHz
NFC Forum tag type support	2, 3, 4, 5	2, 3, 4, 5
Card emulation (HCE)		
NFC Tag-Type emulation @ bitrate [kbit/s]	-	-
Peer-to-peer (ISO/IEC 18092)	✓	✓
Passive communication	Initiator	Initiator
Active communication	-	-
Product features		
Ultra-low power on-chip MCU with integrated Firmware	✓	✓
High power digital conversion sine wave RF frontend	✓	✓
Digital dynamic power control (DDPC)	✓	✓
DIRAC ³ : EMI filter-less solution	-	-
Phase Accurate Active Load-Modulation HCE	✓	✓
High receiver/LMA sensitivity [dBc]	-80 dBc	-80 dBc
Very High Dynamic Range Receiver (VHRR)	✓	✓
RF transmitter supply voltage [V]	2.7 V – 5.5 V	2.7 V – 5.5 V
Transmitter supply current, max. [mA]	650 mA	650 mA
Power harvested on the Listener ³ , max. [W]	1.0 W	1.0 W
Relative Poller efficiency improvement ⁴ , typ. [%]	-	+18%
Host interface	SPI, I ² C, UART	SPI, I ² C, UART
Supply voltage host interface [V]	1.8 V, 3.3 V, 5.0 V	1.8 V, 3.3 V, 5.0 V
Power-down mode current, typ. [µA]	3 µA	3 µA
Available packages	QFN56	QFN56
Temperature range [°C]	-40 to +70	-40 to +70
Field-detection signal output	IRQ	IRQ
Product support and ordering information		
Product packages	QFN56	QFN56
Product type	PTX100WDQ56	PTX130WDQ56
Order code single tray (dry pack)	PTX100WDQ56B	PTX130WDQ56B
Order code reel (TR dry reel 7")	PTX100WDQ56D7	PTX130WDQ56D7
Evaluation boards		
Name of evaluation kit	PTX100W NFC WLC Eval Kit	PTX130W NFC WLC Eval Kit
Order number of evaluation kit	10009200	10009230(E)
Software / SDKs / GUI		
	NFC WLC reader libraries for easy integration into MCUs and RTOS. SDK's for WLC for Non-OS. WLC Config Tool GUI for evaluation of IC features, power transfer and RF optimization, NFC Tag reading (Windows® and Linux).	NFC WLC reader libraries for easy integration into MCUs and RTOS. SDK's for WLC for Non-OS. WLC Config Tool GUI for evaluation of IC features, power transfer and RF optimization, NFC Tag reading (Windows® and Linux).

¹ E: NFC WLC Exclusive protocol with WLC-LDI Discrete Listener

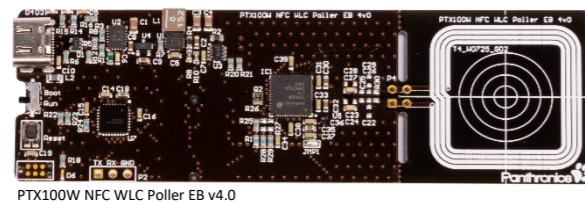
² N: NFC Forum WLC compliant protocol with fully integrated PTX30W Listener

³ Regarding placement deviation in a coupling-volume of ±5mm in x/y/z directions (with Eval Kits)

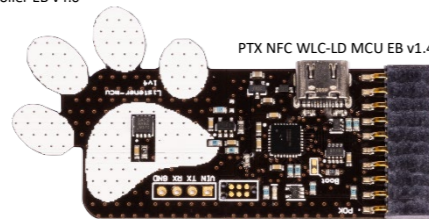
⁴ Relative to PTX100W

NFC WLC LISTENER SOLUTIONS	Customer samples available
PRODUCT	PTX30W
Product description	Highly integrated, scalable NFC WLC Listener with I ² C interface and on-board PMIC and LDO. Operating devices with or without battery using standalone or MCU controlled operation.
Technology	130nm
Standards & protocols	
NFC Forum compliance	✓ (Type 2 Tag, WLC Listener)
Wireless charging (WLC Listener)	
WLC exclusive protocol	-
NFC Forum WLC static charging protocol	✓
NFC Forum WLC negotiated charging protocol	✓
Operating frequency [MHz]	13,56 MHz
NFC Forum tag type support	Type 2 Tag
ISO/IEC 14443-3A bitrate [kbit/s]	106 kbit/s
Host interface	I ² C Slave
Product features	
Ultra-low power on-chip embedded core	✓
Integrated PMIC solution	✓
Integrated flexible battery charger with reverse current limiter	✓
Integrated highly efficient active rectifier	✓
Standalone mode of operation (without Host MCU)	✓
Embedded power regulation control	✓
Required PCB integration area (est.)	17 mm ²
Rectification efficiency (AC to DC)	up to 92%
Energy harvesting [W]	up to 1W
Charging current range [mA]	5-250 mA
Li-ion and Li-Polymer batteries support	✓
Charge status monitor	✓
On-chip over-temperature detection/protection	✓
Transparent data exchange channel	✓
Shipping mode (support for battery protection)	✓
System MCU supply output voltage, typ. [V]	1.8, 3.3 V
Battery-less power supply output	✓
JEITA support	✓
Shipping mode current consumption, typ. [nA]	25 nA
I ² C clock frequency [kHz]	Up to 1 MHz
Available packages	CSP16
Temperature range [°C]	-40 to +85
Product support and ordering information	
Product packages	CSP16
Product type	VDMCU as input: PTX30WCC16-1A VDMCU as output 1.8V: PTX30WCC16-1B VDMCU as output 3.3V: PTX30WCC16-1C
Order code single tray (dry pack)	PTX30WCC16B-xx
Order code reel (TR dry reel 7")	PTX30WCC16D-xx
Evaluation kits and boards	
Name of evaluation kit	PTX130W/30W NFC WLC Eval Kit
Order number of evaluation kit	-
Name of evaluation board	PTX30W NFC WLC Listener EB
Order number of evaluation board	-
Software	
	PTX30W reference source code for host MCU. Supports flexible porting to any MCU.

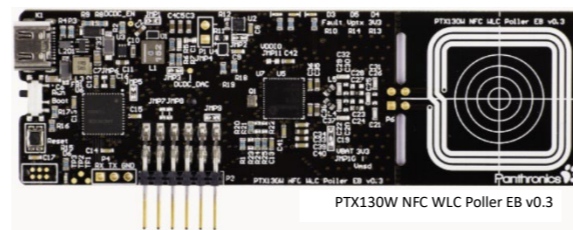
EVALUATION KITS	NFC WLC SOLUTIONS		
Evaluation Kit / Board (Order number)	PTX100W NFC WLC Eval Kit (10009200)	PTX130W NFC WLC Eval Kit (10009230)	PTX130W/30W NFC WLC Eval Kit
Supported products	PTX100W	PTX130W	PTX130W, PTX30W
Contents (Order number of boards)	<ul style="list-style-type: none"> 1 PTX100W NFC WLC Poller EB v4.0 (10009002) 1 PTX NFC WLC-LDI Listener EB v6.0 (10009010) 1 PTX NFC WLC-LD MCU EB v1.4 (10009011) 1 PTX WLC Power Monitor v1.1 (10009014) 2 USB-A to USB-C cable 1 WLC Spacer 	<ul style="list-style-type: none"> 1 PTX130W NFC WLC Poller EB v0.3 (10009015) 1 PTX NFC WLC-LDI Listener EB v6.0 (10009010) 1 PTX NFC WLC-LD MCU EB v1.4 (10009011) 1 PTX WLC Power Monitor v1.1 (10009014) 2 USB-A to USB-C cable 1 WLC Spacer 	<ul style="list-style-type: none"> 1 PTX130W-EB-ST-QFN56-POLLER v1.1 1 PT30W-EB-ST-CSP16-LISTENER 1v1 1 PTX30W-EB-CB LISTENER MCU v1.0 1 PTX WLC Power Monitor v1.1 2 USB-A to USB-C cable 1 WLC Spacer
Key features	<ul style="list-style-type: none"> NFC Wireless Charging evaluation kit for high-power PTX100W NFC WLC IC. Discrete high-power harvesting WLC-LDI Listener Boards with PMIC and MCU Easy-to-use, ready-to-go SW integration into any wireless charging device host MCU architecture. Reader functions supporting all types of NFC and standard protocols (ISO14443 A/B, ISO18092, ISO15693, FeliCa and NFC P2P-Initiator). EMI filter less (DIRAC®) for high-power end-application. RF-design supported with Config Tool and SDKs. 	<ul style="list-style-type: none"> NFC Wireless Charging evaluation kit for high-efficiency, high-power PTX130W NFC WLC IC. Discrete high-power harvesting WLC-LDI Listener Boards with PMIC and MCU Easy-to-use, ready-to-go SW integration into any wireless charging device host MCU architecture. Reader functions supporting all types of NFC and standard protocols (ISO14443 A/B, ISO18092, ISO15693, FeliCa and NFC P2P-Initiator). Bi-directional transparent data channel EMI filter less (DIRAC®) for high-power end-application RF-design supported with Config Tool and SDKs. 	<ul style="list-style-type: none"> NFC Wireless Charging evaluation kit for high-efficiency, high-power PTX130W NFC WLC IC Fully integrated high-power harvesting WLC Listener (PTX30W) with integrated PMIC and LDO Support of NFC Forum NFC Wireless Charging protocol Easy-to-use, ready-to-go SW integration Reader functions supporting all type of NFC and standard protocols (ISO14443 A/B, ISO18092, ISO15693, FeliCa and NFC P2P-Initiator) Bi-directional transparent data channel EMI filter less (DIRAC®) for high-power end-application RF-design supported with Config Tool and SDKs
Certifications	-	-	-
Software and tools	<ul style="list-style-type: none"> SDK "Non-OS" WLC Poller (PTX100W) and Listener (WLCD): NFC Wireless Charging libraries in C source code with compact code size. Applicable for any host MCU/RTOS integration. Config Tool (PTX100W/WCD) for evaluation and Demo GUI (Windows® and Linux): Demonstration and evaluation of WLC IC-features, RF/antenna optimization and Tag read (via USB interface) "Tunneling"-SDK: UART to SPI bridge in C-source code for any MCU providing direct connection of the Config Tool to the PTX-IC to optimize RF/coil design and RF parameters. Antenna design support with open-source tool Qucs Studio. 	<ul style="list-style-type: none"> SDK "Non-OS" WLC Poller (PTX130W) and Listener (WLCD): NFC Wireless Charging libraries in C source code with compact code size. Applicable for any host MCU/RTOS integration Config Tool (PTX130W/WLCD) for evaluation and Demo GUI (Windows® and Linux): Demonstration and evaluation of WLC IC-features, RF/antenna optimization and Tag read (via USB interface) "Tunneling"-SDK: UART to SPI bridge in C-source code for any MCU providing direct connection of the Config Tool to the PTX-IC to optimize RF/coil design and RF parameters Antenna design support with open-source tool Qucs Studio 	<ul style="list-style-type: none"> SDK "Non-OS" WLC for Poller (PTX130W) and optionally for Listener (PTX30W): NFC Wireless Charging libraries in C source code with compact code size. Applicable for any host MCU/RTOS integration. Config Tool (PTX130W/30W) for evaluation: Demonstration and evaluation of WLC IC-features, RF/antenna optimization Antenna design support with open-source tool Qucs Studio.
Target applications	<p>High-power NFC WLC wireless charging solution with Poller and Listener system:</p> <ul style="list-style-type: none"> Wireless charging in combination with universal reader solution supporting all types of NFC reader protocols and applications. Discrete solution for Listener systems Applications: <ul style="list-style-type: none"> Stylus Smart rings Smart glasses Smart watches, fitness trackers Hearing aids Small accessories 	<p>High-power NFC WLC wireless charging solution with Poller and Listener system:</p> <ul style="list-style-type: none"> Wireless charging in combination with universal reader solution supporting all types of NFC reader protocols and applications Discrete solution for Listener systems Applications: <ul style="list-style-type: none"> Stylus Smart rings Smart glasses Smart watches, fitness trackers Hearing aids Small accessories 	<p>High-power NFC Forum WLC compliant wireless charging solution with Poller and Listener system:</p> <ul style="list-style-type: none"> Wireless charging in combination with universal reader solution supporting all types of NFC reader protocols and applications. Integrated system for battery based and battery-less applications Applications: <ul style="list-style-type: none"> Stylus Smart rings Smart glasses Smart watches, fitness trackers Hearing aids Small accessories
Application team support for registered customers	<ul style="list-style-type: none"> SW-expert team supports you with target system Software/Firmware integration Finalized product antenna design support dedicated to your NFC Wireless charging devices <ul style="list-style-type: none"> Retrofit support: Customer antenna retrofitted with customer antenna design. Possibility to optimize and verify charging performance on end device form factor 	<ul style="list-style-type: none"> SW-expert team supports you with target system Software/Firmware integration Finalized product antenna design support dedicated to your NFC Wireless charging devices <ul style="list-style-type: none"> Retrofit support: Customer antenna retrofitted with customer antenna design Possibility to optimize and verify charging performance on end device form factor 	<ul style="list-style-type: none"> SW-expert team supports you with target system Software/Firmware integration Finalized product antenna design support dedicated to your NFC Wireless charging devices <ul style="list-style-type: none"> Retrofit support: Customer antenna retrofitted with customer antenna design Possibility to optimize and verify charging performance on end device form factor



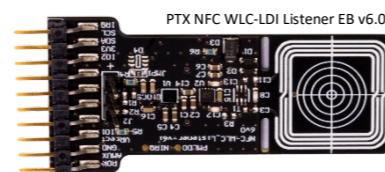
PTX100W NFC WLC Poller EB v4.0



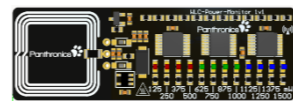
PTX NFC WLC-LD MCU EB v1.4



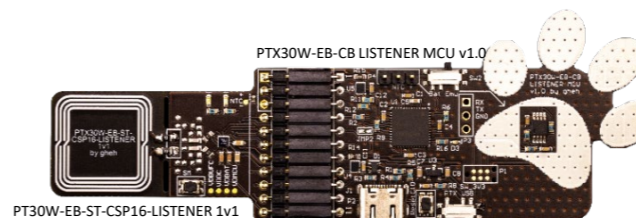
PTX130W NFC WLC Poller EB v0.3



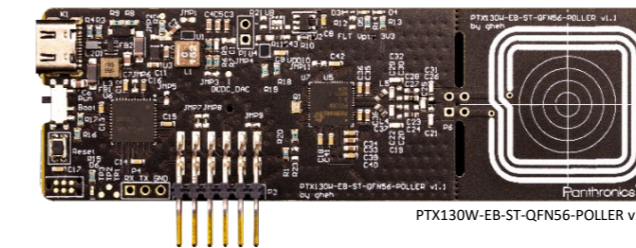
PTX NFC WLC-LDI Listener EB v6.0



PTX WLC Power Monitor v1.1



PT30W-EB-ST-CSP16-LISTENER 1v1



PTX130W-EB-ST-QFN56-POLLER v1.1

For registration, ordering of boards and SDK's please contact sales@panthronics.com