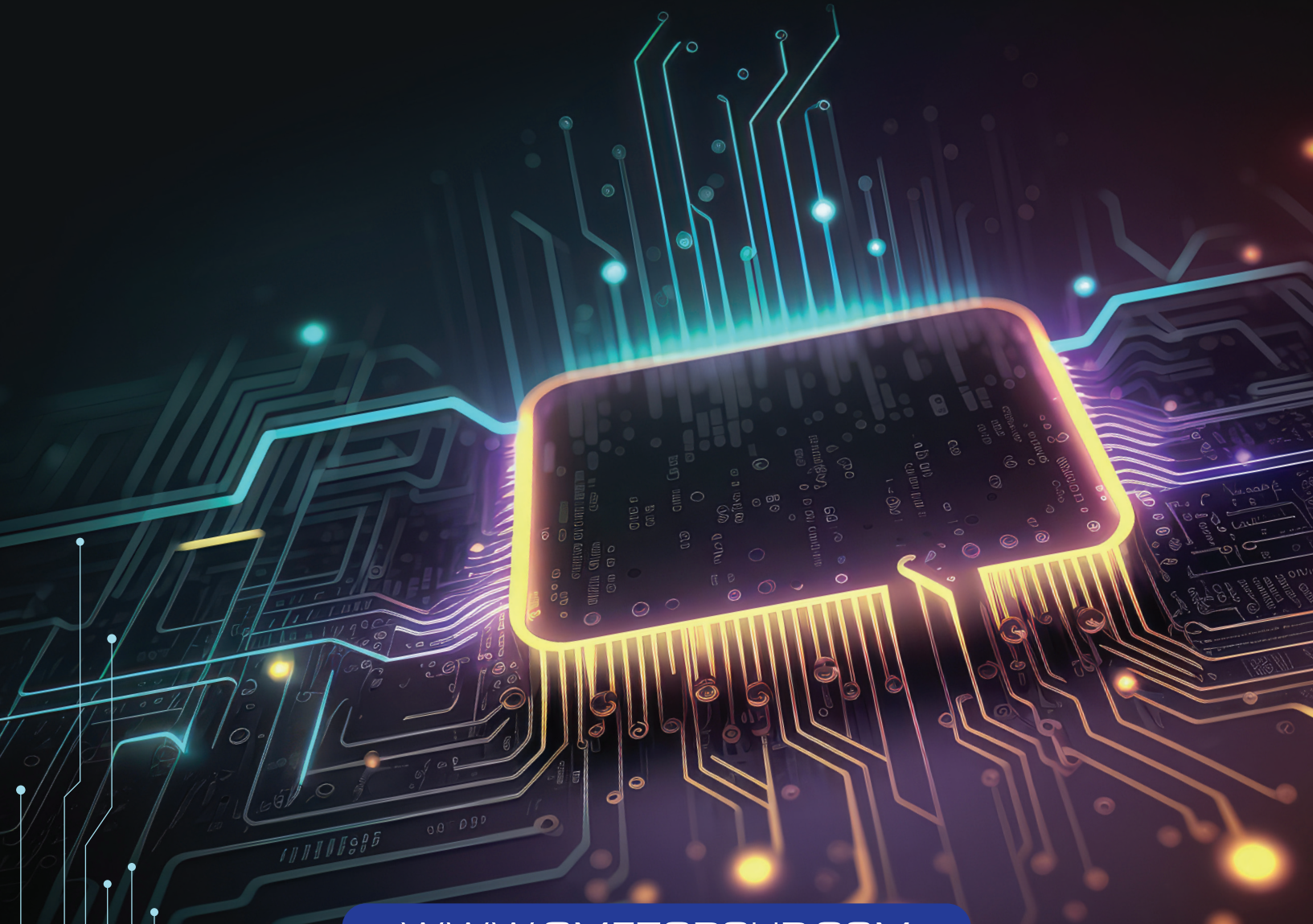




SM ELECTRONIC TECHNOLOGIES PVT LTD
An ISO 9001 : 2015 Certified Company

Ready Solutions For Different Verticals



WWW.SMETGROUP.COM

BENGALURU | SINGAPORE | NEW DELHI | PUNE | HYDERABAD | CHENNAI | MUMBAI | AHMEDABAD

OVERVIEW

ABOUT US

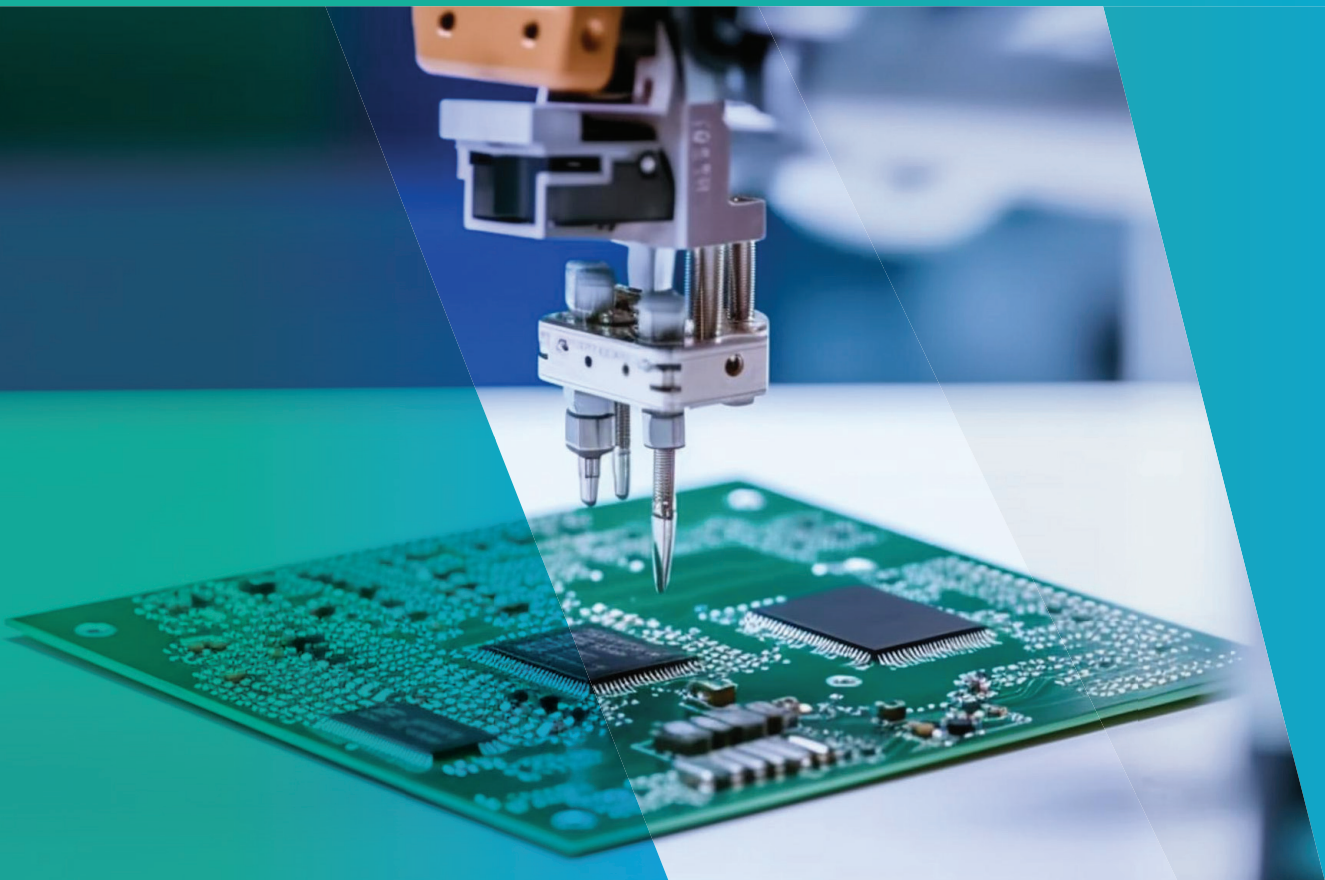
INNOVATION IS A CHANGE THAT UNLOCKS VALUE.

We understand that innovation lies at the heart of our customers. By the time you have the idea and move it on paper, we support you to make it a product with all components, ready at your doorstep. Started out in 1990, we are a family of enthusiastic team members and are a leading distributor in electronic industry. We are now a joint venture company with **Satori Electric**, Japan who is a global distributor, listed in Japan (TSE Code JP3322300009).



Headquartered in Bangalore and present at 7 locations, we cater to customers in India and ASEAN.

We understand customer and market needs and bring to them new technologies and solutions from leading electronic manufacturers across the world.



Index

AUTOMOTIVE

EV Charger 350Watts	03
EV Charger - 750Watts	05
EV Charger - 1.5KWatts	07
EV Charger - 2.2KWatts	09
EV Charger - 3.3KWatts	11
2 Wheeler Cluster / Andriod - Quectel SC200R	13
2 Wheeler Cluster / RA6M3 MCU / TFT Display (5/7")	15
2 Wheeler Cluster / RA6M4 MCU / EBN Display	17
USB PD-Charger	19
Wireless Charger	20
BLE Based TPMS	21
BLE KEY FOB	22
OBD to BLE	23
Head Lamp Driver	24
Sequential LED Indicator	25
Roll Over Sensor for Two Wheeler Safety	26

CONSUMER

BLDC Ceiling FAN 24V	27
Induction Cooktop	28
Voice Recognition	29

INDUSTRIAL

Single Phase Smart Meter	30
3P4W Panel Meter	31
4G NIC Card	32
DCU for Metering	33
Linux Based handheld POS	35
Solar Water Pump	36
Smoke Detector	37
RX111 Thermal Printer	38
RX651 Thermal Printer - Multi Language.....	39
USB HUB	40

SECURITY AND SURVELLINC

L1 Registered Fingerprint Module	42
L1 Registered Fingerprint EVK Module	43
IRIS and Fingerprint	44
IRIS without TFT	46
ABEAS with Fingerprint / 1:1 Match	47
Access Control System / 1:N Match	48
NVR(RZ/G2N) - 16 / 32 Camera	49

PC - OA (OFFICE AUTOMATION)

Andriod Tablet	52
----------------------	----

EV CHARGER-350W

Description

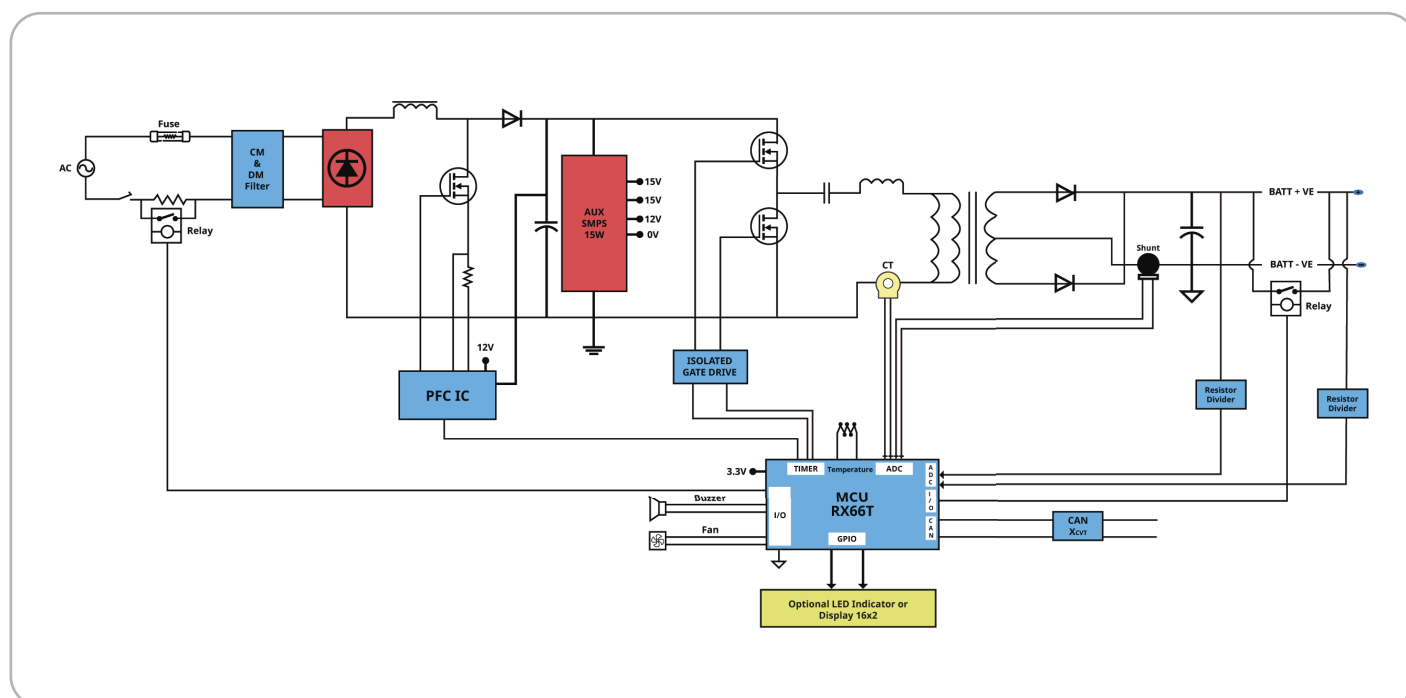
The Off-Board EV Charger with digital half bridge LLC topology uses mathematical modelling to achieve high energy density, increasing safety, reducing weight, and improving efficiency, with AIS156 standards.

It supports different battery types, and charging methods include pre-charge, CC, CV, CP, floating/trickle, or power exchange on CAN command this platform can support up from 0.2KW~1.5KW.

Features

- Charge voltage cut-off to prevent the REESS from being overcharged.
- Whenever REESS is connected for charging soft-start function is activated.
- Deep discharge condition of REESS is detected by pre-charge function.
- Protects against input supply variation 170V ~ 280V.
- On-board/portable charger have CAN, UART to communicate with BMS.

Block Diagram



Electrical Characteristics

SPECIFICATIONS	VALUE	SPECIFICATIONS	VALUE
Max. Output Power	350W	Nominal Default Voltage	51.8VDC
Rated Power	290W	Voltage Tolerance	±0.1VDC
Nominal Input Voltage Range	230VAC	Current Tolerance	±0.5A
Operating Range	170V-280VAC	Efficiency @ >30% load	>=90%
Input Current To The Charger	<3A	Peak Efficiency	>=96%
Input Frequency	45 - 65Hz	THD	<5%
Output Voltage Range	33 - 60VDC	Power Factor (active PFC) , LLC	>=0.99
Rated Output DC Current	7A	No Load / Standby Power Consumption	<1W
Max Output Current (33-60V I/P, Continuous)	8A	Inrush Current (AC side)	<5A
Minimum Current Output	0.1A	Leakage Current	<30mA
		Ramp Up/Down Time for 1V change	<100ms
		Cold Start Time	<5s

Safety

PROTECTION	
Under Voltage & Overvoltage Without Jitter	Over Current & Short Circuit Protection
Surge Protection Type 3 Inbuilt TVS 6kV B72220S0301K101	O/P Reverse Polarity Protection
O/P Overvoltage Protection : Cut off after 59 ± 1 V	Automatically Shut Down After Full Charge
Charger Thermal Cut Back: Based On Customer Housing Design	Residual Current Protection through RCD: Optional in Adaptor Mounting

GALVANIC ISOLATION		
INPUT - OUTPUT 3000 VAC , 50 Hz, 1 min , <10 mA	INPUT - CASE 1500 VAC, 50 Hz, 1 min , <10 mA	OUTPUT - CASE 500 VDC , 50 M ohm (min)

Communication Features

Communication Interface	CAN2.0B 500Kbps / Isolated CAN UART	Automatic Shutdown	Yes
		Standby Power Off	Yes

Display

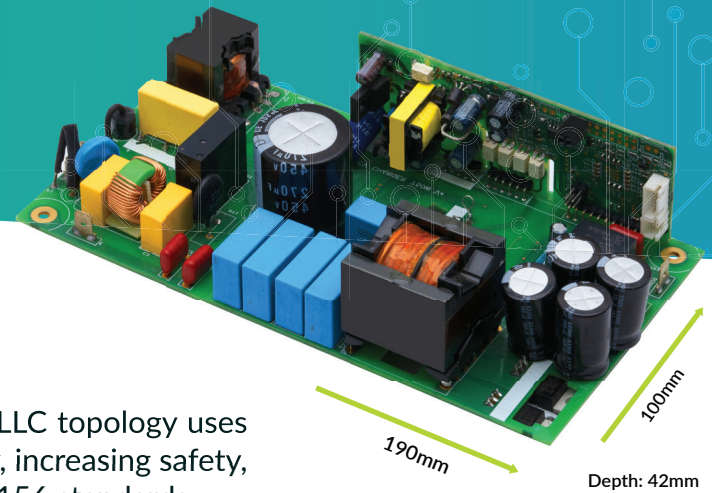
2 LED's	Multi-colored LED Indicator for - Battery Status - Error and Fault Indication - SOC Indication in terms of % - 25%,50%,75% & 100%	REMARK Can be customized as per the customer spec
Faults and Alerts	Alarms over CANBus. LED Lights Warning and Fault Handling Logic Can Be Implemented	REMARK Can be customized as per the customer spec

Test Procedure

PROCEDURE	REMARKS	PROCEDURE	REMARKS
LPS	Tested	Soft Start Time	1 Sec
Power Factor Of PFC at Universal Operating Range	170-270	Current And Voltage Protection	Tested
Constant Voltage Minimum And Maximum Range	35-60	CAN Communication	Tested
Constant Current Minimum And Maximum Range	0.2 ~ 7A	Overall Efficiency	95%

EV 350W Variants	48V, 7A	60V, 5A	72V, 4A
------------------	---------	---------	---------

EV CHARGER-750W



Description

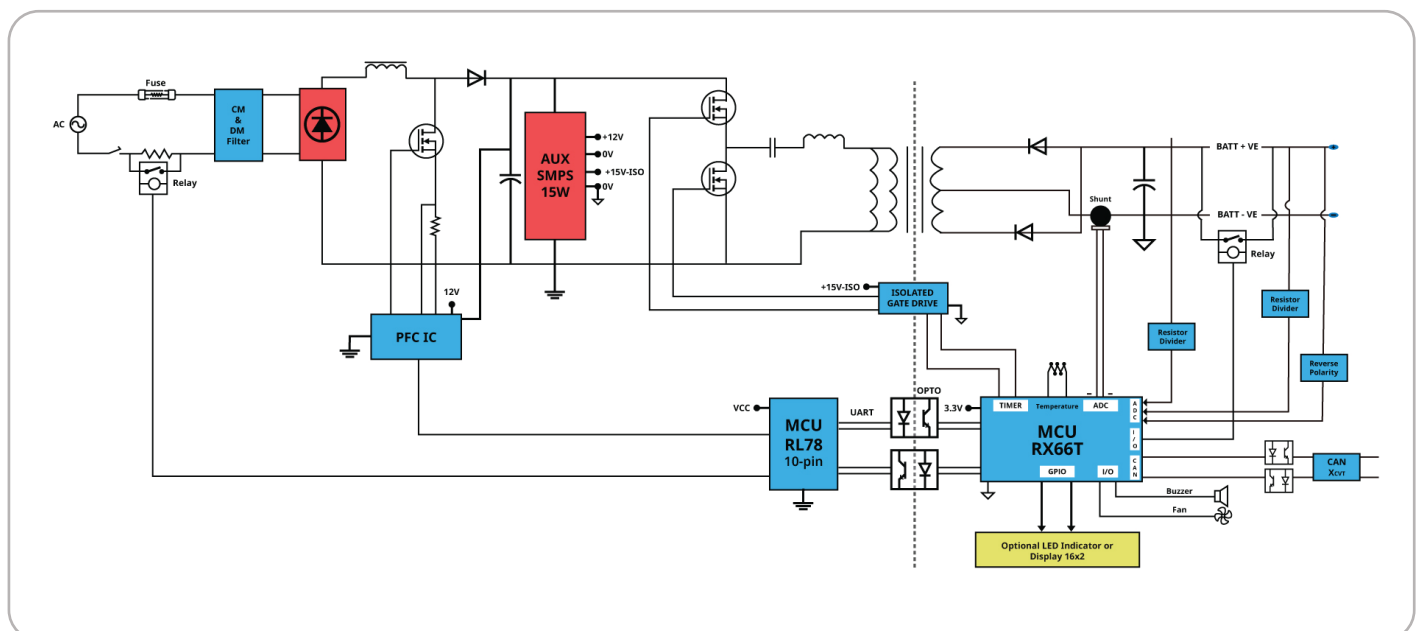
The Off-Board EV Charger with digital half bridge LLC topology uses mathematical model to achieve high energy density, increasing safety, reducing weight, and improving efficiency, with AIS156 standards.

It supports different battery types, and charging methods include Pre-charge, CC, CV, CP, floating/trickle, or power exchange on CAN command this platform can support up from 0.2KW~1.5KW.

Features

- Charge Voltage and current Cut-off To Prevent The REESS From Being Overcharged.
- Whenever REESS is Connected For Charging Soft-start Function Is Activated.
- Deep Discharge Condition Of REESS is Detected By Pre-charge Function.
- Protects Against Input Supply Variation 120v ~ 280v with optional **output de-rating feature**.
- On-board/portable Charger Have CAN, UART To Communicate With BMS.
- Over temp protection and added de-rating to prevent over heating
- Output short circuit and reverse protection.
- Additional GPIO's to interface LED or Display.

Block Diagram



Electrical Characteristics

SPECIFICATIONS	VALUE	SPECIFICATIONS	VALUE
Max. output power	560W-750W	Nominal Default Voltage	51.8VDC
Rated Power	750W	Voltage Tolerance	±0.1VDC
Nominal Input voltage range	230VAC	Current Tolerance	±0.5A
Operating Range	120V-280VAC	Efficiency @ >30% load	>=90%
Input Current to the charger	<5A	Peak Efficiency	>=96%
Input Frequency	45 - 65Hz	THD	<5%
Output voltage range	33 - 60VDC	Power Factor (active PFC) , LLC	>=0.99
Rated Output DC Current	12A / 15A Max	No Load / Standby Power Consumption	<1.5W
Max output Current (33-60V I/P, Continuous)	015A	Inrush Current (AC side)	<8A
Minimum Current Output	0.5A	Leakage Current	<30mA
		Ramp Up/Down Time for 1V change	<100ms
		Cold Start Time	<5s

Safety

PROTECTION	
Under Voltage & Overvoltage Without Jitter	Over Current & Short Circuit Protection
Surge Protection Type 3 Inbuilt TVS 6kV B72220S0301K101	O/P Reverse Polarity Protection
O/P Overvoltage Protection : Cut off after 59 ± 1 V	Automatically Shut Down After Full Charge
Charger Thermal Cut Back: Based On Customer Housing Design	Residual Current Protection through RCD: Optional in Adaptor Mounting

GALVANIC ISOLATION		
INPUT - OUTPUT 3000 VAC , 50 Hz, 1 min , <10 mA	INPUT - CASE 1500 VAC, 50 Hz, 1 min , <10 mA	OUTPUT - CASE 500 VDC , 50 M ohm (min)

Communication Features

Communication Interface	CAN2.0B 500Kbps / Isolated CAN UART	Automatic Shutdown	Yes
		Standby power off	Yes

Display

2 LED's	Multi-colored LED Indicator for - Battery status - Error and fault indication - SOC Indication in terms of % - 25%,50%,75% & 100%	REMARK Can be customized as per the customer spec
Faults and Alerts	Alarms over CANBus. LED Lights Warning and Fault handling logic can be implemented	REMARK Can be customized as per the customer spec

Test Procedure

PROCEDURE	REMARKS	PROCEDURE	REMARKS
LPS	Tested	Soft start time	1 Sec
Power factor of PFC at universal operating range	110-240	Current and voltage protection	Tested
Constant Voltage Minimum and Maximum Range	35-60	CAN communication	Tested
Constant Current Minimum and Maximum Range	1 to 14	Overall efficiency	95%
EV 750W Variants	48V, 16A	60V, 12.5A	72V, 10.5A

The Off-Board EV Charger with digital half bridge LLC topology uses mathematical modelling to achieve high energy density, increasing safety, reducing weight, and improving efficiency, with AIS156 standards.

Features

- Charge voltage and current cut-off to prevent the REESS from being overcharged.
- Whenever REESS is connected for charging soft-start function is activated.
- Deep discharge condition of REESS is detected by pre-charge function.
- Protects against input supply variation 120v ~ 280v with optional **output de-rating feature**.
- On-board/portable charger have CAN, UART to communicate with BMS.
- Over temp protection and added de-rating to prevent over heating
- Output short circuit and reverse protection.
- Additional GPIO's to interface LED or display.

Electrical Characteristics

SPECIFICATIONS	VALUE	SPECIFICATIONS	VALUE
Max. Output Power	1500W	Nominal Default Voltage	60VDC
Rated Power	1500W	Voltage Tolerance	±0.1VDC
Nominal Input Voltage Range	230VAC	Current Tolerance	±0.5A
Operating Range	120V-280VAC	Efficiency @ >30% load	≥94%
Input Current To The Charger	<15A	iTHD	<5%
Input Frequency	45 - 65Hz	Power Factor	≥0.99
Output Voltage Range	35 - 60VDC	No Load / Standby Power Consumption	<1.5W
Rated Output DC Current	24A	Ramp Up/Down Time for 1V change	<100ms
Max Output Current @ 3-60V	4A ~ 24A	Cold Start Time	<3s
Minimum Current Output	4A @ Pre charge		

Safety

PROTECTION	
Under Voltage & Overvoltage Without Jitter	Over Current & Short Circuit Protection
Surge Protection Type 3 Inbuilt TVS 6kV B72220S0301K101	O/P Reverse Polarity Protection
O/P Overvoltage Protection: Cut off after 59 ± 1 V	Automatically Shut Down After Full Charge
Charger Thermal Shutdown: Calibrate based on Housing	Residual Current Protection through RCD: Optional in Adaptor Mounting

GALVANIC ISOLATION		
INPUT - OUTPUT 2500 VAC , 50 Hz, 1 min , <10 mA	INPUT – Heatsink 1500 VAC, 50 Hz, 1 min , <10 mA	OUTPUT – Heatsink 500 VDC , 50 M ohm (min)

Communication Features

Communication Interface	CAN2.0B 500Kbps / Isolated CAN UART	Automatic Shutdown	Yes
		Standby Power Off	Yes

Display

2 LED's	Status Indications - Battery Status - Error and Fault Indication - SOC Indication in terms of % - 25%,50%,75% & 100%	REMARK Can be customized as per the customer spec
Faults and Alerts	Alarms over CAN Bus. LED Indications Warning and Fault Handling Logic Can Be Implemented	REMARK Can be customized as per the customer spec

Test Procedure

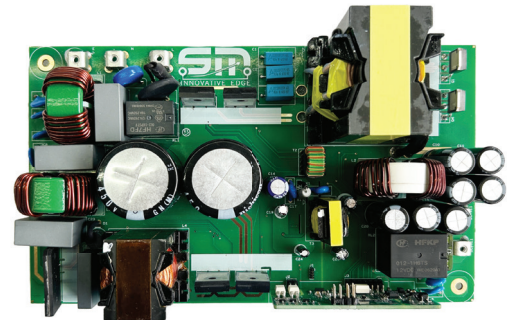
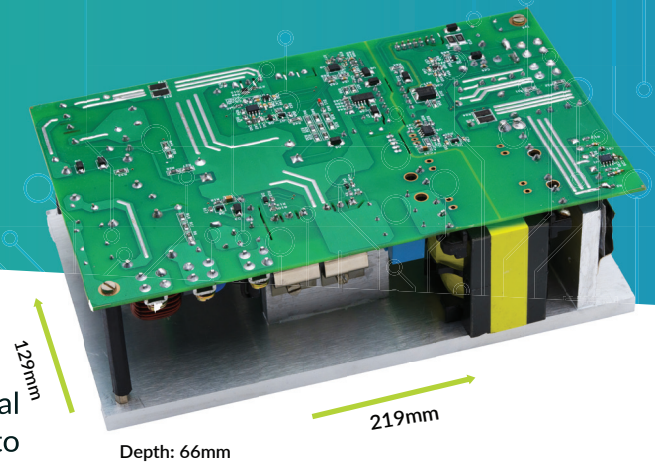
PROCEDURE	REMARKS	PROCEDURE	REMARKS
LPS	Tested	Soft Start Time	1 Sec
Power Factor Of PFC at Universal Operating Range	120-280	Current And Voltage Protection	Tested
Constant Voltage Minimum and Maximum Range	35-60	CAN Communication	Tested
Constant Current Minimum and Maximum Range	4 to 24	Overall Efficiency	95%

EV CHARGER-2.2KW

Description

The off-board EV Charger with analogue boost PFC and digital half bridge LLC topology uses mathematical modelling to achieve high energy density, increasing safety, reducing weight, and improving efficiency, with precise control over output power.

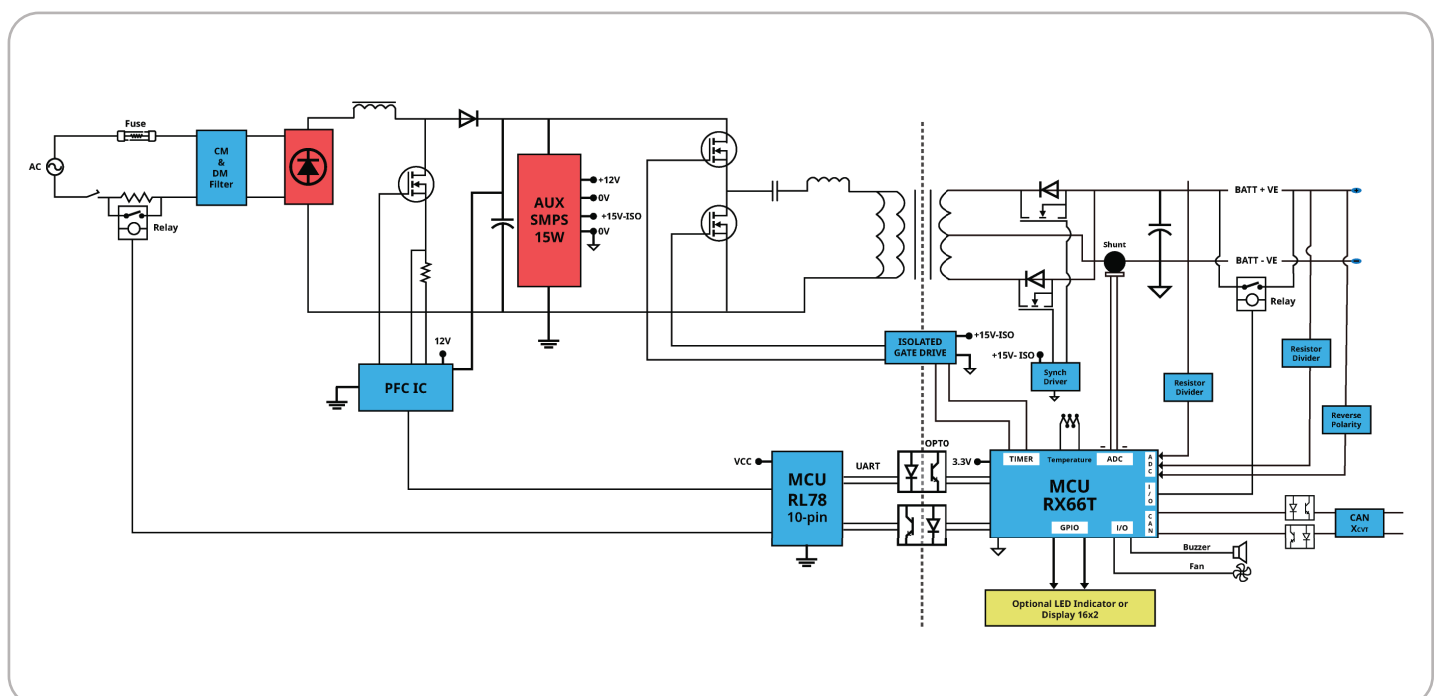
It supports different battery types, and charging methods include pre-charge, CC, CV, CP, floating/trickle, and power exchange on CAN command.



Features

- Whenever REESS is connected for charging soft-start function is activated.
- Charge voltage and current Cut-off to prevent the REESS from being overcharged.
- Deep discharge condition of REESS is detected by pre-charge function.
- Protects against input supply variation 120V ~ 280V with **output de-rating feature**.
- On-board/portable charger have CAN, UART to communicate with BMS.
- Over temp protection and added de-rating to prevent over heating.
- Output short circuit and reverse protection.
- Additional GPIO's to interface LED or display.

Block Diagram



Electrical Characteristics

SPECIFICATIONS	VALUE	SPECIFICATIONS	VALUE
Max. Output Power	2200W	Nominal Default Voltage	60VDC
Rated Power	2200W	Voltage Tolerance	±0.1VDC
Nominal Input Voltage Range	230VAC	Current Tolerance	±0.5A
Operating Range	120V-280VAC	Efficiency @ >30% load	>=94%
Input Current To The Charger	<18A	iTHD	<5%
Input Frequency	45 - 65Hz	Power Factor	>=0.99
Output Voltage Range	35 - 60VDC	No Load / Standby Power Consumption	<1.5W
Rated Output DC Current	35A	Ramp Up/Down Time for 1V change	<100ms
Max Output Current (33-60V I/P, Continuous)	4A ~ 35A	Cold Start Time	<3s
Minimum Current Output	4A @ Pre charge		

Safety

PROTECTION	
Under Voltage & Overvoltage Without Jitter	Over Current & Short Circuit Protection
Surge Protection Type 3 Inbuilt TVS 6kV B72220S0301K101	O/P Reverse Polarity Protection
O/P Overvoltage Protection: Cut off after 59 ± 1 V	Automatically Shut Down After Full Charge
Charger Thermal Shutdown: Calibrate based on Housing	Residual Current Protection through RCD: Optional in Adaptor Mounting

GALVANIC ISOLATION		
INPUT - OUTPUT 2500 VAC , 50 Hz, 1 min , <10 mA	INPUT – Heatsink 1500 VAC, 50 Hz, 1 min , <10 mA	OUTPUT – Heatsink 500 VDC , 50 M ohm (min)

Communication Features

Communication Interface	CAN2.0B 500Kbps / Isolated CAN UART	Automatic Shutdown	Yes
		Standby Power Off	Yes

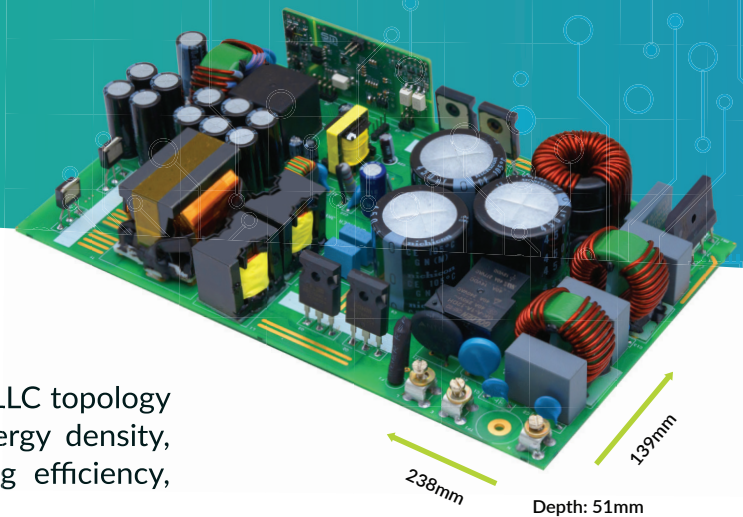
Display

LED's	Status Indications - Battery Status - Error and Fault Indication - SOC Indication in terms of % - 25%,50%,75% & 100%	REMARK Can be customized as per the customer spec
Faults and Alerts	Alarms over CAN Bus. LED Indications Warning and Fault Handling Logic Can Be Implemented	REMARK Can be customized as per the customer spec

Test Procedure

PROCEDURE	REMARKS	PROCEDURE	REMARKS
LPS	Tested	Soft Start Time	1 Sec
Power Factor Of PFC at Universal Operating Range	120-280	Current and Voltage Protection	Tested
Constant Voltage Minimum And Maximum Range	35-60	CAN Communication	Tested
Constant Current Minimum And Maximum Range	4 to 35	Overall Efficiency	95%

EV CHARGER-3.3KW



Description

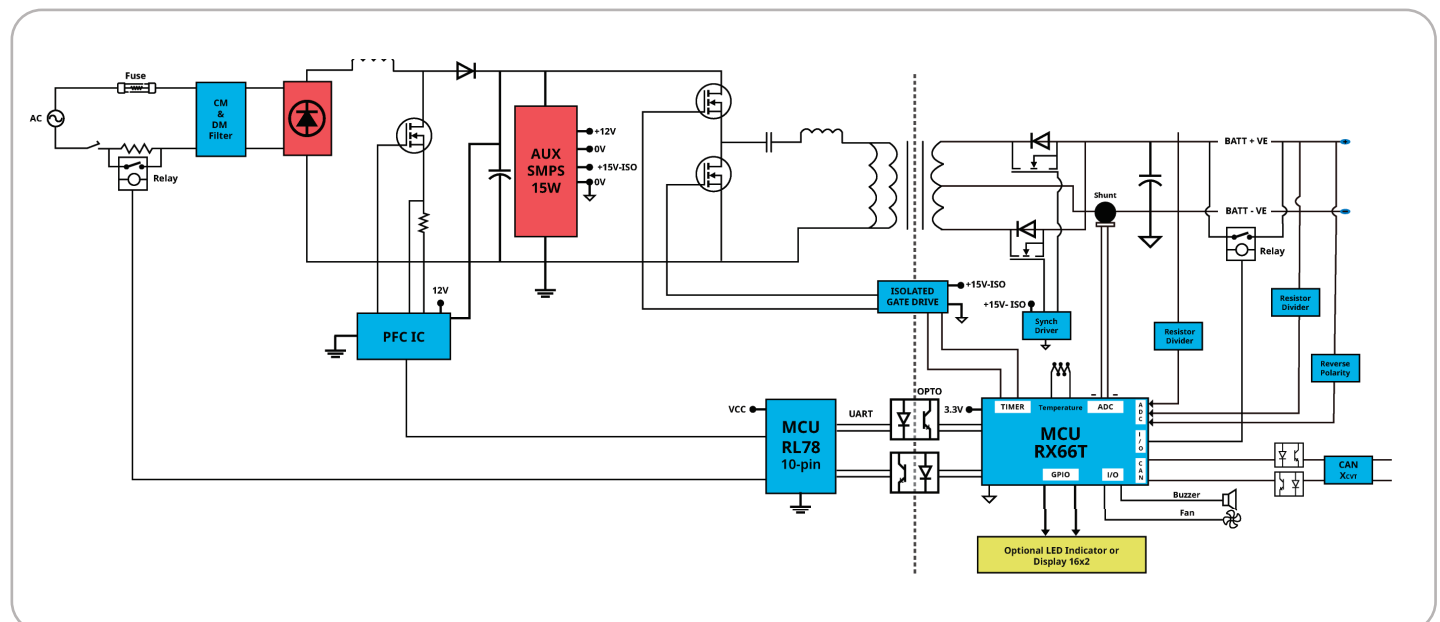
The Off-Board EV Charger with digital half bridge LLC topology uses mathematical modelling to achieve high energy density, increasing safety, reducing weight, and improving efficiency, with AIS156 standards.

It supports different battery types, and charging methods include Pre-charge, CC, CV, CP, floating/trickle, or power exchange on CAN command.

Features

- Charge voltage and current cut-off to prevent the REESS from being overcharged.
- Whenever REESS is connected for charging soft-start function is activated.
- Deep discharge condition of REESS is detected by pre-charge function.
- Protects against input supply variation 120V ~ 280V with **output de-rating feature**.
- On-board/portable charger have CAN, UART to communicate with BMS.
- Over temp protection and added de-rating to prevent over heating.
- Output short circuit and reverse protection.
- Additional GPIO's to interface LED or display.

Block Diagram



Electrical Characteristics

SPECIFICATIONS	VALUE	SPECIFICATIONS	VALUE
Max. Output Power	3300W	Nominal Default Voltage	60VDC
Rated Power	3300W	Voltage Tolerance	±0.1VDC
Nominal Input Voltage Range	230VAC	Current Tolerance	±0.5A
Operating Range	120V-280VAC	Efficiency	>=94%
Input Current To The Charger	<25A	iTHD	<5%
Input Frequency	45 - 65Hz	Power Factor	>=0.99
Output Voltage Range	35 - 60VDC	No Load / Standby Power Consumption	<1.5W
Rated Output DC Current	51A	Ramp Up/Down Time for 1V change	<100ms
Max Output Current @ 3-60V	4A ~ 51A	Cold Start Time	<3s
Minimum Current Output	4A @ Pre charge		

Safety

PROTECTION	
Under Voltage & Overvoltage Without Jitter	Over Current & Short Circuit Protection
Surge Protection Type 3 Inbuilt TVS 6kV B72220S0301K101	O/P Reverse Polarity Protection
O/P Overvoltage Protection : Cut off after 59 ± 1 V	Automatically Shut Down After Full Charge
Charger Thermal Cut Back: Based On Customer Housing Design	Residual Current Protection through RCD: Optional in Adaptor Mounting

GALVANIC ISOLATION		
INPUT - OUTPUT 2500 VAC, 50 Hz, 1 min, <10 mA	INPUT - CASE 1500 VAC, 50 Hz, 1 min, <10 mA	OUTPUT - CASE 500 VDC, 50 M ohm (min)

Communication Features

Communication Interface	CAN2.0B 500Kbps / Isolated CAN UART	Automatic Shutdown	Yes
		Standby Power Off	Yes

Display

LED's	Status Indications - Battery Status - Error and Fault Indication - SOC Indication in terms of % - 25%,50%,75% & 100%	REMARK Can be customized as per the customer spec
Faults and Alerts	Alarms over CAN Bus. LED Indications Warning and fault handling logic can be implemented	REMARK Can be customized as per the customer spec

Test Procedure

PROCEDURE	REMARKS	PROCEDURE	REMARKS
LPS	Tested	Soft Start Time	1 Sec
Power Factor Of PFC at Universal Operating Range	120-280	Current And Voltage Protection	Tested
Constant Voltage Minimum And Maximum Range	35-60	CAN Communication	Tested
Constant Current Minimum And Maximum Range	4 to 51	Overall Efficiency	95%

SMART CLUSTER SC200R

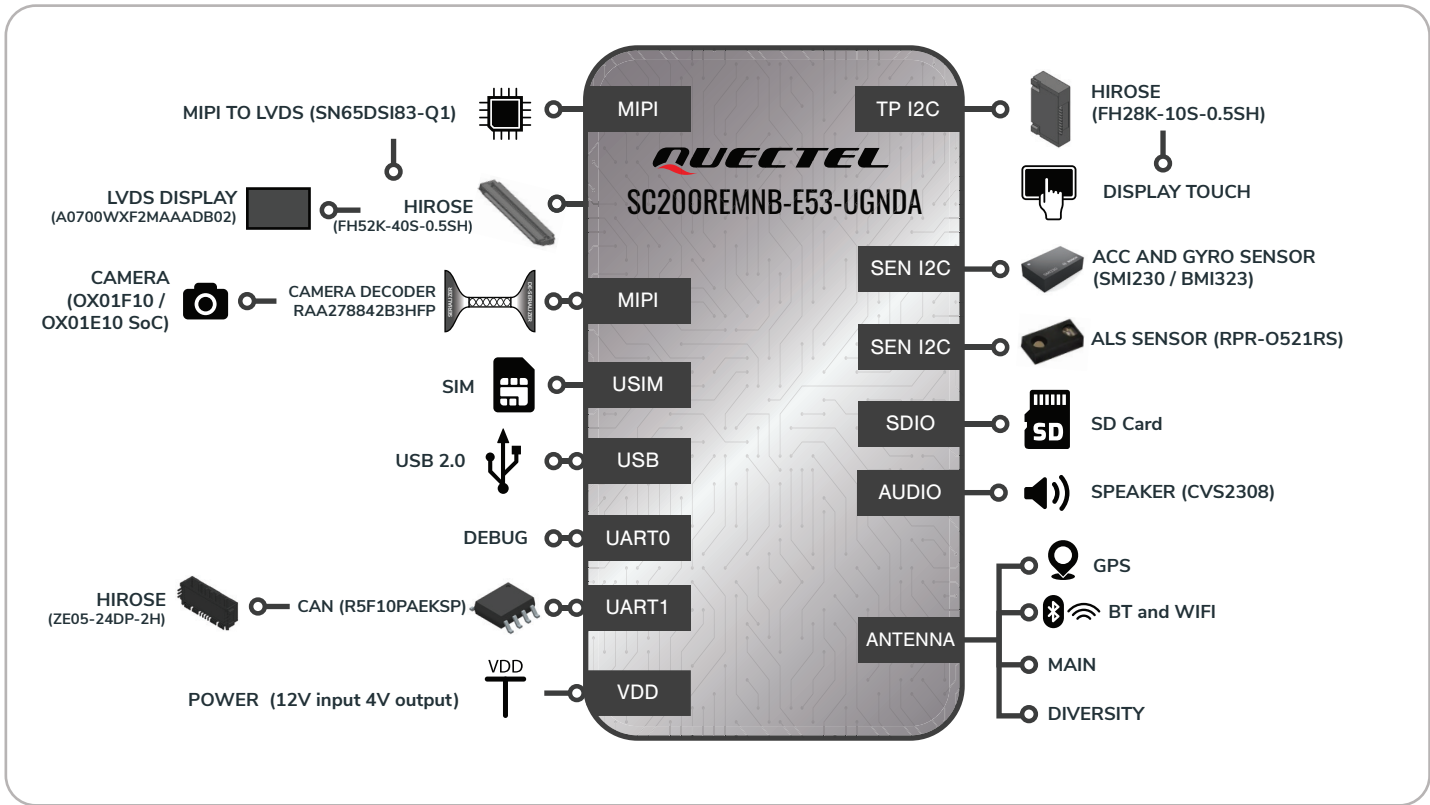
Description

The Smart Cluster reference solution is a complete cluster system featuring a capacitive touch display for quick navigation, an odometer, light indicators, tire pressure readings, maps, and an area for displaying custom logos.

This design has also been upgraded with wireless capabilities for connecting to smartphones, transforming a traditional cluster into a smart one.



Block Diagram



GPU and CPU

GPU	Qualcomm Adreno™ 308 Graphics Processing Unit with 64-bit addressing
CPU	QCM2150, Quad-core ARM Cortex-A53 64-bit CPU @ 1.3 GHz

Connectivity

BLUETOOTH	BT 4.2 (BR/EDR + BLE)
CNSS	GPS/ BeiDou / GLONASS or GPS/ BeiDou /Galileo
WI-FI	2.4/5 GHz dual-band WLAN based on IEEE 802.11a/b/g/n, up to 150 Mbps

Hardware

LCM	× 1, 4-lane MIPI_DSI, HD+ (1440 × 720) @ 60 fps
MEMORY	1 GB LPDDR3 + 8 GB eMMC 2 GB LPDDR3 + 16 GB eMMC
DISPLAY	4 lane MIPI_DSI; HD+ HD+(1440*720) @60fps
TOUCH PANEL	Capacitive touch panel
CAMERA	2 groups of 4 lane MIPI_CSI, up to 2.1Gbps per lane Support 2 or 3 cameras, up to 13 MP with dual ISP
AUDIO	3 analog inputs: MIC1, MIC2, MIC3 3 analog outputs: speaker, earpiece, headphone
VIDEO	Video encoding + decoding: 720p @ 30 fps + 1080p @ 30 fps Encoding up to 1080p @ 30 fps, decoding up to 1080p @ 30 fps
USB 2.0	× 1, compliant with USB 2.0, support USB OTG, USB OTG + charge, etc.
SD CARD	× 1, SD 3.0, support 4-bit SD mode
CAN	AEC-Q100 Qualified transmission rate of 40kbps to 1Mbps
ALS	Optical proximity and ambient light sensor with IR LED
USIM	x2, Support 1.8/2.95V (U)SIM cards, with (U)SIM card detection function
GYRO & ACCELEROMETER	16-bit digital triaxial Accelerometer and Gyro Sensor
SERIALIZER	Supports MIPI CSI-2 data transmission
UART	Support 4Mbps, one of them supports Hardware Flow Control
DIMENSIONS	Module:- 40.5mm*40.5mm

Software

ANDROID	Operating System version 10
LINUX	Kernel version 4.9.218

RA6M3-SMART CLUSTER

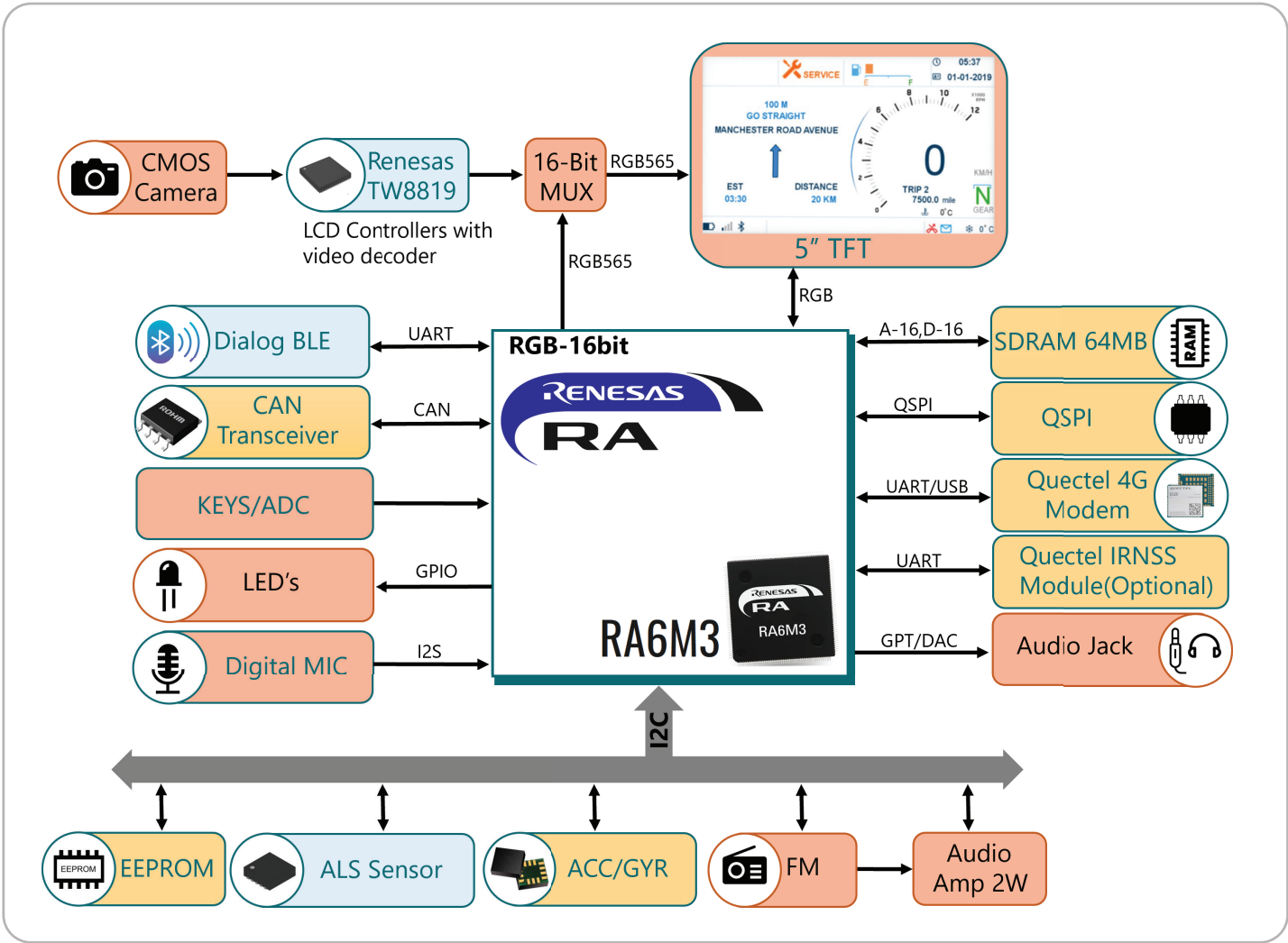
Description

The 2-Wheeler Smart Cluster integrates technology, connectivity, and intelligent functionalities to deliver an enriched riding experience.

This design has wireless module for communicating with smartphones. It provides essential data, connectivity choices, and safety elements, all within a streamlined and user-friendly interface tailored specifically for motorcycles. With these features it transforms a traditional cluster into a smart one.



Block Diagram



MCU

MCU	Renesas RA6M3 - 176Pin 2MB Flash/640KB RAM / 64KB Data Flash
CORE	Cortex M4

Connectivity

BLUETOOTH	Dialog DA14531 - BT 5.1
GSM	Quectel LTE Module
GNSS	GPS GLONASS or GPS IRNSS

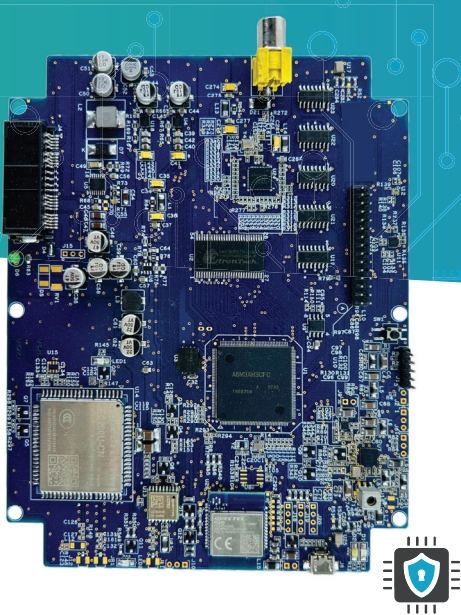
Software

Renesas: IDE E2 Studio/E2 Studio, Azure RTOS, FREE RTOS
GUI: Sparklite, GUIX, Seggerwin

Hardware

TFT	5" TFT 800 X 480
MEMORY	SDRAM - 64MBytes, QSPI Flash 64MB
DISPLAY	16bit RGB
GSM INTERFACE	UART
CAMERA	1Ch - Analog Composite Video Inputs
RPS	RPS - Rear Vision Video Display For Reverse Parking
CAN (BD41041FJ)	AEC-Q100 Qualified Transmission Rate of 40kbps to 1Mbps
BLUETOOTH	UART Interface
CYRO & ACCELEROMETER (LSM6DS3TR)	16-bit Digital Triaxial Accelerometer And Gyro Sensor
ALS	Ambient Light Sensor with IR LED
USIM	x2, Support 1.8/2.95V (U)SIM Cards, with (U)SIM Card Detection Function

RA6M4-SMART CLUSTER

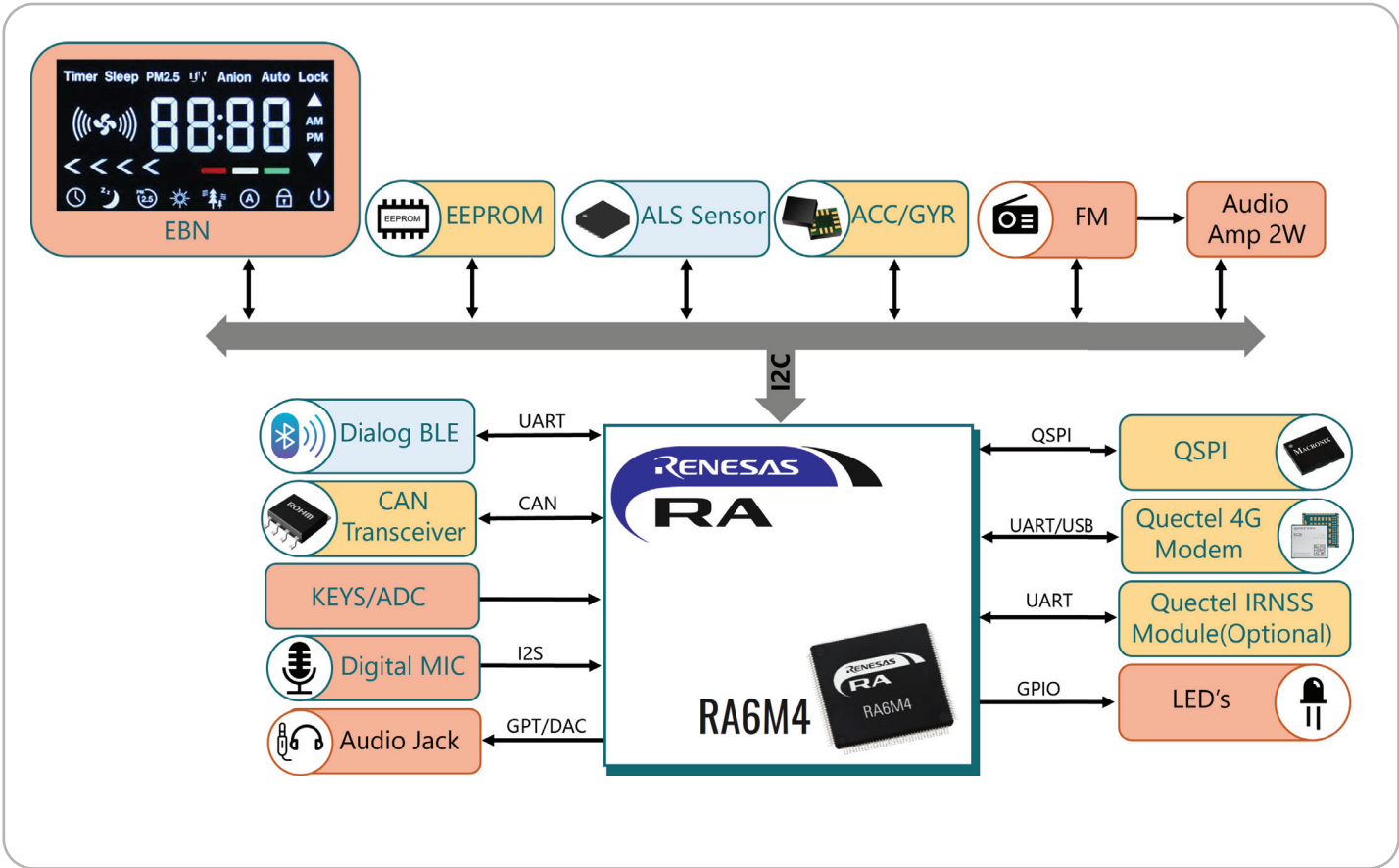


Description

The 2-wheeler smart cluster integrates technology, connectivity, and intelligent functionalities to deliver an enriched riding experience. This design has wireless module for communicating with smartphones.

It provides essential data, connectivity choices, and safety elements, all within a streamlined and user-friendly interface tailored specifically for motorcycles. With these features it transforms a traditional cluster into a smart one.

Block Diagram



MCU

MCU	Renesas RA6M4 - 100Pin 1MB Flash/256KB RAM / 8KB Data Flash
CORE	Cortex M33

Connectivity

BLUETOOTH	Dialog DA14531 - BT 5.1
GSM	Quectel LTE Module
GNSS	GPS GLONASS or GPS IRNSS

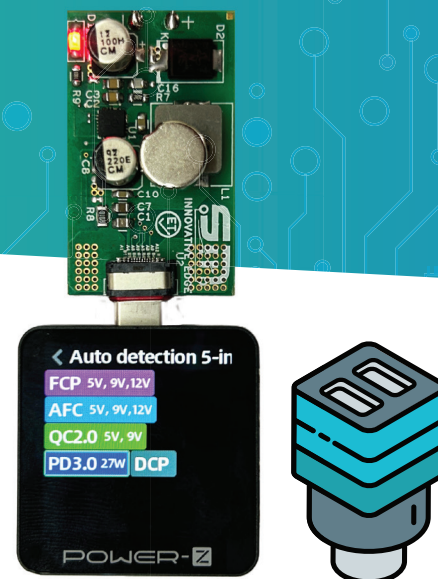
Hardware

LCD	5"/7" EBN Display
MEMORY	QSPI Flash 64MB
DISPLAY	EBN Module with I2C Interface
GSM INTERFACE	UART
CAN (BD41041FJ)	AEC-Q100 Qualified Transmission Rate of 40kbps to 1Mbps
BLUETOOTH (DA14531)	UART Interface
ALS	Ambient Light Sensor with IR LED
USIM	x2, Support 1.8/2.95V (U)SIM Cards, with (U)SIM Card Detection Function
GYRO & ACCELEROMETER (LSM6DS3TR)	16-bit Digital Triaxial Accelerometer And Gyro Sensor

Software

Renesas RA6M4: IDE E2 Studio/E2 Studio, Azure RTOS, FREE RTOS
Dialog: Keil, IDE

USB PD CHARGER



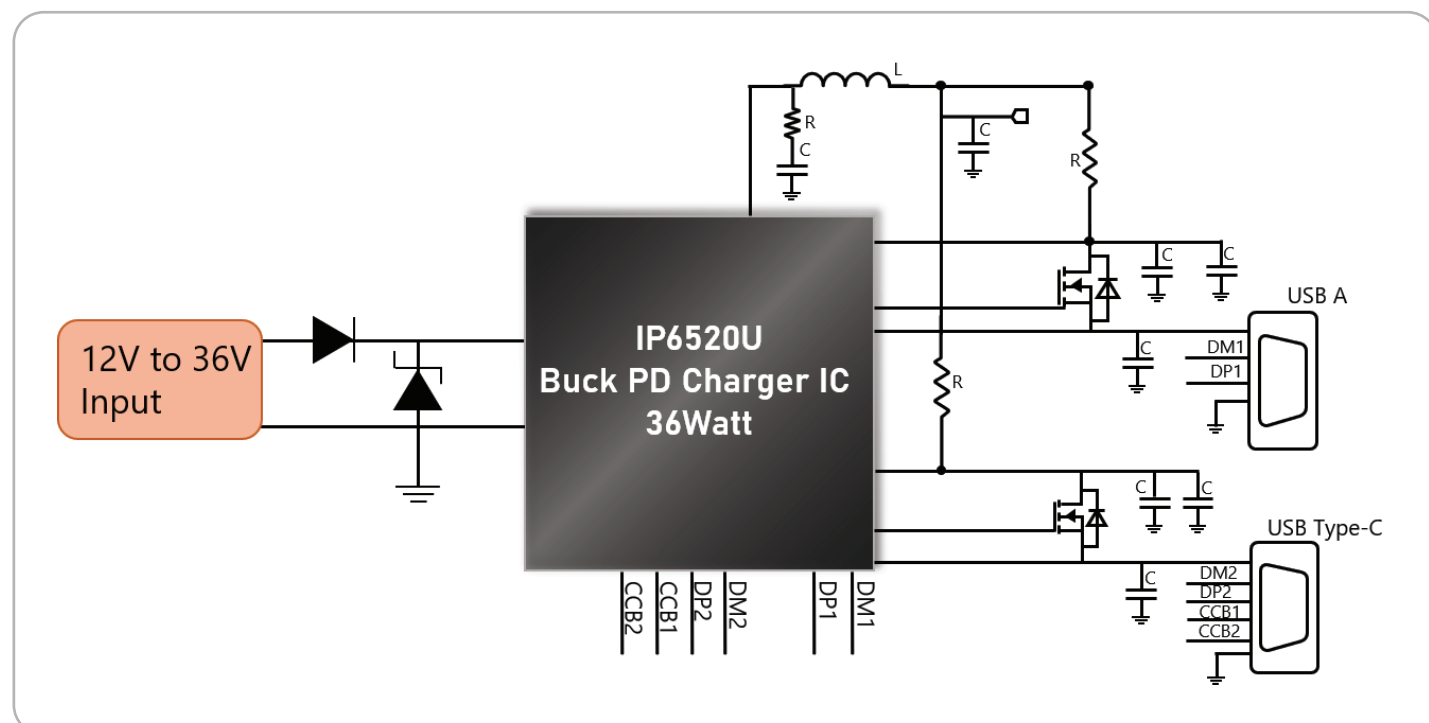
Description

It is a PD charger which supports multiple fast charge protocol standards with dual type-C output ports and dual USB type-A output ports.

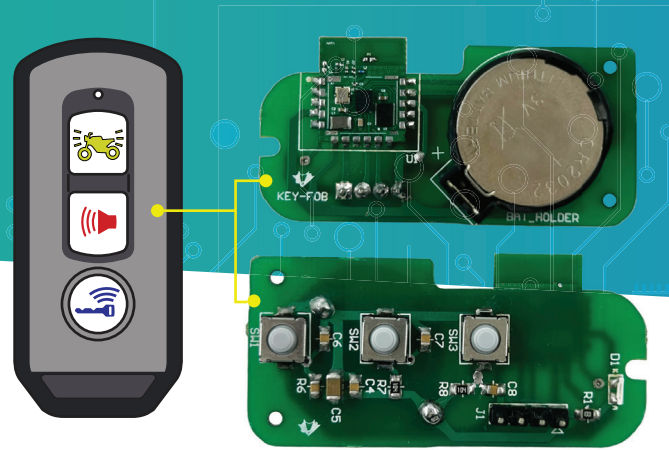
Features

- **Input voltage:** 8.3V~31V.
 - Operating range: 3V~20V.
 - Line compensate: 50mV/A.
 - Supports CV/CC output mode.
 - Efficiency: 96.4%.
 - Support dual ports: Type-C or dual Type-A.
- **Protocol Supports.**
 - Fast charging, Samsung, Oppo, Apple, FCP, UFCS and SCP.
 - Support Type-C PD output.
 - Support BC1.2 and Apple.
 - Support QC2.0, QC3.0 and QC3+.
 - Support Huawei fast charge FCP.
- **Support Type-C output and PD protocol.**
 - Support 5V, 9V, 12V, 15V, 20V output.
 - Support PD2.0/PD3.1 output protocol.
 - PPS support 3.0V to 21V adjustable voltage with 20mV/step output.

Block Diagram



KEY FOB



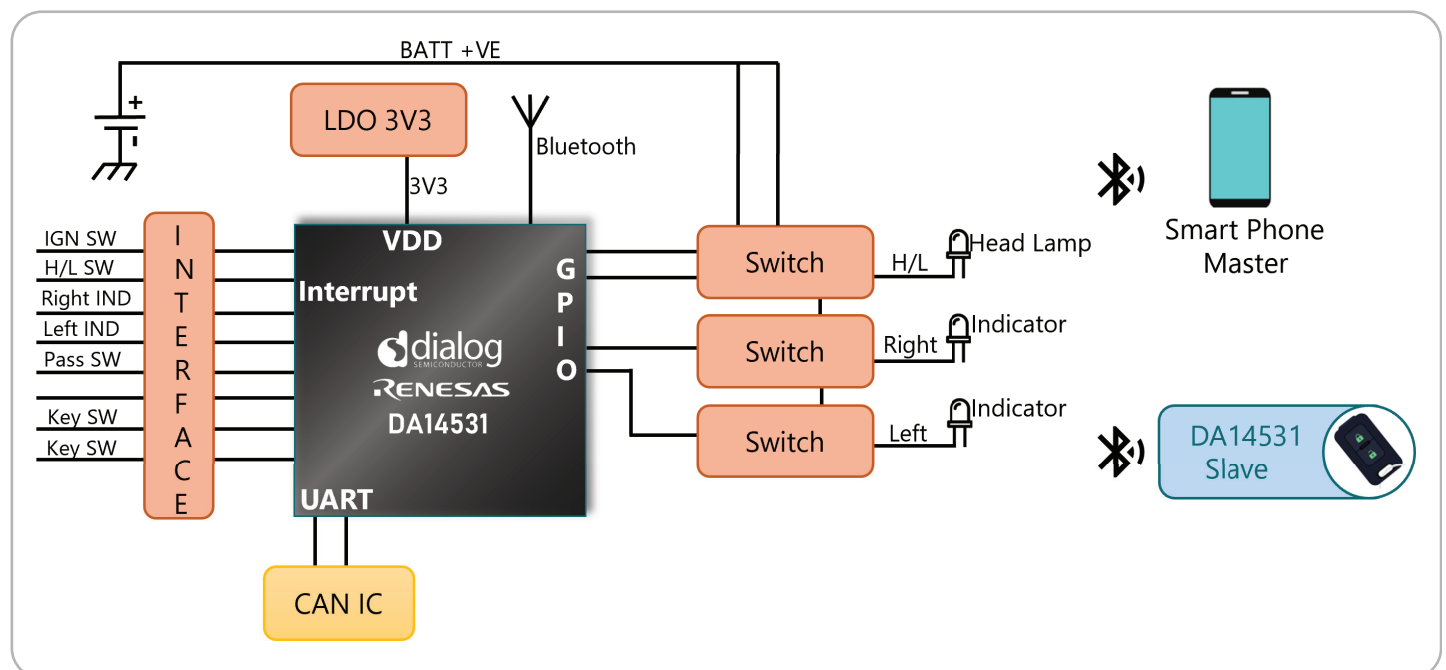
Description

One of the primary functions of a BLE key fob is to remotely lock and unlock the two-wheeler's ignition or steering lock, providing a convenient way to secure the vehicle without needing to insert a physical key.

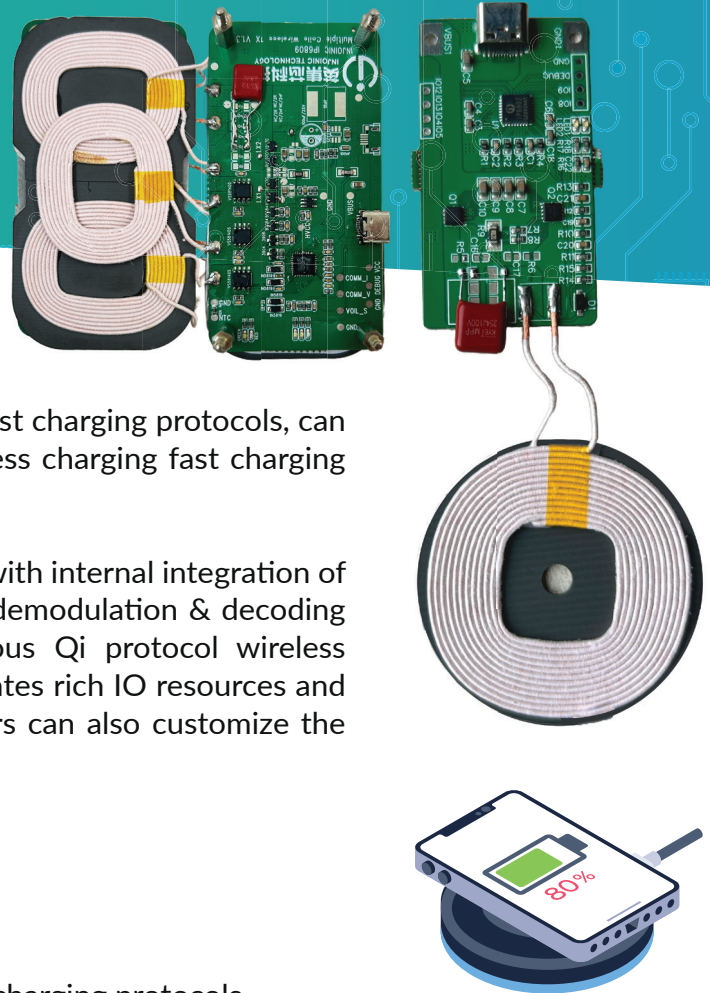
Features

- Dialog DA14531 low energy BLE5.0 module.
- Battery: CR2032.
- Lifetime: 2 years.
- Frequency: 2402/2426/2480 Mhz.
- Broadcasting protocol: iBeacon.
- Broadcasting interval: programmable.
- Broadcasting power: 0DBm as default, programmable.
- Antenna: PCB.
- Distance: <50meter.
- Working power supply: 1.7 ~3.6V DC.

Block Diagram



WIRELESS CHARGER



Description

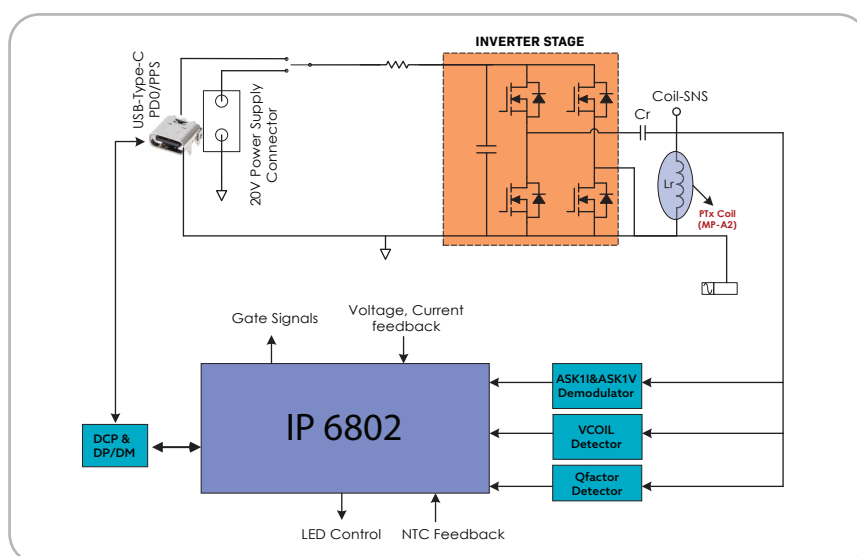
Wireless Charger integrates multiple charging head fast charging protocols, can automatically apply high voltage, and supports wireless charging fast charging protocols.

It is a wireless charging transmitter control SOC chip with internal integration of 32-bit MCU, ADC, Timer, I2C, H-bridge driver, ASK demodulation & decoding and rich IO resources, which can customize various Qi protocol wireless charging solutions and pass certification tests, integrates rich IO resources and supports customization of indicator effects, and users can also customize the indicator through the PC upper computer.

Features

- Operating range: 3V~20V.
- Support Qi protocol BPP, EPP certification.
- Supports 5~15W multiple applications.
- Support PD3.0, as well as a variety of DP&DM fast charging protocols.
- Integrated H-bridge drive.
- Integrated internal voltage and current demodulation.
- Support FOD foreign object detection function.
 - Static FOD detection.
 - Dynamic FOD detection.
- Support external passive crystal oscillator.
- Support CBB/NPO capacitors.
- Support Q value detection.
- Dynamic power management (DPM) for USB power supply with insufficient power supply.

Block Diagram

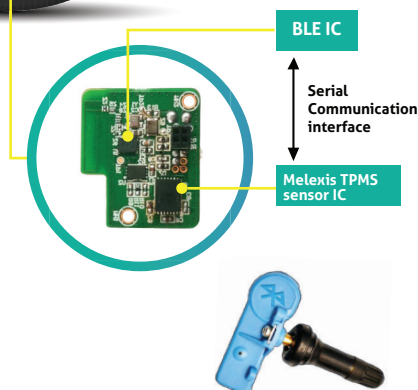


TPMS



Description

A Tire Pressure Monitoring Systems (TPMS) supplies the driver with immediate real time data on the pressure and temperature within the tires. TPMS alerts you when the tire pressure of your vehicle is low or if there is a risk of a flat tire. The objective of a TPMS is to prevent traffic accidents, reduce fuel inefficiency, and minimize tire damage caused by low tire pressure by promptly identifying potentially dangerous tire conditions.



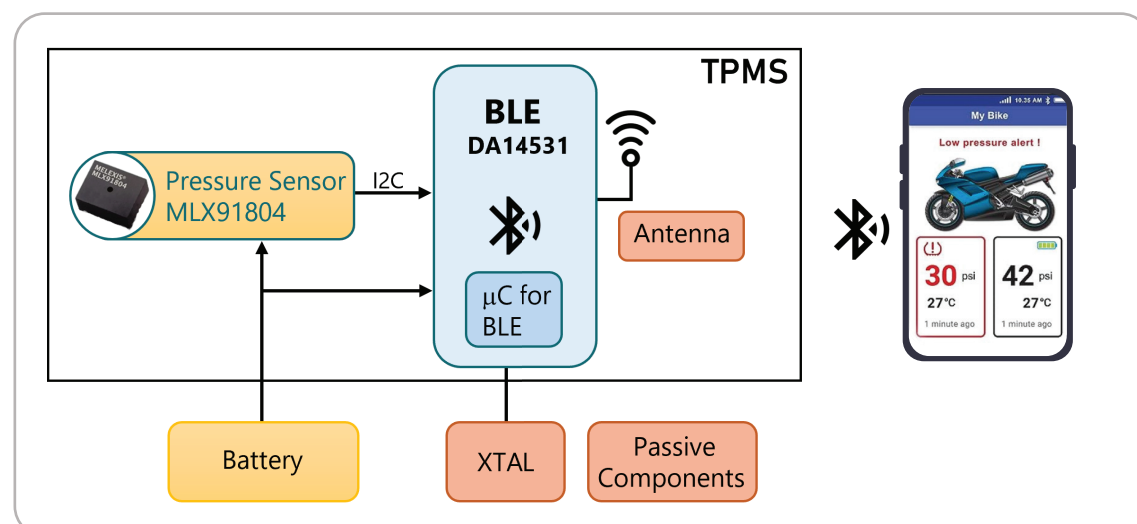
Features

- Automotive safety.
- Off-Road vehicles.

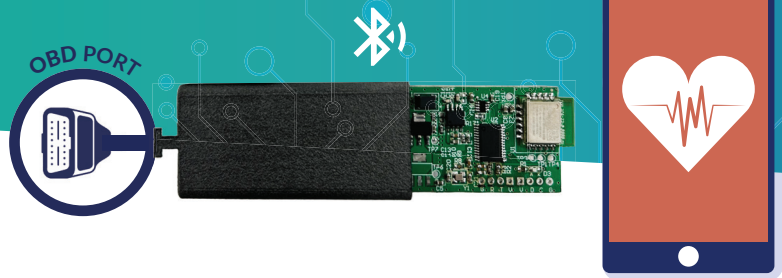
Specifications

OPERATING VOLTAGE	3.3V
OPERATING HUMIDITY	90% Max
INTEGRATED MULTI-FUNCTION SENSING	Pressure, Acceleration, Temperature And Voltage
DIFFERENT PRESSURE RANGES UP TO 1,400 KPA	Down To ± 4 Kpa Accuracy And 0.2 kpa Resolution
OPERATING FREQUENCY	Bluetooth Low Energy 5.0, 2400MHz-2483.5MHz
TRANSMISSION POWER	2.5dBm Max
RECEIVER SENSITIVITY	< -85dBm
INTEGRATED MULTI-AXIS ACCELEROMETER (X, Z OR XZ)	Up To 700g Measurement Range
BATTERY LIFE	2-3 Years

Block Diagram



OBD TO BLE



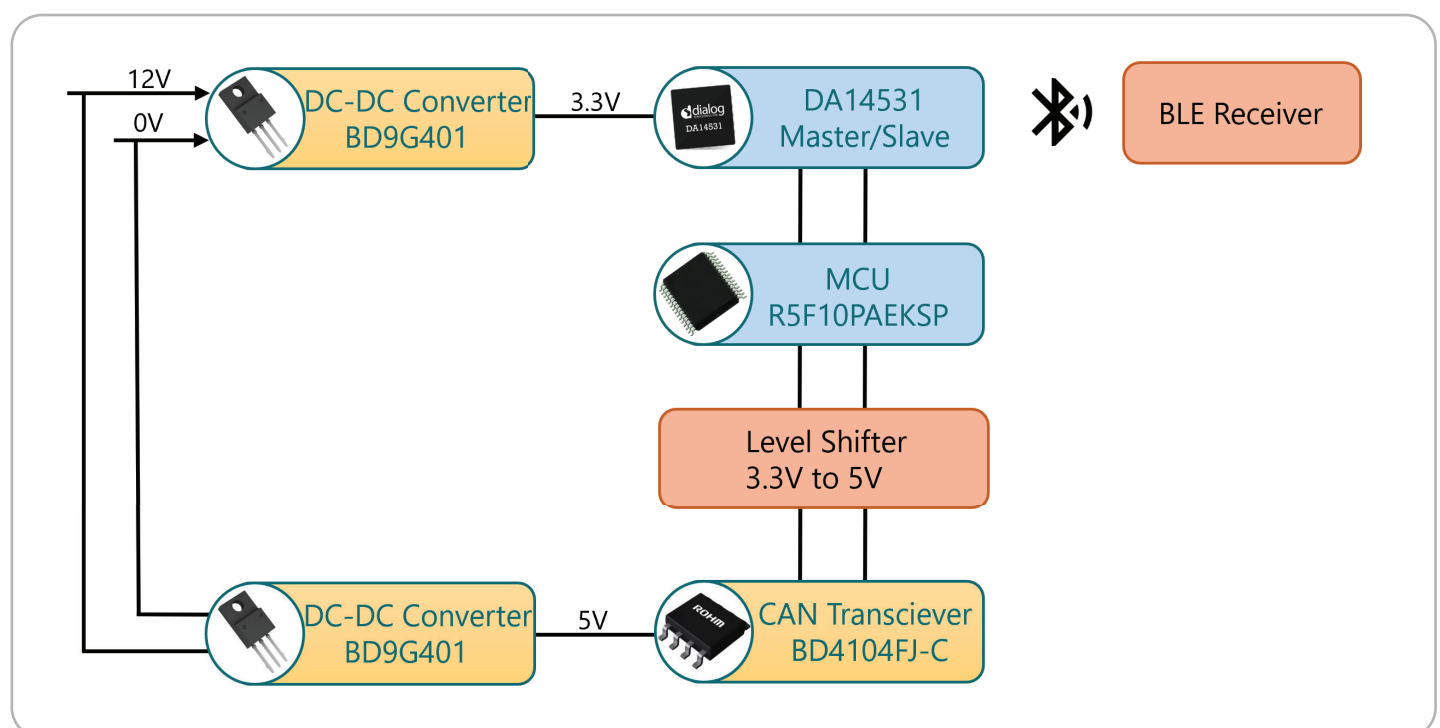
Description

Converting an On-board Diagnostics (OBD) system to use Bluetooth Low Energy (BLE) technology for a two-wheeler involves integrating a BLE module with the existing OBD system. OBD systems in vehicles, including two-wheelers, provide diagnostic information about the vehicle's health and performance. By adding BLE connectivity, you can wirelessly access this diagnostic data using a smartphone or other compatible device.

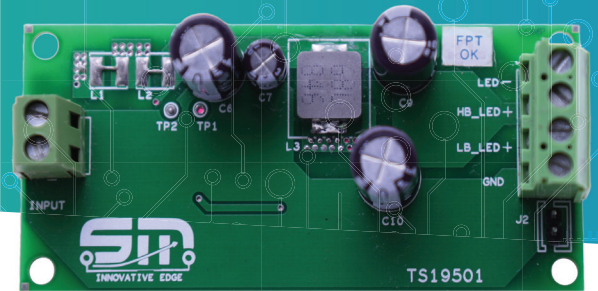
Features

- Dialog DA14531 low energy BLE5.0 module.
- Frequency: 2402/2426/2480 Mhz.
- Broadcasting protocol: connected.
- Broadcasting interval: programmable.
- Broadcasting power: 0DBm as default, programmable.
- Antenna: PCB.
- Working power supply: 1.7 ~3.6V DC.
- Wireless diagnostics.
- Trouble code reading.
- Maintenance reminders.
- Vehicle performance.

Block Diagram



HEAD LAMP DRIVER



Description

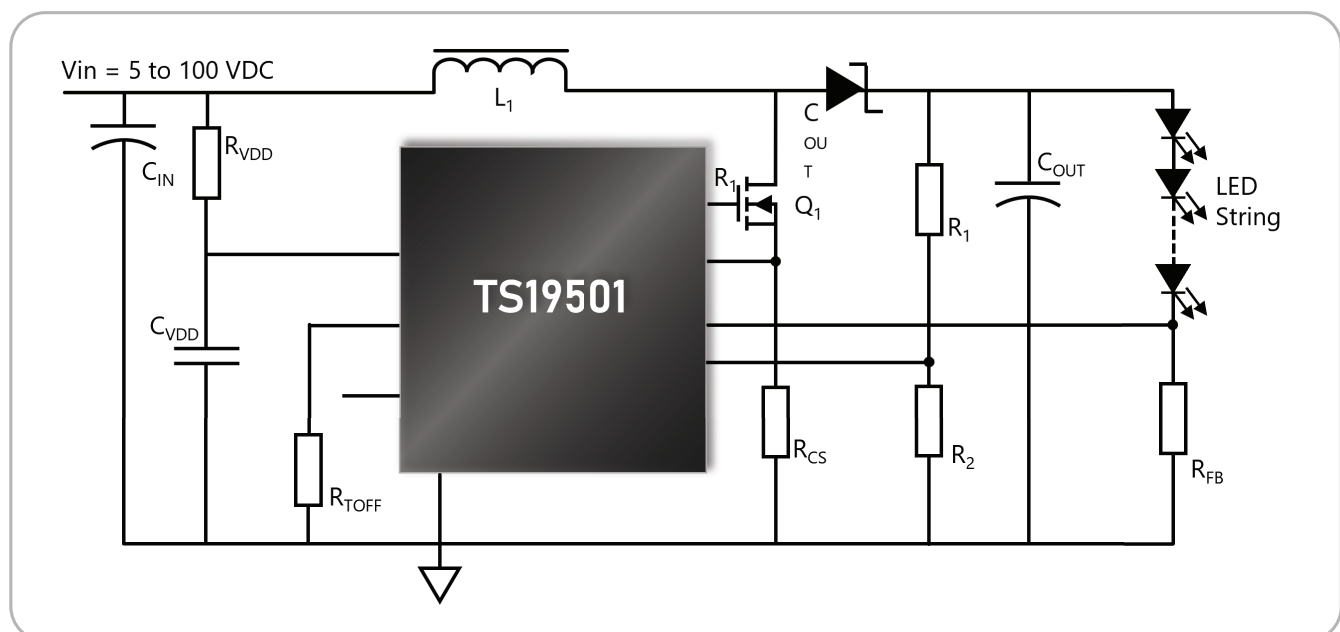
A Headlamp Driver acts as a power regulator and controller for the headlamp system, ensuring the proper functioning of the bike's lighting system. The headlamp driver plays a vital role in providing adequate illumination for the rider during low light conditions, such as at night or in foggy weather.

It ensures that the headlamp maintains a steady and consistent light output, providing visibility and enhancing the safety of the rider. It's used in automotive vehicles like bike, car, tractors.

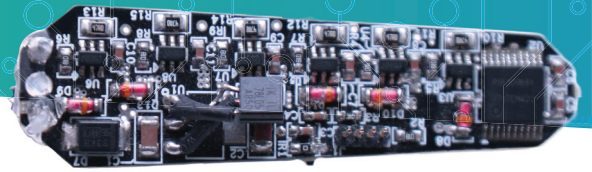
Features

- Scalable power stage max 50W.
- LED configuration
 - Boost mode.
 - Buck Boost mode.
 - SPEIC mode.
- It can control high beam and low beam.
- Primary current regulation.
- Protection: battery reverse and short circuit.
- Power Supply : adjustable LED, current upto 2000mA.

Block Diagram



SEQUENTIAL LED INDICATOR



Description

Sequential LED Indicator demonstrated here is built around renesas RL78-F12 microcontroller, and Taiwan Semiconductor CCR for individual light control.

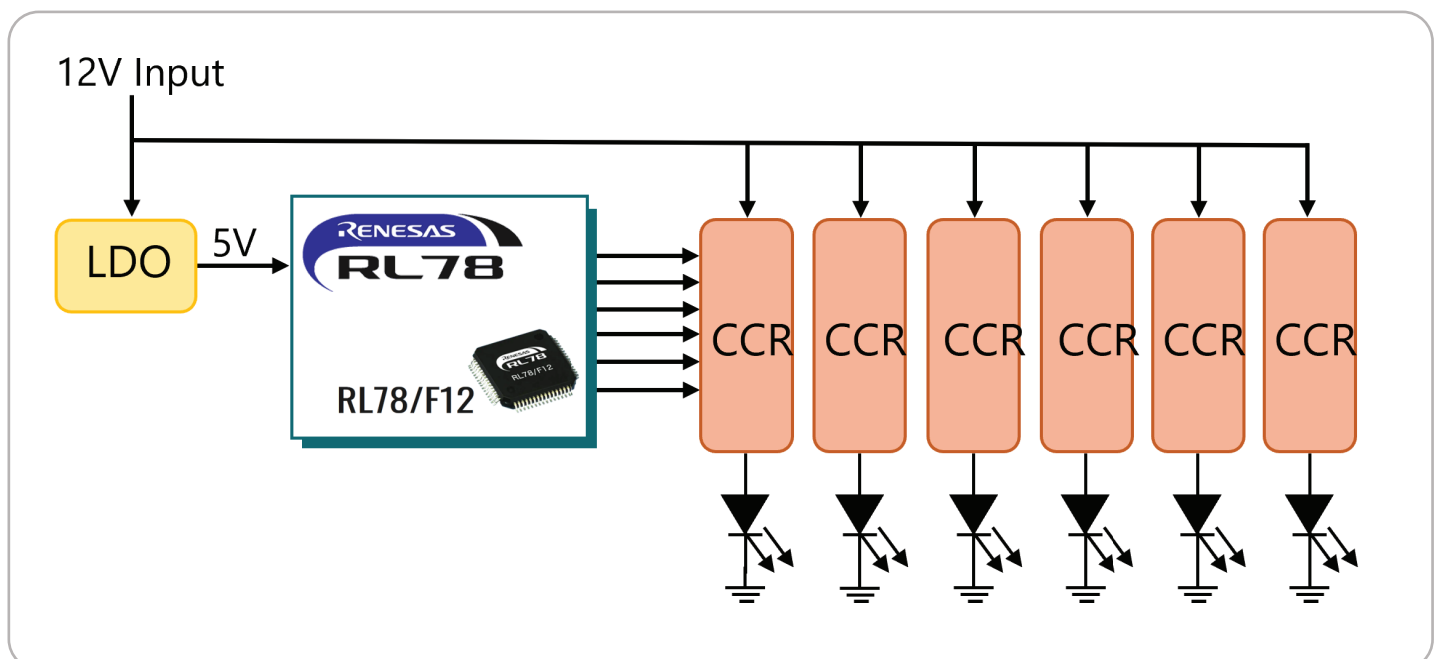
Features

- Simple and robust design.
- Operating voltage: 10V-21V.
- Led current upto 200mA.
- Battery reverse protection.
- Sequential time can be adjustable easily.
- Production friendly compared to analog sequential to match the sequence time.
- No of sequence can be added upto 16.
- Sequential animation can be alter easily.
- Synchronise can be done for front and rear indicator.

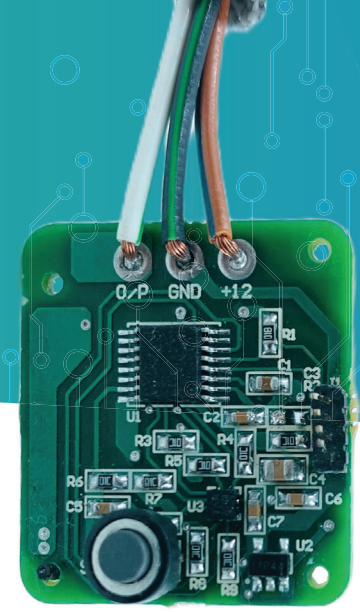
Applications

- Automotive lighting.
- Safety and warning systems.

Block Diagram



ROLL OVER SENSOR



Description

Roll Over Sensor is usually placed under rider seat in a 2 wheeler. This is a safety feature which provides additional protection by measuring whether the vehicle is tilting, how fast the lean angle is changing and triggers a battery isolation in the event of a vehicle rollover by signalling the isolation switch to disconnect power. To re-activate the system switch off both the ignition and engine kill switch, wait for a few seconds and switch "ON" again.

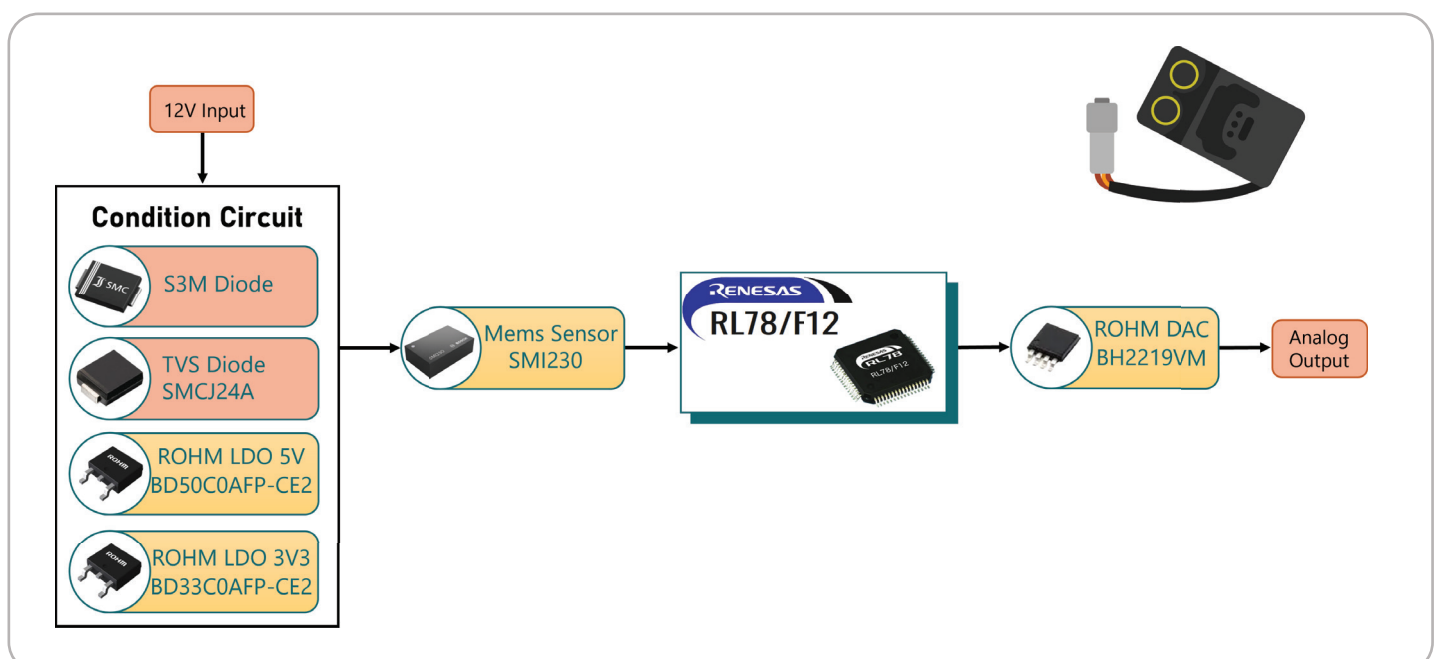
Features

- It is built around Renesas RL78-F12 microcontroller, and Bosch sensor SMI230 which is Triaxial, analog acceleration sensor.
- Offers the detection of acceleration and angular rate for the x-, y-, and z-axis.
- Linear analog output with angle rate.
- Use of MEMS sensors for auto-leveling systems to save cost and for more accurate Measurement.
- It sense the angular of two wheeler and in case of fall or accident it will communicate with ECU in SPI or analog signal to shut down the bike to avoid he more impact of accident.

Applications

- Aircraft. .
- Off-road vehicles.
- Construction equipments.
- Automotive.

Block Diagram



BLDC CEILING FAN 24V

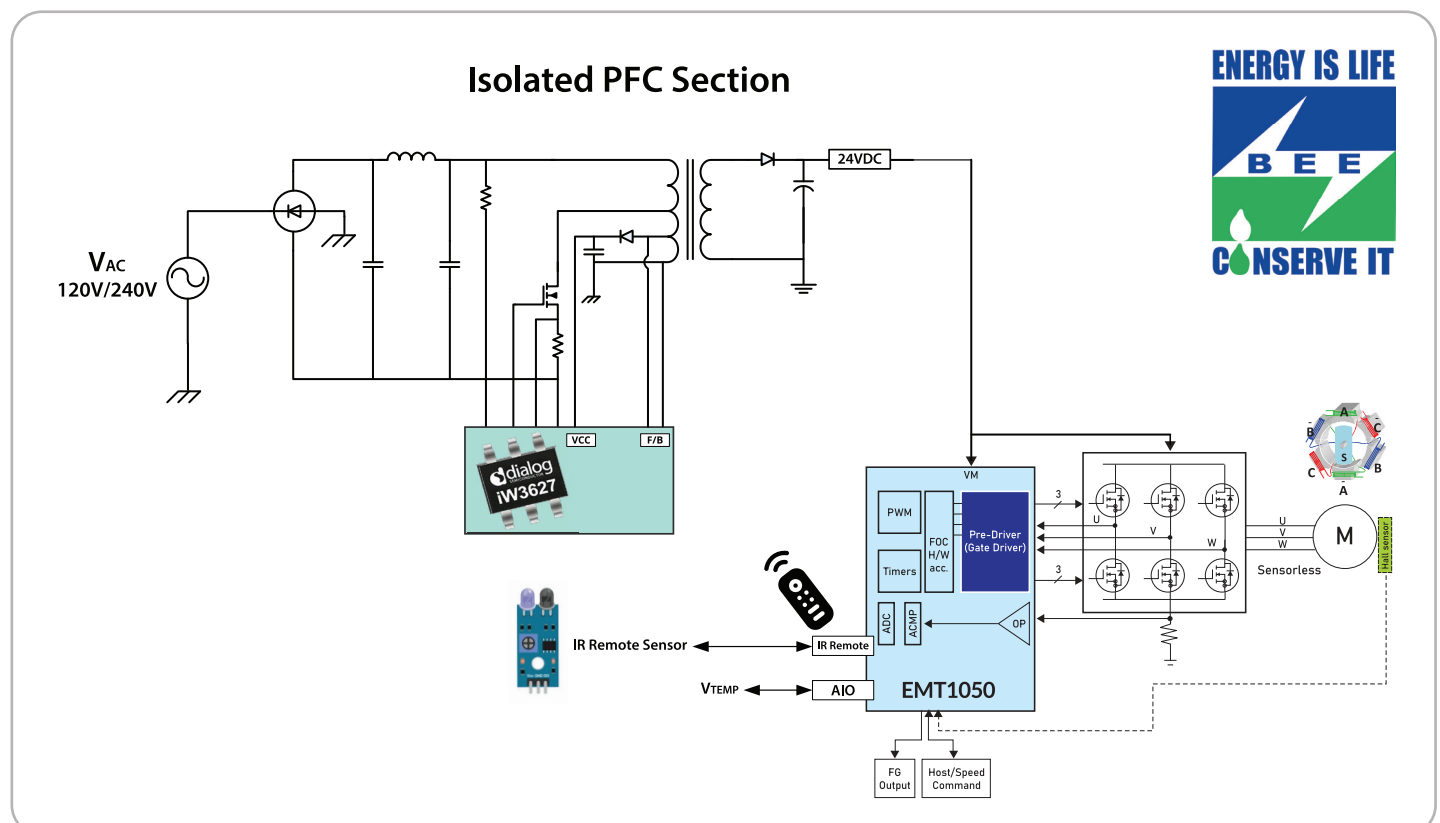
Description

BLDC (Brushless Direct Current Motor) is remote controlled, energy efficient motor which offers high efficiency, improved control, enhanced performance, reliability and longevity. The control algorithm used in the drive can vary depending on the application, and may include techniques such as field-oriented control (FOC) for precise control and work for low voltages.

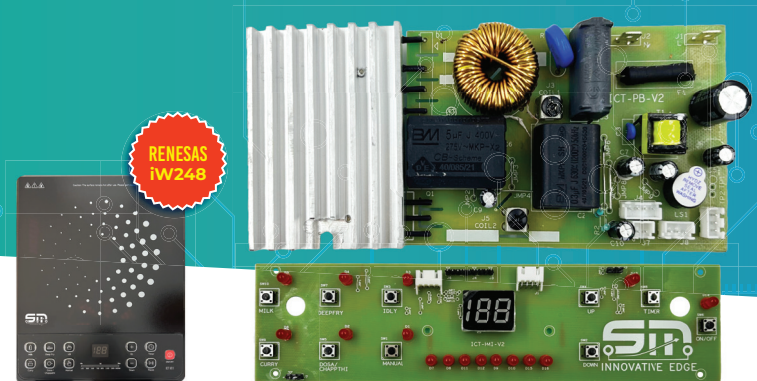
Features

- Controls speed of fan for optimized airflow and low noise.
- Included protection features to ensure safe and reliable operation of the fan.
- Field oriented control based on single shunt topology supports smooth fan motion.
- Stabilize operation by regulating voltage, even with fluctuations.
- Sensor-less devices estimate position using motor back EMF.
- Driver has addons features like IPD (initial position detection), SIM (start in motion), braking and field weakening.
- Can support IR or RF remote interface .

Block Diagram



INDUCTION COOKTOP



Description

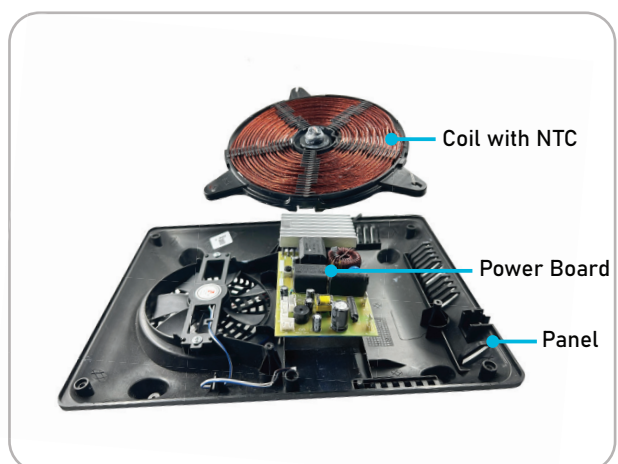
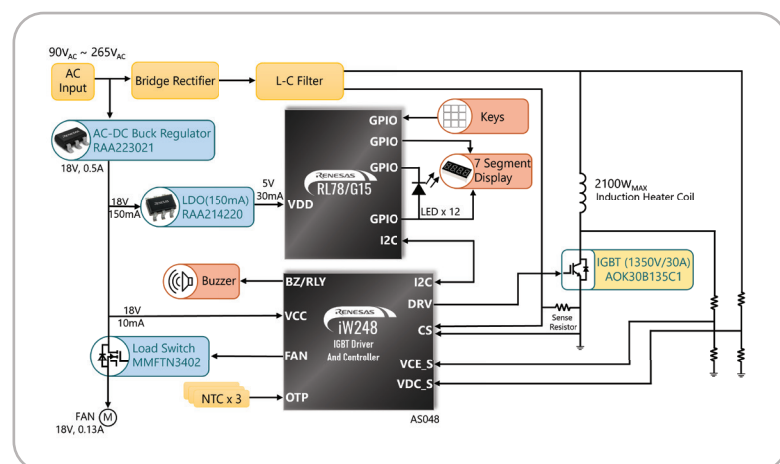
The Induction Cooktop solution is based on the IC iW248. It offers pre-programmable coil power which allows users to customize the cooking modes effortlessly. Integrating virtually all discrete components normally used to drive and protect IGBTs, plus an optimized state machine digital core that replaces a traditional microcontroller, the iW248 significantly reduces solution size and eliminates up to 35 components.

The iW248 also features a proprietary low-power continuous mode that allows for smooth operation at low power states and control in 10W increments for induction cooktop applications up to 2100W.

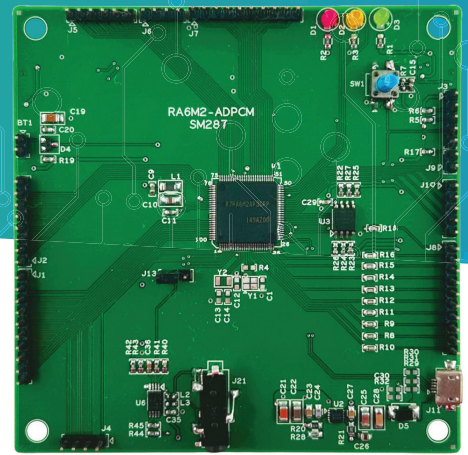
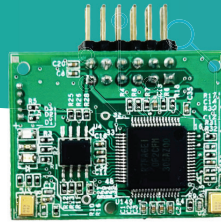
Features

- Customizable timer function and power setting.
- Integrated IGBT controller: valley-mode switching control.
- Optimized state machine core: eliminates need for MCU.
- Low power continuous mode operation with 10W resolution power control.
- Built-in pot detection circuit.
- Protects IGBT from damage.
- DLNK – isolated communication protocol.
- I2C – non-isolated communication.
- Multiple protection features, including programmable:
 - Overvoltage protection – IGBT collector.
 - Three dedicated over-temperature protection pins.
 - Input surge protection.
 - Output power compensation.

Block Diagram



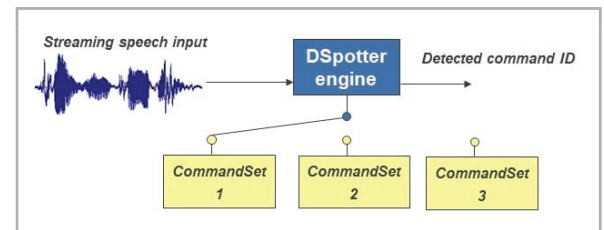
VOICE RECOGNITION



Description

The Voice Recognition Solution is implemented with I2S (Inter-IC sound) and enables a high recognition rate under noisy environment conditions using noise suppressor technology. Voice commands are recognised by the I2S communication and MCU will respond over the external speaker through DAC.

Cyberon DSpotter is a local voice trigger and command recognition solution with robust noise reduction that consumes very low resources and provides high-accuracy performance. It runs on ra mcu family, RX671 and RX72N and supports multiple languages as well as many connectivity functions and security capabilities depending on the selected MCU.



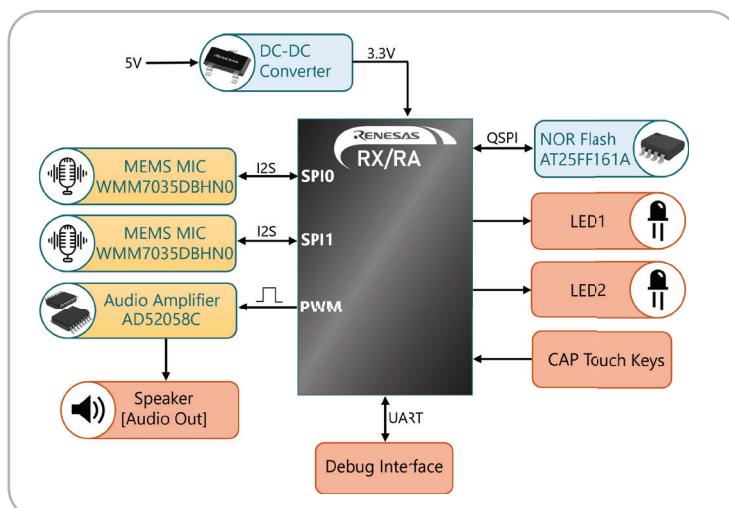
Features

- No internet connection is required for voice recognition.
- Multi language support.
- Accessibility.
- Wake word detection (example : Hey Siri Or OK Google).
- Ambient noise handling.

Applications

- Vending machines.
- Wearables and other tiny devices.
- Smart speaker.
- Soundbar.
- Home security and surveillance.

Block Diagram



SMART METER

Description

A Smart Meter is a digital device that measures and records energy consumption and communicate with real-time data to back-end server and pre-payment auto connect or disconnect.

Smart meters play a critical role in the smart grid, by enabling utilities to better manage their networks, and empowering consumers to take control of their energy usage. Smart meters are important tools for creating a more efficient, sustainable, and resilient energy system.

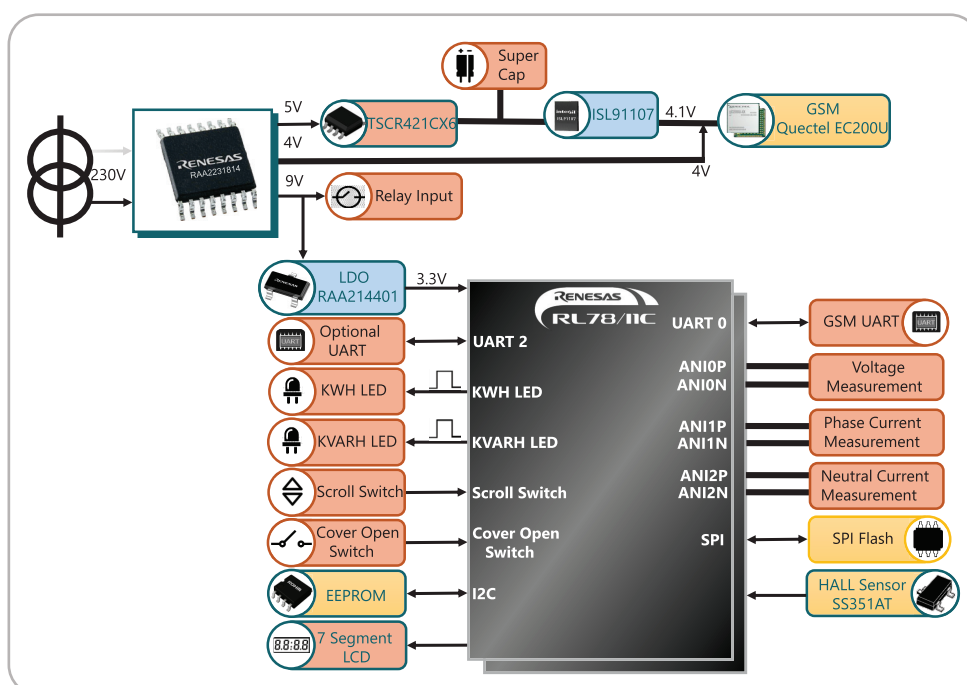
Features

- Standard : IS16444, IS15959(1),IS15959(2).
- Accuracy : Class 1.
- Rated voltage : 240V.
- Rated current : 60A (max).
- Load contractor : Latching Relay.
- Communication protocol: DLMS COSEM.
- Communication port : GSM/RF.

Applications

- Energy management.
- Renewable energy integration.
- Fault detection and diagnostics.

Block Diagram



PANEL METER

Description

A Panel Meter is a device used to measure and display of various electrical or physical parameters such as voltage, current, frequency, power factor etc. Panel meters are commonly used in industrial control systems and process automation applications where precise measurements of these parameters are required. They can be powered by either AC or DC voltage sources.

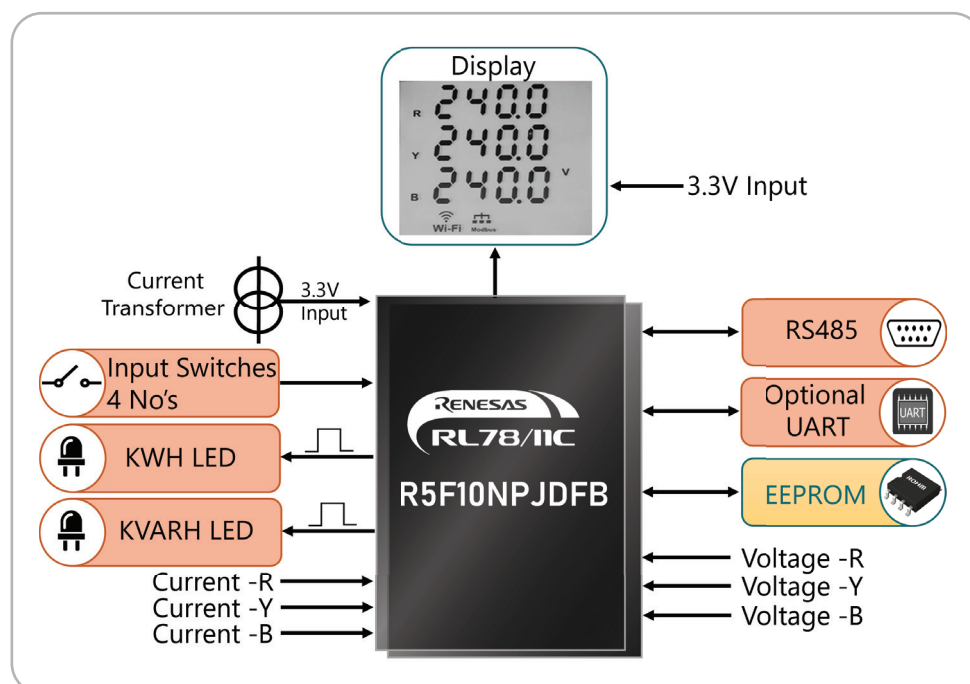
Features

- Meter accuracy : Class - 1.
- Rated voltage : 240V.
- Max current : 30A.
- Auxillary supply : 120V - 240V AC.
- Communication : RS485 (Modbus protocol).
- Display : 7 segment LCD display with backlight.
- Harmonics : detects upto 21st harmonics.

Applications

- Process control and automation.
- Distribution systems.
- Test and measurement.

Block Diagram



4G NIC CARD

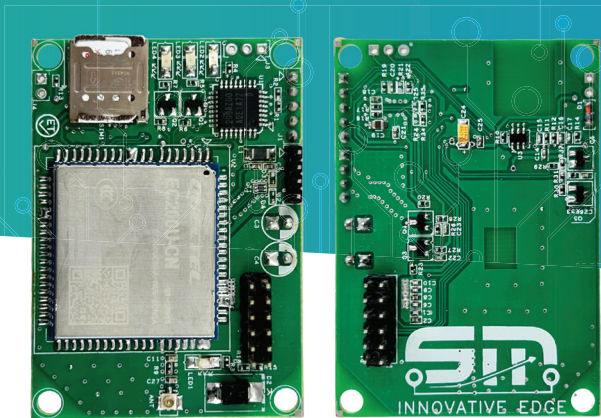
Description

4G NIC Card is a state-of-the-art communication module befitting the most advanced residential and commercial electric meter in the market today supporting wide-ranging use cases for AMI and distribution monitoring and control solutions.

NIC can easily integrate with single-phase and three-phase electricity meters and leverages any available network to form a highly resilient network for the utility.

Features

- Onboard MCU can handle multiple communication technologies.
- Support IPv4 / IPv6 network addressing.
- Support pushing the data at configured intervals to the HES.
- Programmable data acquisition (Push/Pull) frequency.
- Support firmware (FOTA) upgradation.
- Dedicated boost regulator enable/disable pin controlled by meter board.
- TCPIP test setup on EC200U.

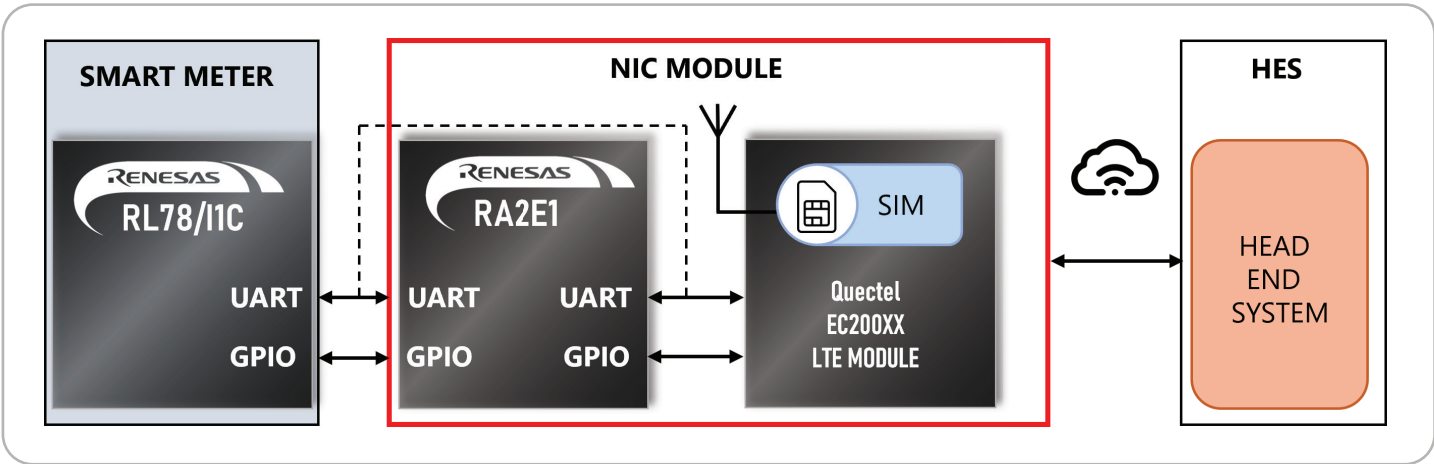


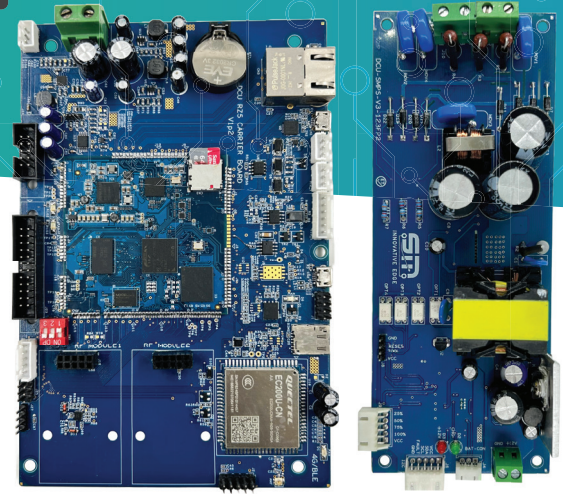
12 Pin Header Connector

Pin No.	Pin Names	Input/Output to NIC	Remarks
1	NC	INPUT	TTL, Max 3.3 V.
2	VCC	INPUT	TTL, Max 3.3 V.
3	NC	INPUT	TTL, Max 3.3 V.
4	RESET		
5	UART_TX	OUTPUT	TTL, Max 3.3 V.
6	NC	INPUT	TTL, Max 3.3 V.

Pin No.	Pin Names	Input/Output to NIC	Remarks
7	UART_RX		TTL, Max 3.3 V.
8	NC		TTL, Max 3.3 V.
9	GND	INPUT	
10	NC	INPUT	TTL, Max 3.3 V.
11	POWER KEY	INPUT	
12	NC		TTL, Max 3.3 V.

Block Diagram





Description

A Data Concentrator Unit (DCU) is a device or component used in various systems to collect, process, and transmit data from multiple sources. It acts as an intermediary (gateway) between the data sources and the central system, facilitating efficient data management, communication can be wired or wireless.

Features

- **Processor:** RZ/G2UL Single Core Cortex®-A55 (1.0 GHz) CPU.
- **Memory:** RAM-1GB DDR4, eMMC-8GB, uSDcard.
- **LED Indications:** network, power and RF data communication with 5 indication LED's.
- **Inbuilt Real Time Clock (RTC)** with battery backup.
- **Time synchronization** – MDAS server, GPRS network, SNTP, GPS (optional).
- **Connectivity:**
 - USB2.0 CDC .
 - LTE Module: EC200U LTE modem, SIM interface MUX with eSIM and micro-SIM holder.
 - Wifi FCU741 for diagnostics and communication.
 - Ethernet: wired TCP/IP .
 - Bluetooth: dialog DA14531.
- **Communication:** Node connection.
 - Wired: RS485.
 - Wireless: Sub GHz / GHz modules (wirepas, wi-sun, melange, LORA....).
- **Protocols:**
 - DCU to MDAS: TCP/IP based socket /FTP.
 - Others: TCP/IP, UDP, HTTP, FTP, PPP, CURL, DHCP.
- **UART interfaces:** RS232, RS485.
- **Sensors supported :**
 - Temperature/humidity - monitor the case temp.
 - Acc/Gyro - theft detection and device fall detection.
 - ALS - tamper detection.
- **HMI :** graphical LCD display and LED indications.
- **USB2.0 Port interface throughput** (**Depends on LTE modem, internet speed from service provider).
 - Upstream: avg. speed- 565Kb.
 - Downstream: avg. speed - 1508 Kb.

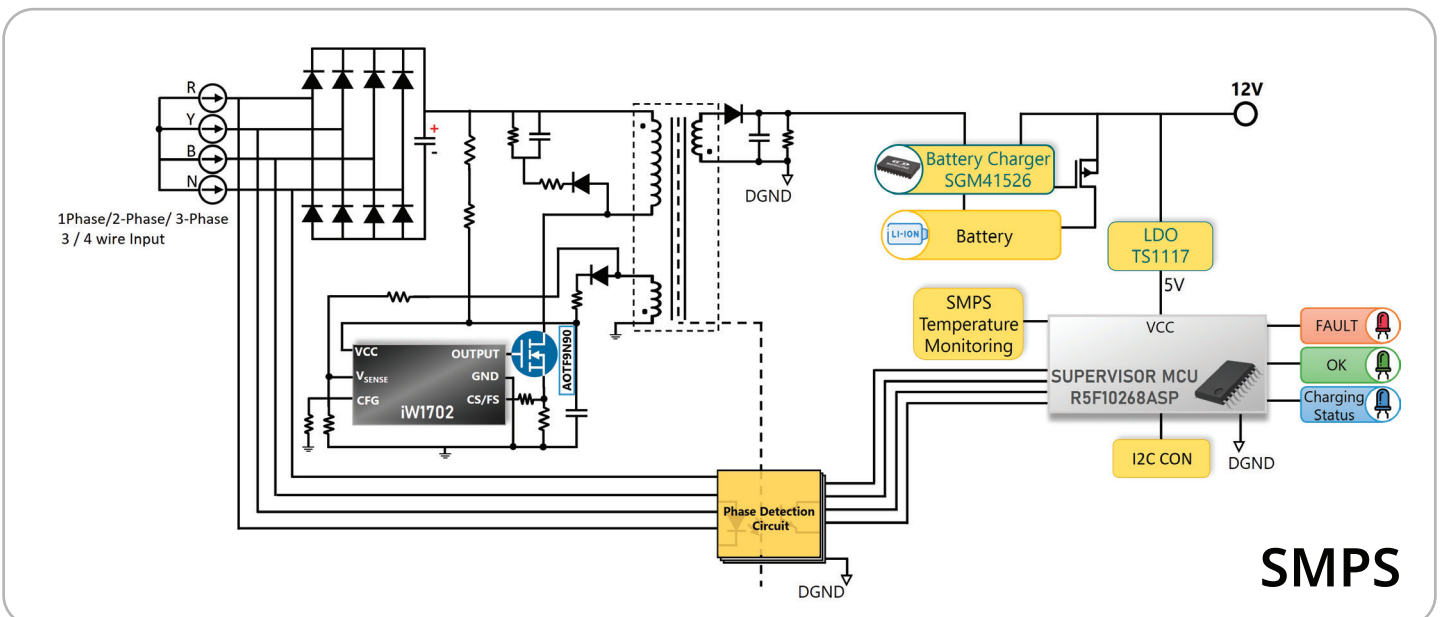
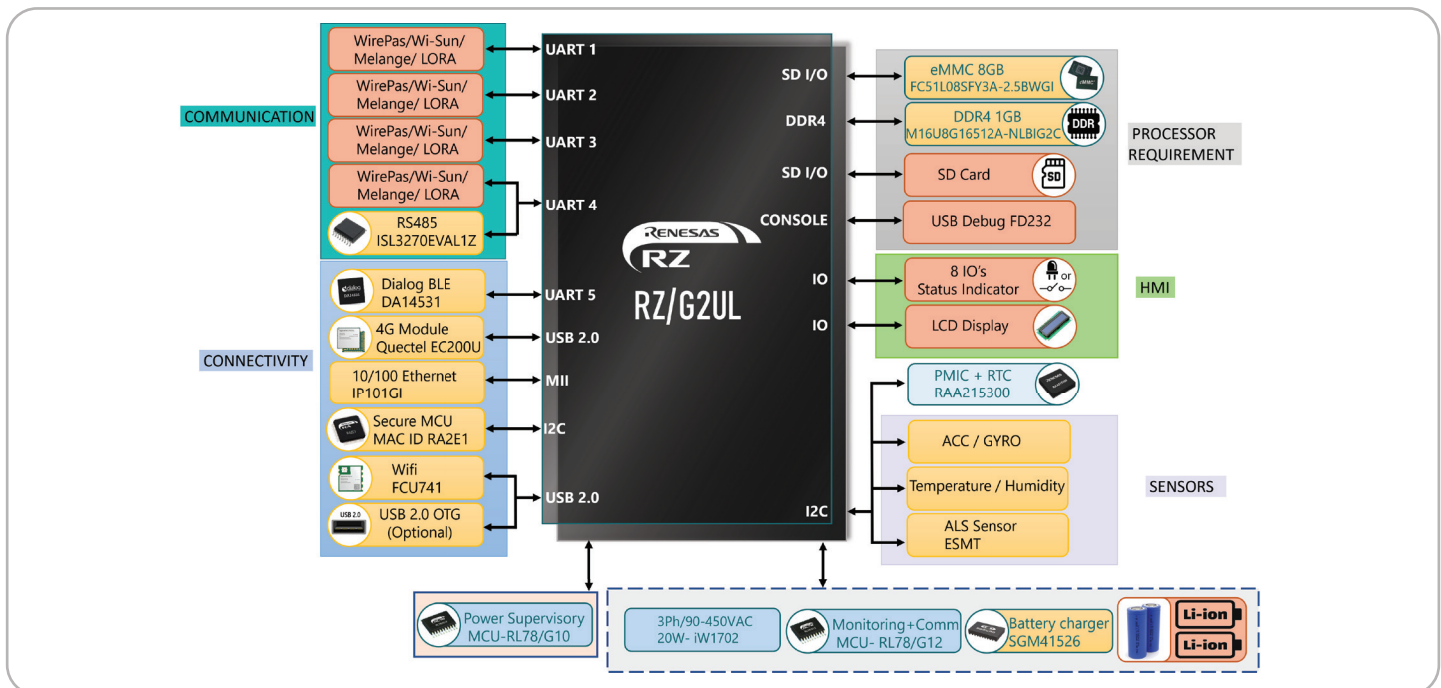
Power Supply Specs

- SMPS type: Isolated flyback.
- Input:
 - Single phase.
 - Two phase (3 wire).
 - Three phase (3 wire or 4 wire).
- AC input: 100 – 450 VAC.
- Output voltage: 12VDC.
- Output power: 20W.
- OVP (over voltage protection).
- Over current protection circuit per cycle.
- Efficiency: 80-85%
- Battery backup (7.4V 4200mAH).
- Automatic power path selection.
- On board battery charger.
- Battery health indication.
- Fault detection.
 - OTP (battery as well as SMPS).
 - Input phase missing.
 - Output voltage missing.
 - Battery charge suspend.

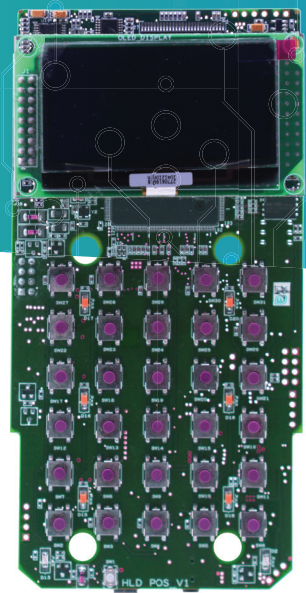
Applications

- Automatic meter readings: energy meter, gas meter and water meter.

Block Diagram



LINUX HANDHELD POS



Description

It is a portable device used for processing transactions in various retail and hospitality industries which offers greater flexibility, improved efficiency, enhanced security. The linux operating system offers a stable and secure environment for developing POS software and applications. Linux-based POS is highly customizable and lower costs compared to proprietary operating systems.

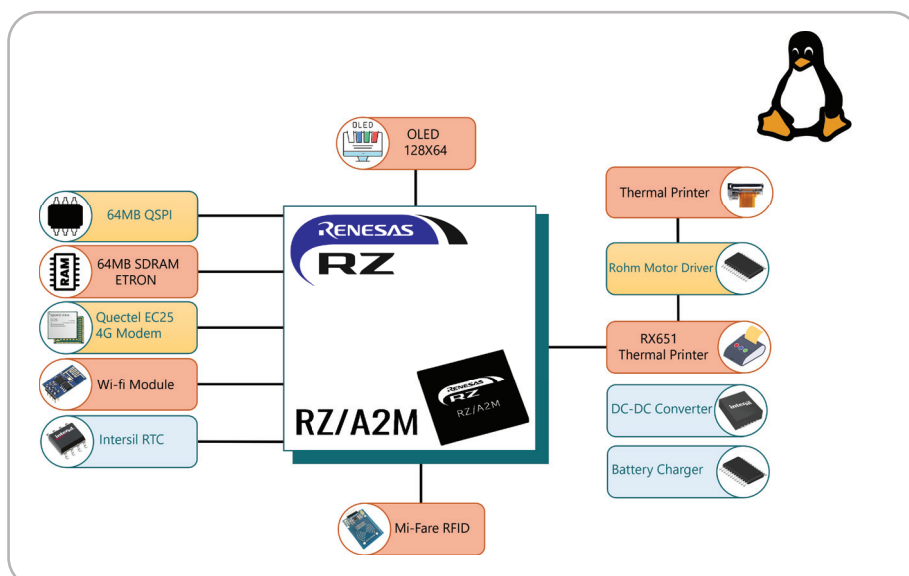
Features

- Renesas RZA1H based microprocessor.
- 128x64 OLED display.
- RX651 based thermal printer.
- 30 User defined keys.
- Mi-Fare RFID card reader.
- 64MB QSPI for Linux and 64MB QSPI for storage.
- 64MB SDRAM, external RTC with alarm support.
- Battery powered with 7.4v/3000mAh battery.
- Quectel based 4G modem interface with micro SIM support.

Applications

- Retail stores.
- Healthcare facilities.
- Transportation / ticketing.
- Payment collection.

Block Diagram



SOLAR WATER PUMP

Description

A Solar Water Pump is an innovative and eco-friendly device designed to harness the power of sunlight to pump water for various applications. It utilizes solar energy through photovoltaic panels to convert sunlight into electrical energy, which is then used to power the pump and move water from a water source.

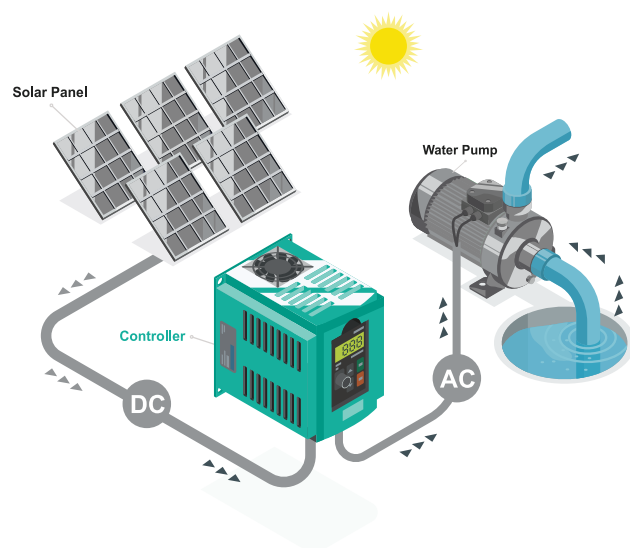
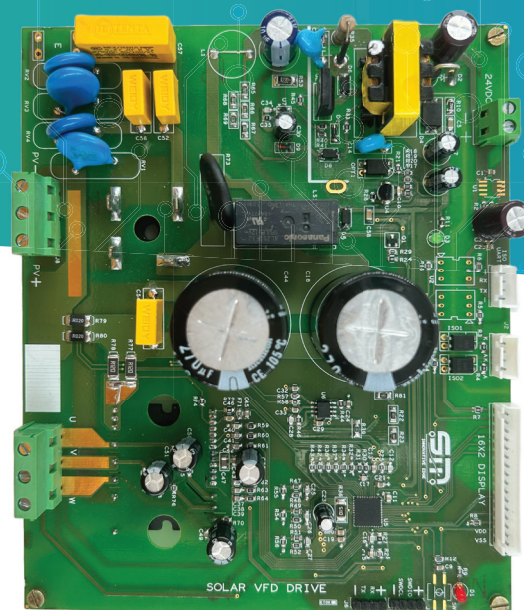
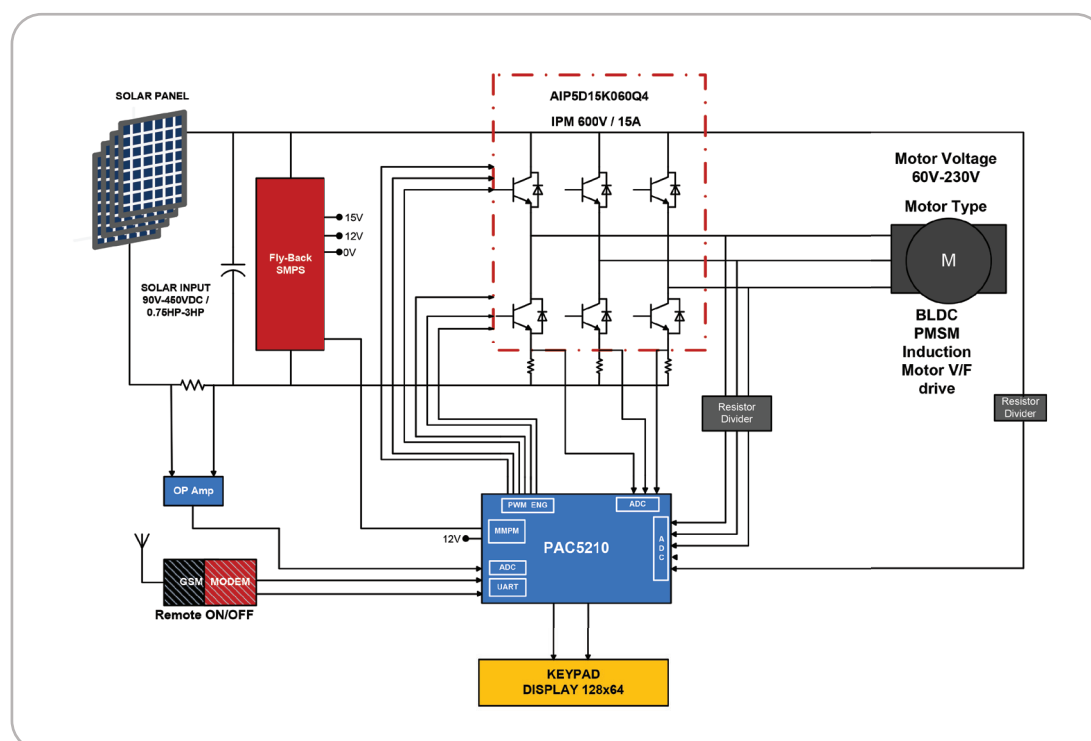
Features

- Operating voltage 120V-450VDC.
- Output power: up-to 2KW.
- Built in MPPT algorithm.
- Motor type: BLDC or PMSM.
- Dry run protection.
- GSM interface / isolated UART.
- Isolated 24VDC output for RMU.
- 16x2 LCD display.

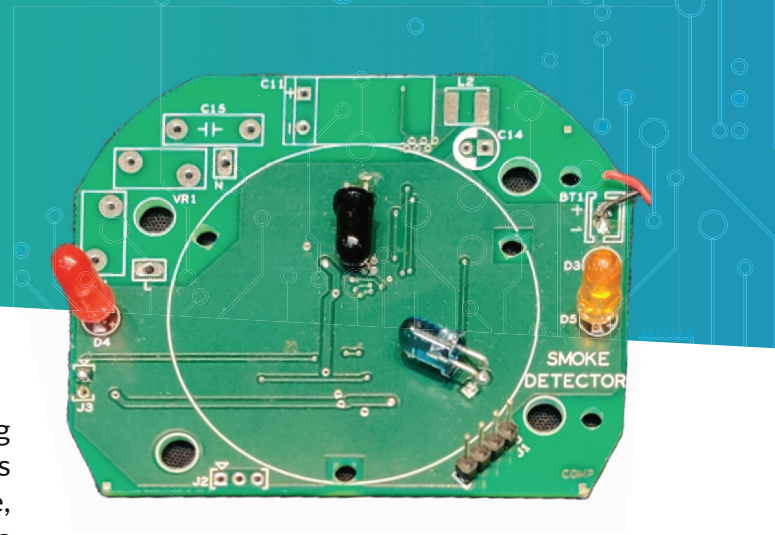
Applications

- Agricultural irrigation.
- Community water projects.
- Domestic water supply.

Block Diagram



SMOKE DETECTOR



Description

A Smoke Detector is an electronic device works by using sensors to detect smoke particles in the air. The sensors are designed to detect even small amounts of smoke, which can indicate the presence of a fire. When smoke is detected, the smoke detector sounds an alarm, alerting the occupants of the building to the potential danger.

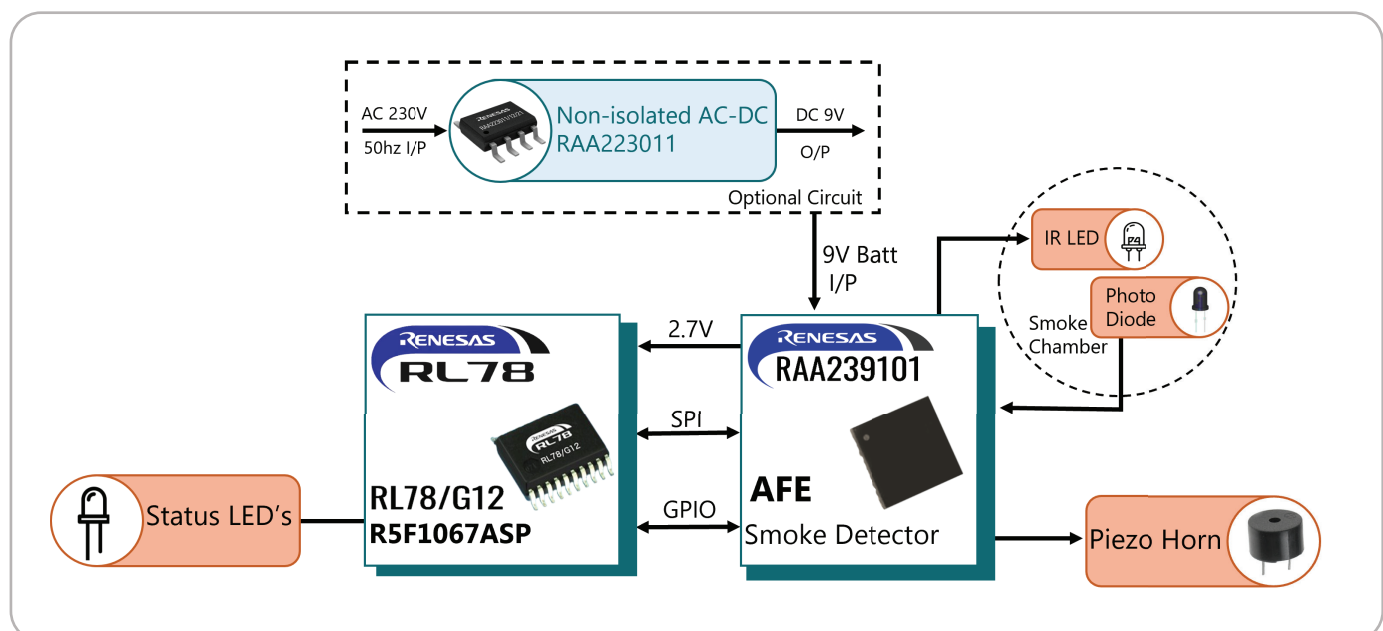
Features

- Fully operational residential smoke detector (photoelectric principle).
- Battery powered (3V or 9V) and optional AC mains supply.
- Mechanical smoke chamber (3D print) .
- Complete Smoke Detector System with only 2 key components. (RL78 MCU and AFE for photoelectric smoke detection).
- LED and buzzer indication.
- Self test key.
- User defined timer interval for smoke detection (3 min standard).

Applications

- Industrial facilities.
- Commercial use.
- Vehicles.
- Residential use.

Block Diagram



RX111 THERMAL PRINTER

Description

The RX111 Thermal Printer is a type of thermal printer that is designed for high-quality, fast, and reliable printing. It uses heat to produce sharp images and text on specially coated thermal paper. It is designed to withstand heavy usage and harsh environments, making it ideal for use in busy retail environments, warehouses, and other settings where frequent use and exposure to dust and debris are common.



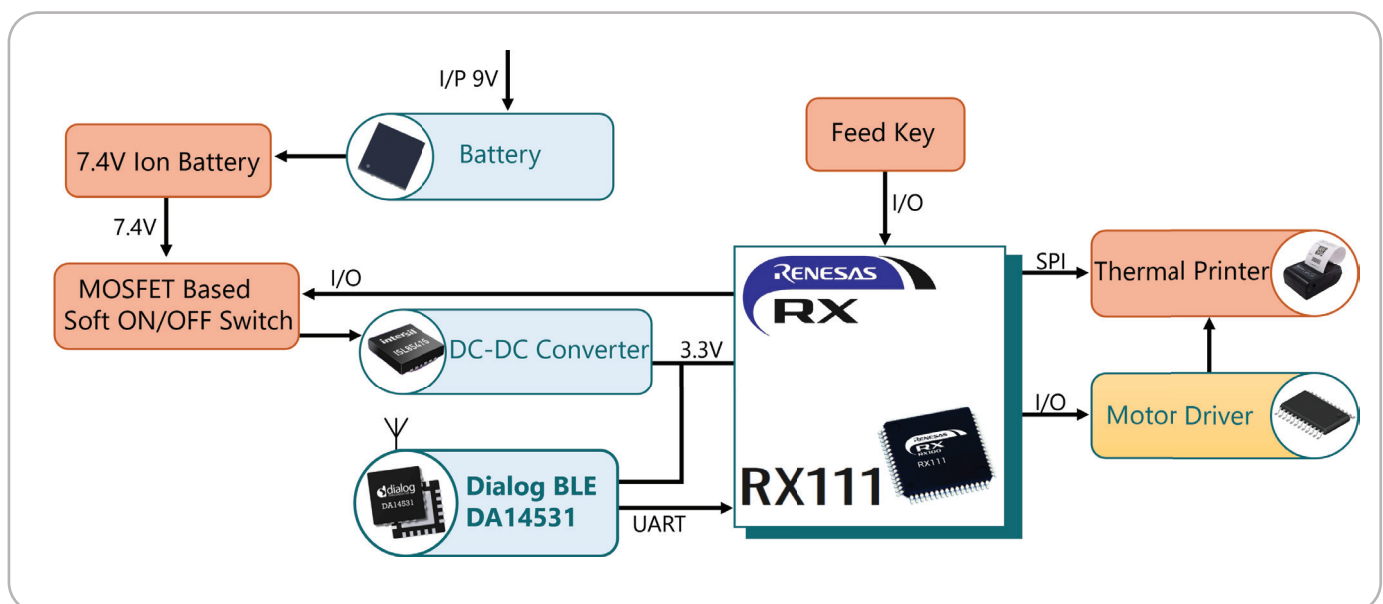
Features

- RX111 - R5F5111ADFP Based Thermal Printer with FTP628MCL103 2 inch printer.
- ESC command sequence for printing.
- Image printing and text printing.
- Battery operated.
- BLE interface.
- Bluetooth: DA14531 BT 5.1
- Platen release and power out indication.

Applications

- Retail industry.
- Manufacturing.
- POS systems.
- Medical equipment.

Block Diagram



RX651 THERMAL PRINTER



Description

The RX651 Thermal Printer is a type of thermal printer that is designed for high-quality, fast, and reliable printing. It uses heat to produce sharp images and text on specially coated thermal paper. It is designed to withstand heavy usage and harsh environments, making it ideal for use in busy retail environments, warehouses, and other settings where frequent use and exposure to dust and debris are common.

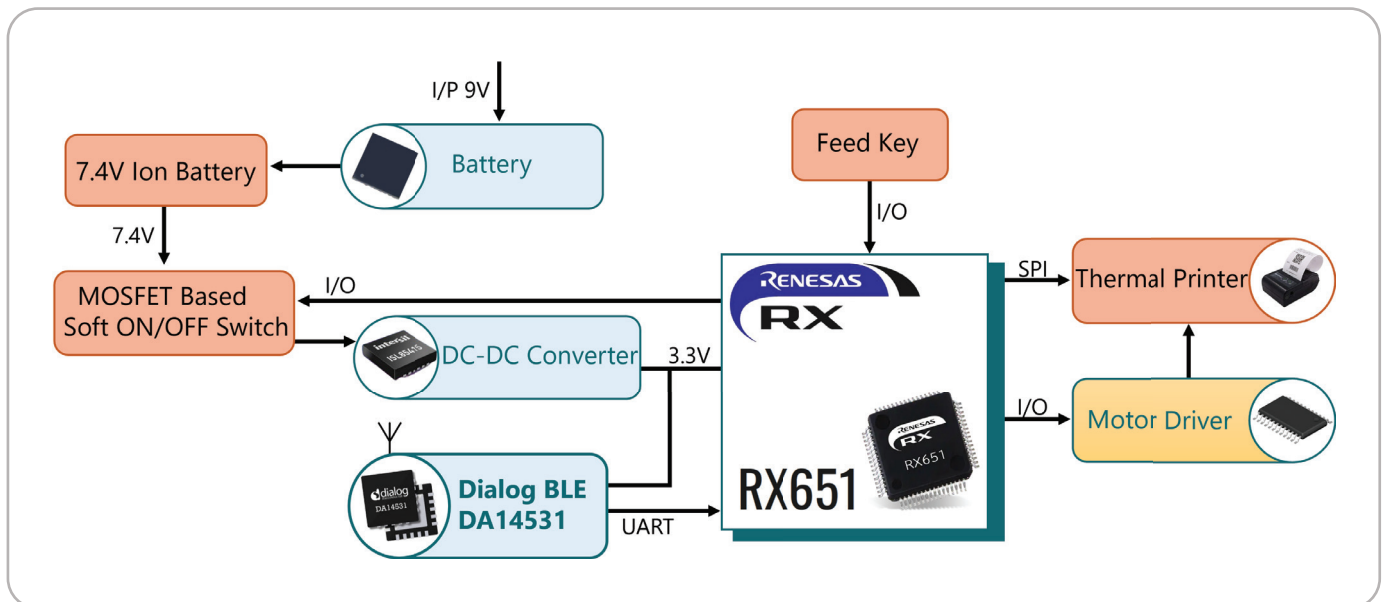
Features

- RX651 - R5F56519BDFP based thermal printer with FTP628MCL103 2 inch printer.
- ESC command sequence for printing.
- **Multi-language (English + any local languages).**
- Image printing and text printing.
- Battery operated.
- Ble interface.
- Bluetooth: DA14531 BT 5.1
- Platen release and power out indication.

Applications

- Retail industry.
- Manufacturing.
- POS systems.
- Medical equipment.

Block Diagram



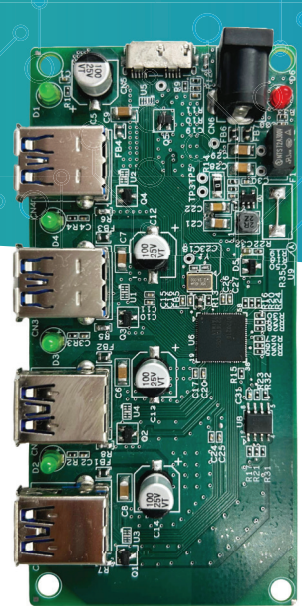
मराठी भाषा
गुजराती
तेलुगु
हिन्दी
मलयालम
बांग्ला
संस्कृतम्
कन्नड
असमिया
विकिपीडिया

USB HUB

Description

The UPD720210 is a USB 3.0 hub controller that complies with the universal serial bus (USB) specification revision 3.0 and operates at up to 5 gbps. The device is fully compatible with all prior versions of USB spec and supports all mainstream battery charging specifications.

It comes in a small 76-pin QFN package and integrates several commonly required external components, making it ideally suited for applications with limited PCB space.



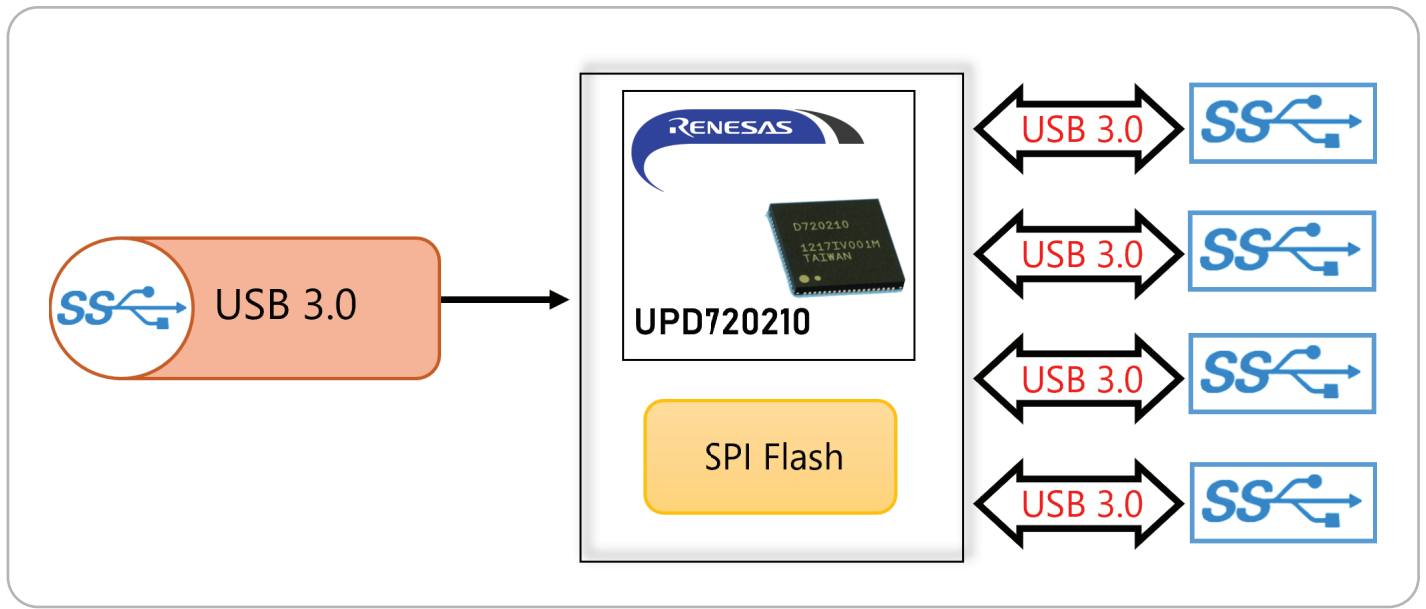
Features

- Compliant with universal serial bus 3.0 specification revision 1.0, which is released by USB.
 - Supports the following speed data rate : low-speed (1.5 Mbps) / full-speed (12 Mbps) / high-speed (480 Mbps) / super-Speed (5 Gbps).
 - Supports USB 3.0 link power management (U0/U1/U2/U3).
 - Supports USB 2.0 link power management (LPM: L0/L1/L2/L3).
- Configurable downstream port count of 2, 3, or 4.
- Supports all VBUS control options.
 - Individual or global over-current detection.
 - Individual or ganged power control.
- Supports USB 3.0/2.0 compound (non-removable) devices by I/O pin configuration.
- Supports clock output (24/12 MHz) for compound (non-removal) device on downstream ports.
- Supports energy star and EuP specifications for low-power PC peripherals and monitors.
- Single 5V power supply.
 - On chip LDO for 3.3 V from 5 V input and switching regulator for 1.05 V from 5 V input.
- System Clock: 24 MHz crystal or oscillator.
- Supports USB battery charging specification revision 1.2 and other portable devices.
 - DCP mode of BC 1.2
 - CDP mode of BC 1.2
 - China mobile phone chargers.
 - EU Mobile phone chargers.
 - Apple iOS devices.
 - Other major portable devices.
- Supports SPI ROM for optional firmware and parameter data.

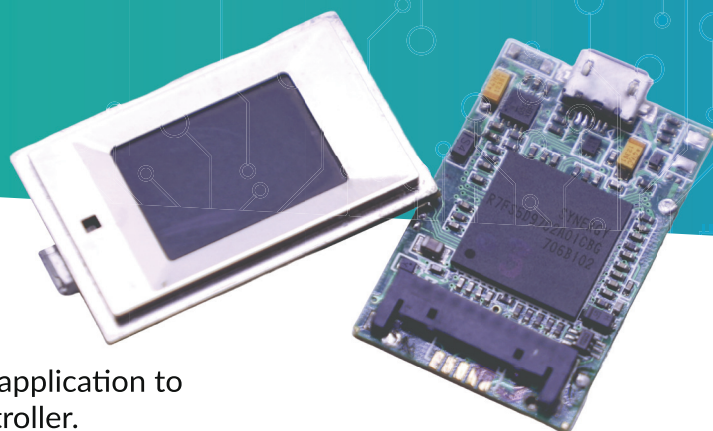
Applications

- Desktop and laptop computers.
- Tablet.
- Server.
- PCI express card / express card.
- Digital TV.

Block Diagram



TARJANI MODULE



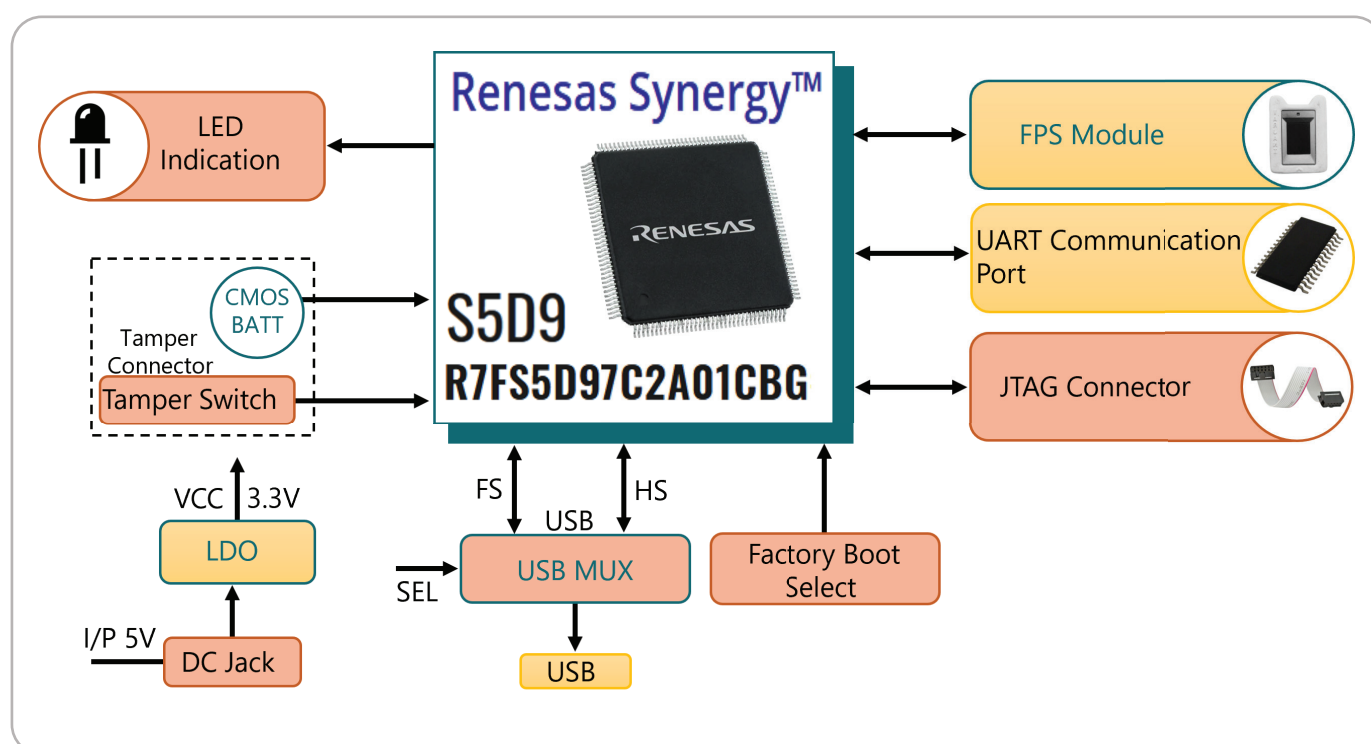
Description

Tarjani Module was used for POC for Aadhaar- L1 application to support PCH certification for renesas synergy controller.

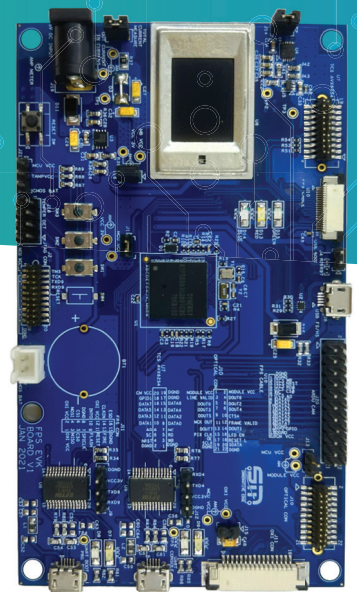
Features

- USB powered.
- Reliable capturing performance.
- Sleek and stable design.
- High quality certified FMR extractor.
- S5D9 – R7FS5D97C2A01CBG#AC0,176-Pin BGA package,120 MHz Arm® Cortex®-M4 core with floating point unit (FPU),640 KB SRAM,1MB code flash memory,8 Kb data flash memory.
- Build around BIOSEC capacitive area sensor with array 365 by 256.
- Support for USB-2.0 (HS/FS) for easy connectivity.
- Compatible with various HOST-environment: Linux, MS-Windows, iOS and Android.
- 508 DPI (256 x 365 pixels), 256 gray level sensor.
- Hardware encryption Ssupport @ RSA-2048 bit key-generation and AES-256 bit.
- Secured with no-availability For JTAG interface (hardware disabled).
- Secure updates only available via secure boot-loader after authentication.

Block Diagram



FPS EVK MODULE



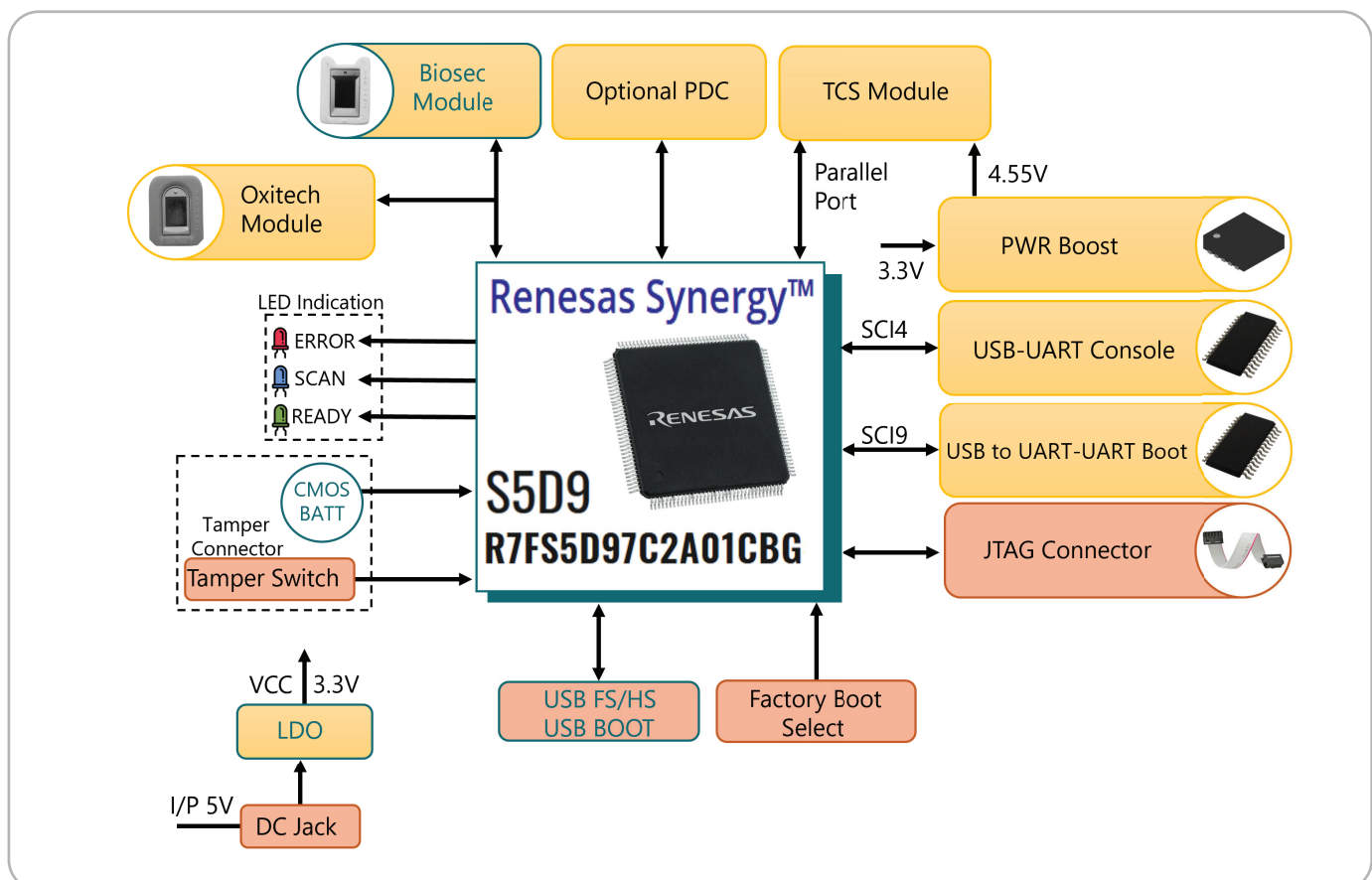
Description

The Tarjani – Evaluation Kit (EVK) V1 enables developers to get started with initial firmware development for finger print sensor (FPS) L1 certification. The major components of EVK – V1 consists of Renesas microcontroller and Biosec FPS Module enabled for multiple sensor interface (i.e SPI, PDC and parallel port).

Features

- S5D9 – R7FS5D97C2A01CBG#AC0.
- 176-Pin BGA package.
- 120 MHz Arm® Cortex®-M4 core with floating point unit (FPU).
- 1MB code flash memory, 8 KB data flash memory.
- 2D capacitive fingerprint area sensor.
- Sensor array of 360 by 256 pixels.
- 508 DPI spatial resolution.
- Image capture speed up to 2 MPixel/sec.
- Low power : normal and standby modes.
- 30 million finger placement.

Block Diagram



IRIS AND FPS

L1 COMPATIBLE

Description

IRis(Eye) and Fingerprint Sensors are biometric technologies used for identification and authentication purposes. An iris sensor captures the unique patterns of the iris and can be used to identify individuals with a high level of accuracy. Fingerprint sensors use capacitive or optical technology to capture the unique patterns on the fingertips.

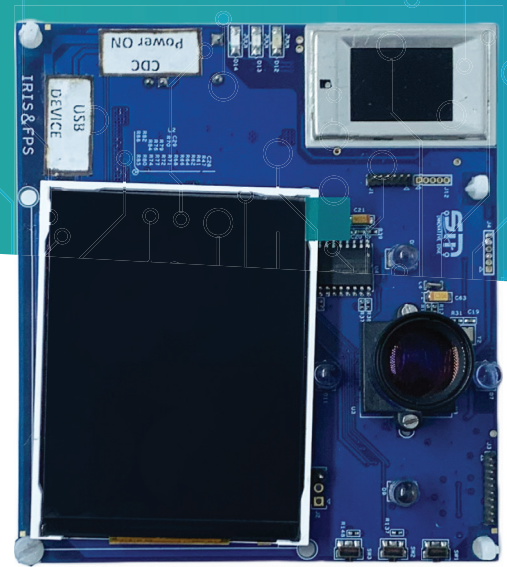
This solution relies on biometric data, which is a unique characteristic of an individual that can be used to identify them. When the IRIS and FPS systems grant access, a signal is sent to a microcontroller that is connected to the TFT display.

Features

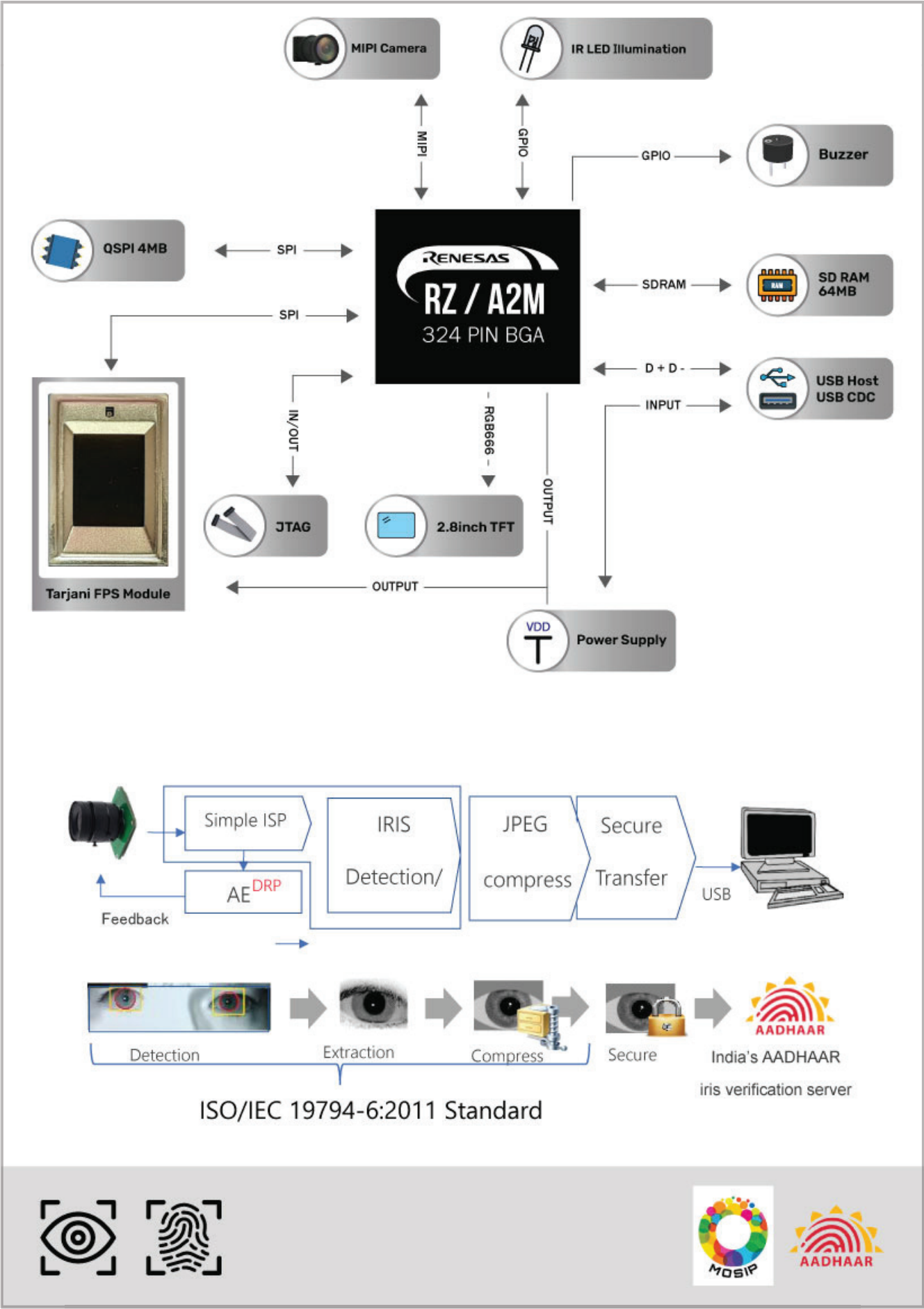
- RZ/A2M (324 Pin BGA).(R7S921058VCBG).
- MIPI CAMERA (MT9V034LCC).
- Quad SPI (MX25L51245G-M-SOP16P).
- USB 2.0 with CDC interface.
- USB 2.0 is host interface.
- Intersil buck regulator(ISL80505,ISL80030A).
- Buzzer interface.
- Indication tri color LED.
- IR LED control.
- FPS sensor interface.
- 2.8inch TFT display.

Applications

- Access control.
- Time and attendance.
- Law enforcement.
- Healthcare.



Block Diagram



IRIS WITHOUT TFT

Description

Iris (Eye) and Fingerprint Sensors are biometric technologies used for identification and authentication purposes. An Iris Sensor captures the unique patterns of the iris can be used to identify individuals with a high level of accuracy. This solution rely on biometric data, which is a unique characteristic of an individual that can be used to identify them.

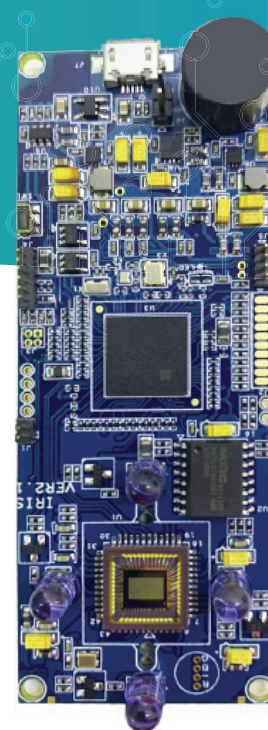
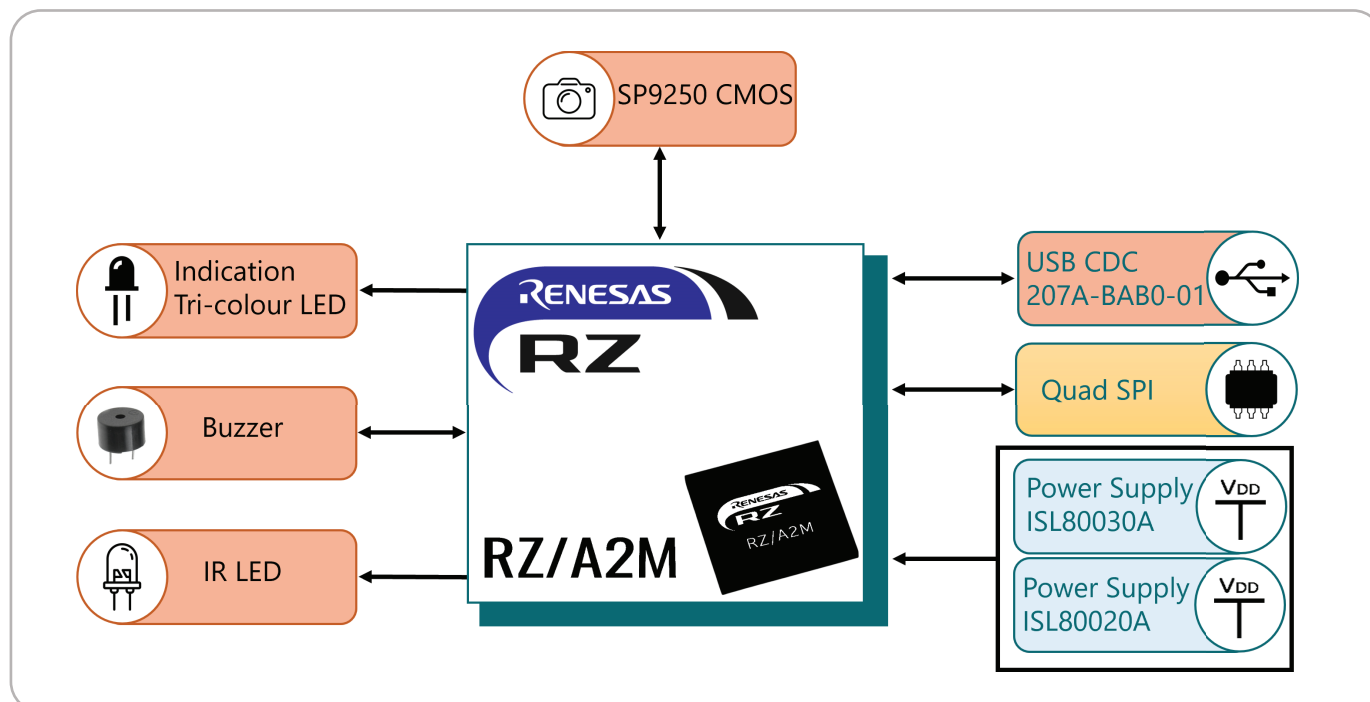
Features

- RZ/A2M (256 Pin BGA), R7S921056VCBG.
- MIPI CAMERA (MT9V034LCC).
- Quad SPI (MX25L51245G).
- USB 2.0 with CDC interface.
- Intersil buck regulator (ISL80505,ISL80030A).
- Buzzer interface.
- Indication tri color LED.
- IR LED control.

Applications

- Access control.
- Time and attendance.
- Law enforcement.
- Healthcare.

Block Diagram



AEBAS

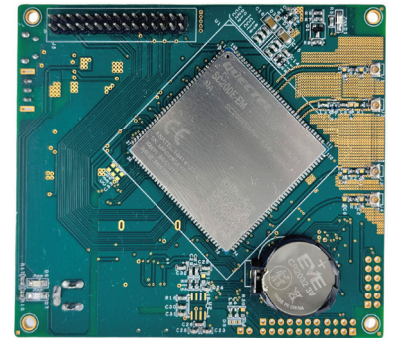
L1 Registered
Device Integrated!!



Description

AEBAS - Aadhaar Enabled Biometric Attendance System

The AEBAS System would enable an employee to register attendance by simply presenting his / her biometric (fingerprint). This event will be authenticated online after one to one match with the bio-metric attributes stored in the UIDAI data base against the employees aadhaar number. This reference solution come integrated with L1 registered biometric device (optical fingerprint).



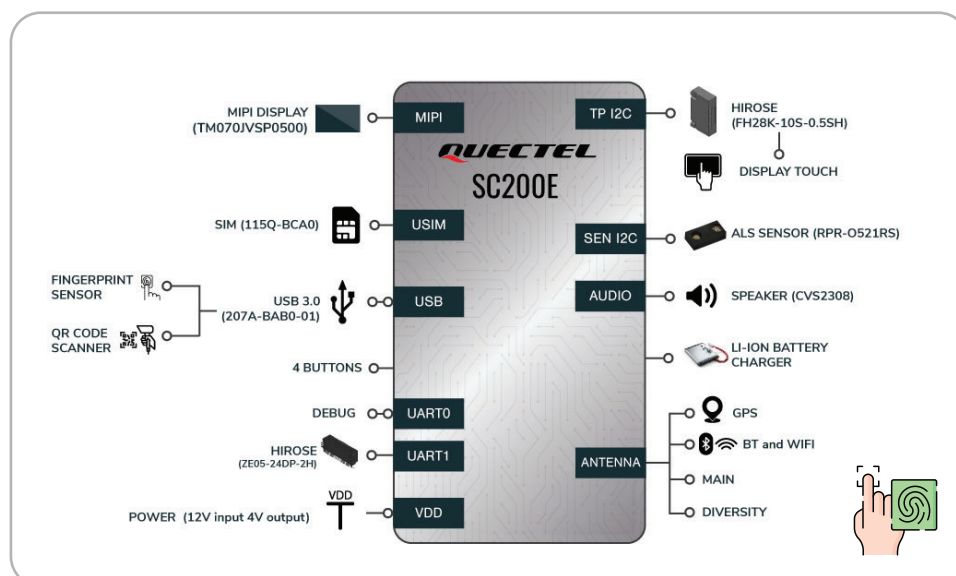
Features

- Quectel LTE SC200E smart module.
- TFT 2.4/5/7 inch.
- Finger print sensor (FPS) interface on USB.
- Ethernet 10/100.
- USB device and UART.
- On chip RTC.
- Reliable capturing performance.
- Andriod version 13
- Linux: kernel version 4.19
- Hardware encryption support @ RSA-2048 bit key-generation and AES-256 Bit.

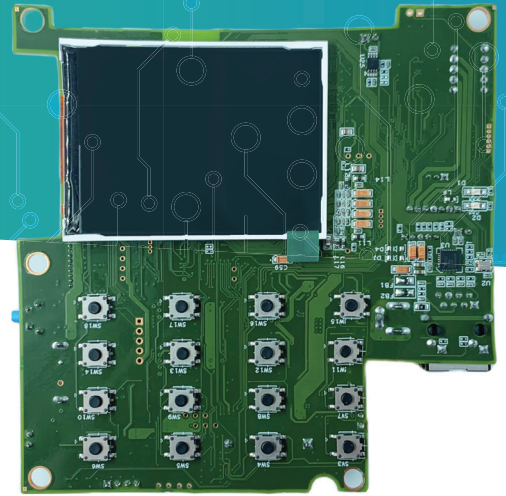
Applications

- Biometric security.
- Financial.
- Healthcare biometrics.
- Border control / airports.
- Time and attendance.
- Justice / law enforcement.

Block Diagram



ACCESS CONTROL SYSTEM



Description

Access Control Systems perform identification, authentication, and authorization of users by evaluating required login credentials which include passwords, bio-metric scans or cards with unique pins. This allows to secure information and set privileges as to what information can be accessed, who can access it and at what time it can be accessed.

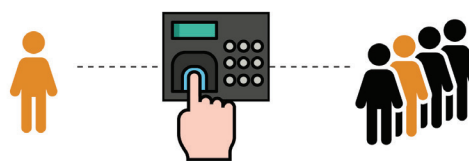
Features

- Linux OS.
- Dedicated data base storage 64MB.
- 2.8 inch - TFT.
- FingerPrint reader.
- LF card reader.
- Wiegand interface.
- Key pad matrix.
- Relay contact.
- Wi-Fi
- Ethernet.
- RS - 485.
- USB connectivity.
- Speaker.
- Battery backup.

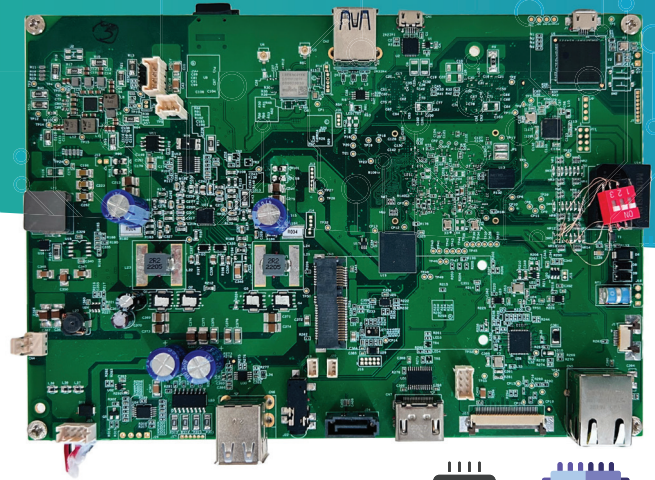
Applications

- Industrial applications.
- Home automation and security systems.
- Logical access control.
- Time and attendance.

Block Diagram



RZ/G2N (NVR)



Description

NVR (Network Video Recorder) is a video recording system over network, commonly used for surveillance and security purposes. This device streams security video footage from IP cameras and records the footage in digital format on to a sata hard drive. NVRs Uses wired or wireless network to connect to IP cameras. streams are transferred using TCP or UDP protocol.

Features

- Renesas RZ/G2N Two 1.5-GHz ARM® Cortex®-A57 MP Core™ cores.
- Runs Linux Kernel 5.10 with Yocto Root File System (RFS).
- Streams video from IP cameras over wired network that can be configured upto 16 channels.
- Uses real time streaming protocol (RTSP) based on client server architecture.
- Uses H.265 and H.264 decoder and wayland sink with 4K resolution.
- Simultaneously stores streamed data onto hardisk through SATA interface.
- Selectively playback stored streams.
- Uses open source gstreamer plugins pipeline to parse and decode the RTSP Packets.
- Capable of rendering videos from 16 tiles onto single window that can be monitored over HDMI Interface.
- Can be used for basic analytics using open CV alogrithms.
- Supports QT for GUI application developement.
- Supports scaling.
- MCU with OTP area for network MAC ID.
- 6-Port USB smart hub with:
 - Five standard USB 3.2 Gen 2 downstream ports.
 - One standard USB 2.0 downstream port.

Software Environment

- Host setup: Ubuntu 20.04 LTS.
- Open source Gstreamer version 1.0
- Yocto SDK RZ/G verified Linux package for 64 bit kernel, BST version 3.0.X
- Software stacks supported:
 - Web browser: Firefox.
 - Web server: Apache / Lighttpd.
 - Backend script: PHP.
 - RDBMS support: MySQL / SQLite.

Applications

- Public safety.
- Industrial monitoring.
- Traffic monitoring.
- Video surveillance.

NVR Hardware Features

- It uses all automotive type connectors.
- Operating input voltage: 18-24VDC
- Battery-14.8V, 2000mAh, 3hr.
- MAC ID storing and secure chip.
- STQC approved secure element S5D9.
- Magnetics on board.
- Audio codec DA7218 for 2mics.
- Stereo jack speaker out.
- TLV320AD510 for 4 mic out.
- HDMI out.
- Isolated IO ports-4 pins.
- SATA interface.
- Display HDMI / LVDS with cap touch.
- 1Gbps Ethernet.
- USB 3.0, USB 2.0
- Mini-PCIE for Quectel EC25 modem / mini SATA.
- 8 GPIO non isolated pins.
- 2 ports IIC, 3UART RS232 port, 1 CAN 2.0.

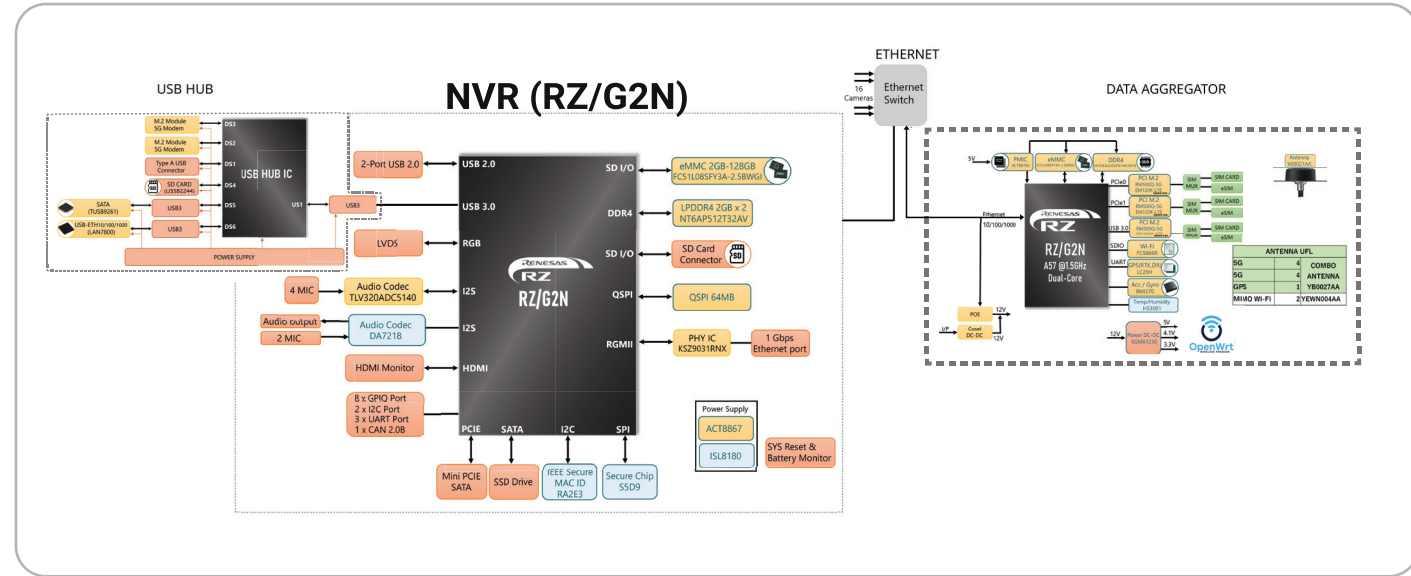
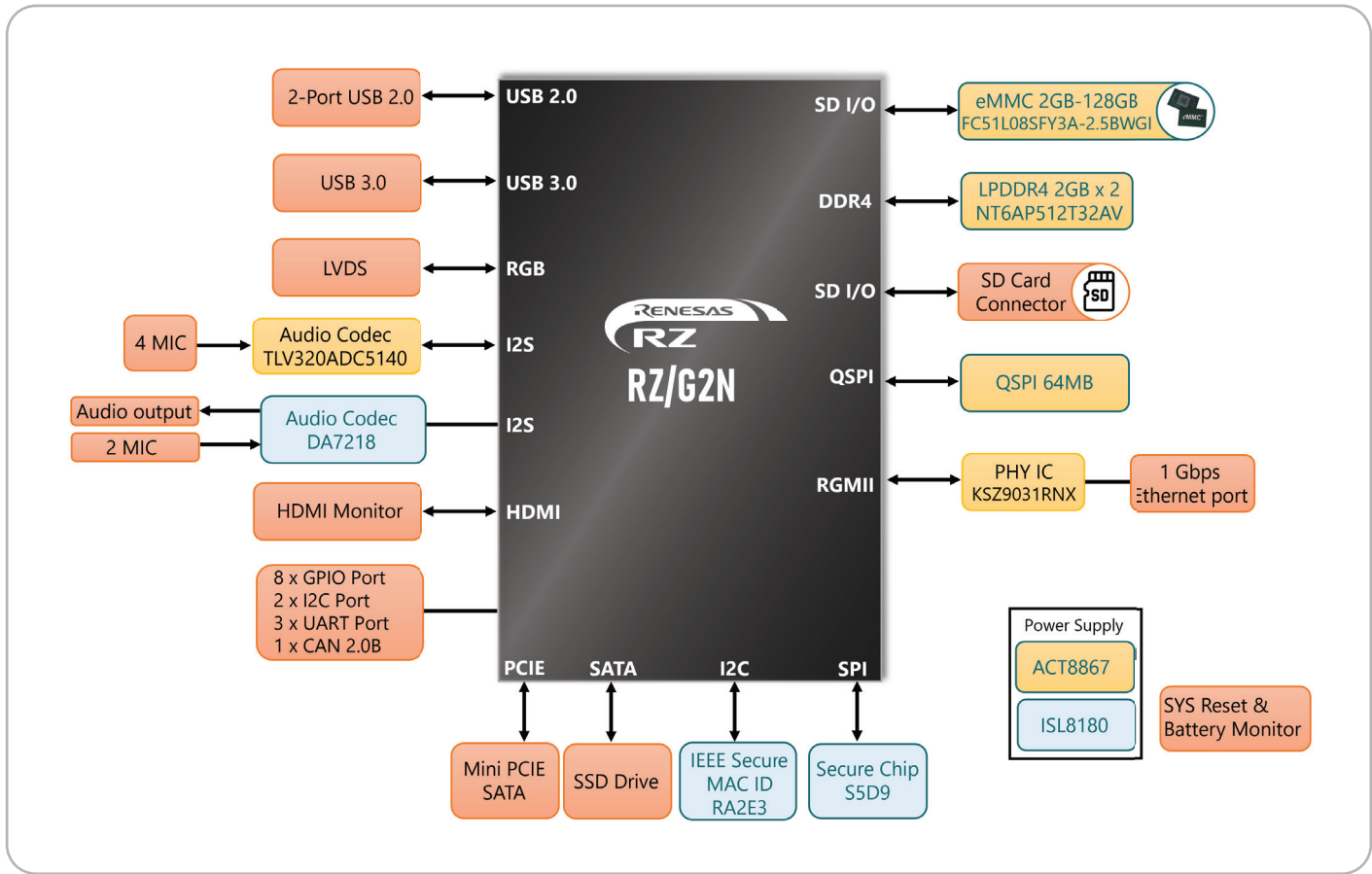
USB HUB Card Features

- Supports two 5G modem with M.2 connector.
- SD card.
- USB 3.0-SATA connection.
- USB 3.0-ethernet 10/100/1000 Mbps
- Power supply 9-36V.
- USB Type-B (host).

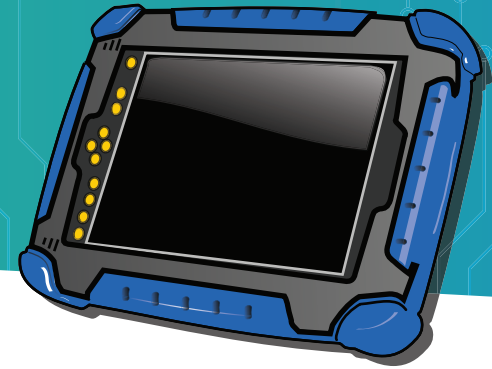
Data Aggregator Features

- Data Aggregator can accommodate three 4G /5G modem with third party data aggregator software.
- Input uplink stream through gigabit ethernet.
- Wi-Fi MIMO for fast throughput.
- Supports MIMO Wi-Fi antenna (YEWN004AA) and 9 in 1 combo antenna (YB0027AA).
- High accuracy GPS with 1cm triangulation and tracking.
- On-Board temperature and humidity sensor.
- Modem Support: LTE Cat 12 UE - LTE Cat UEs are based on LTE Advanced (LTE-A) technology with support for a data rate of 603.0 Mbit/s on the downlink and 102.0 Mbit/s on the uplink. They utilize MIMO (Multiple Input - Multiple Output) and Carrier Aggregation to deliver higher data rates and support 2- or 4-layer spatial multiplexing in downlink (DL).
- 5G modems can have a range of speeds, from 10 to 20 gigabits per second (Gbps) at their peak, to 100–300 Mbps on average.

Block Diagram



ANDRIOD TABLET



Description

Industrial Android Tablets combine the user-friendly features of android with rugged durability, representing a significant technological advancement that enhances efficiency and productivity in demanding industrial environments.

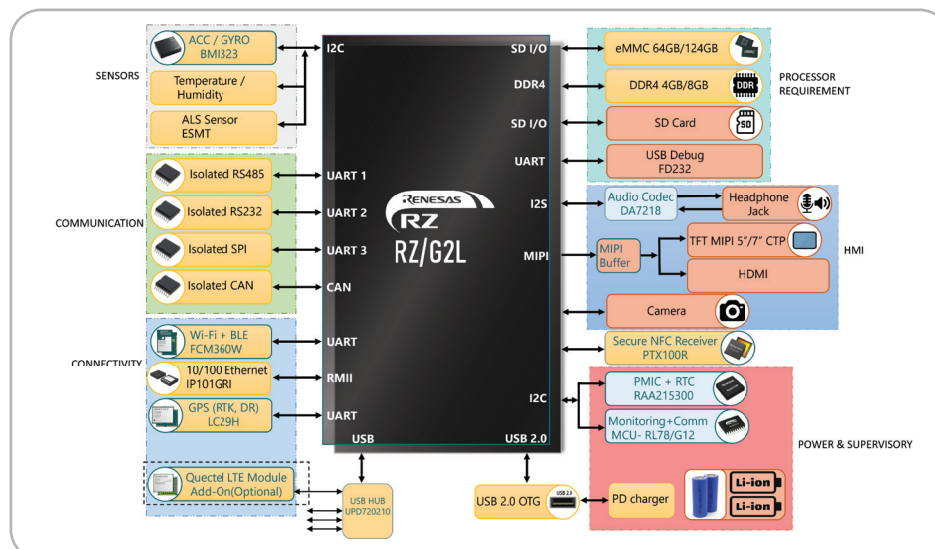
Features

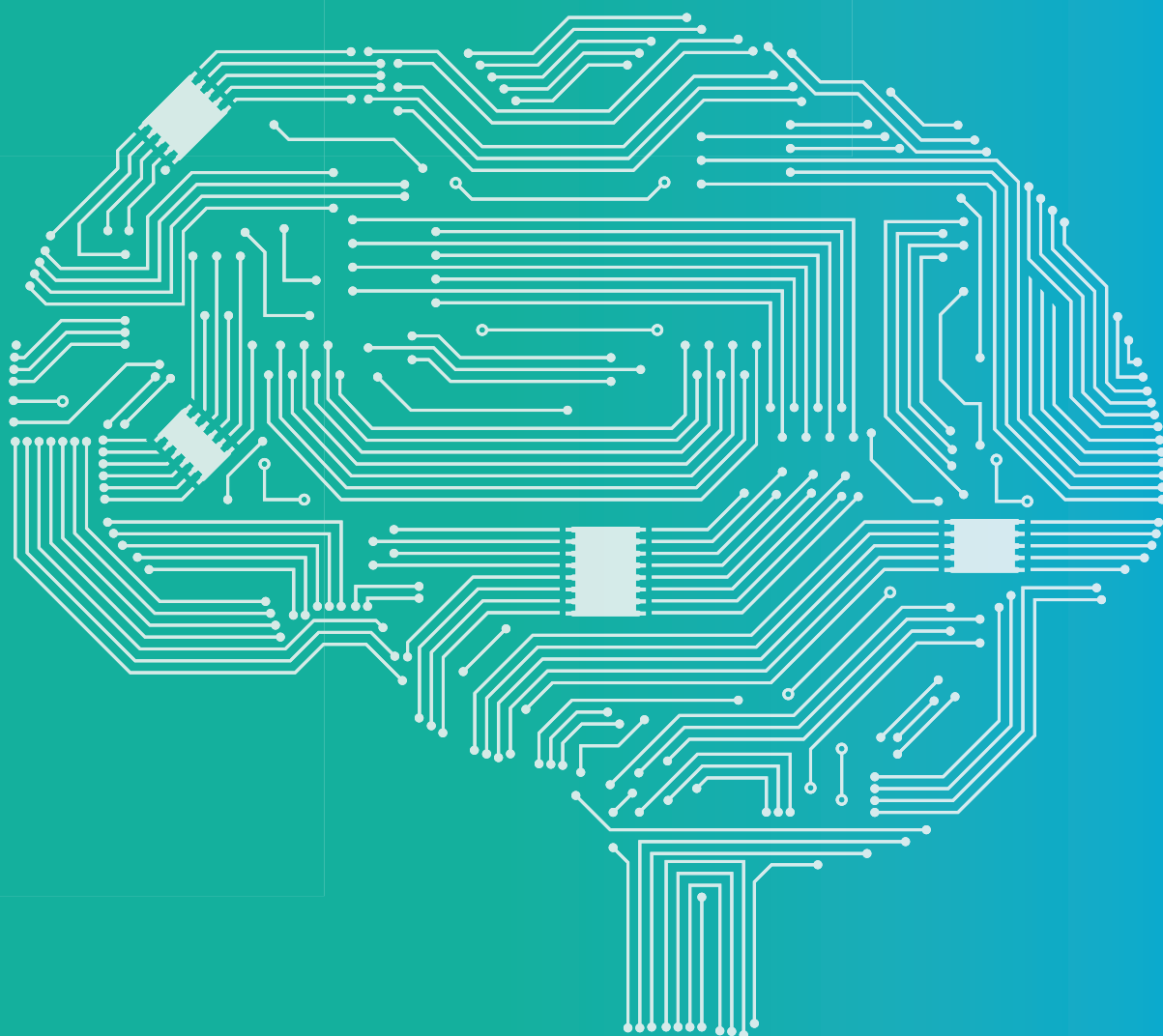
- Processor - The RZ/G2L microprocessor includes a Dual Core - Cortex®-A55 (1.2GHz) CPU.
- Memory –
 - eMMC – 64GB / 128GB.
 - DDR4 – 4GB / 8GB.
- SDCARD
- Display – 5.5" 720 X 1280 / 7" 800 X 1280, CTP.
- HDMI Output.
- Camera – MIPI interface.
- Audio Codec – DA7218.
- Power – main battery: li-ion, rechargeable, 8000 mAh.
- Interface – 4 port USB 2.0 Type-C, OTG.
- Navigation – GPS (RTK/DR) LC29HDA.
- USB PD fast charging with Dual Cell Battery
- High Brightness Automotive Grade TFT with Cover Glass
- Communication :
 - Isolated RS485.
 - Isolated RS232.
 - Isolated SPI.
 - Isolated CAN.
- Connectivity :
 - 10/100 ethernet (IC Plus).
 - Quectel LTE (EC200U).
 - Wi-Fi + BLE (FCM360W).
- Sensors :
 - Accelero / gyro.
 - Temperature / humidity.
 - ALS.
- Secure – NFC receiver - PTX100R NFC Reader IC, EMVCo® 3.0/3.1 PCD L1 compliancy2.

Applications

- Inventory management.
- Health and safety monitoring.
- Asset management.
- Real-time communication.

Block Diagram





SMET NETWORK

SM ELECTRONIC TECHNOLOGIES PVT. LTD.

BANGALORE

#2, 8th Block, Nagarabhavi 2nd Stage,
Malagala, Bengaluru-560 072

☎ +91 80 66734567 | Fax : +91 80 66734545

✉ sales@mysmindia.com

NEW DELHI

895, 8th Floor, Vegas Business Tower, Vegas Mall
Dwarka Sector-14, New Delhi -110075

☎ +91 011-61340441 | 61340442 | 61340443

PUNE

Unit No.903-B "Amar Business Zone" Tower B, S.No.87/1A,
Plot No.1&S.No.87 Sayakar Chowk, Baner Road Baner Pune – 411 045

☎ +91-9970646858

HYDERBAD

H.no.1-3-37, 2nd Floor, CP Chambers, Street No.5, Habsiguda, Beside Kapil Chits,
Hyderabad-500007 Telangana

☎ +91 98490 32051

MUMBAI

Office No. 403, Swastik Disa Co-Op Park, LBS Marg, Ghatkopar West,
Opp Helix, Mumbai - 400086

☎ +91 86579 79709

CHENNAI

Complex : Sri Motel Highway (Jain), 1st Floor, 89/3A1, Bangalore Trunk Road,
Thrimizhisai, Chennai - 600124

☎ +91-9884910577

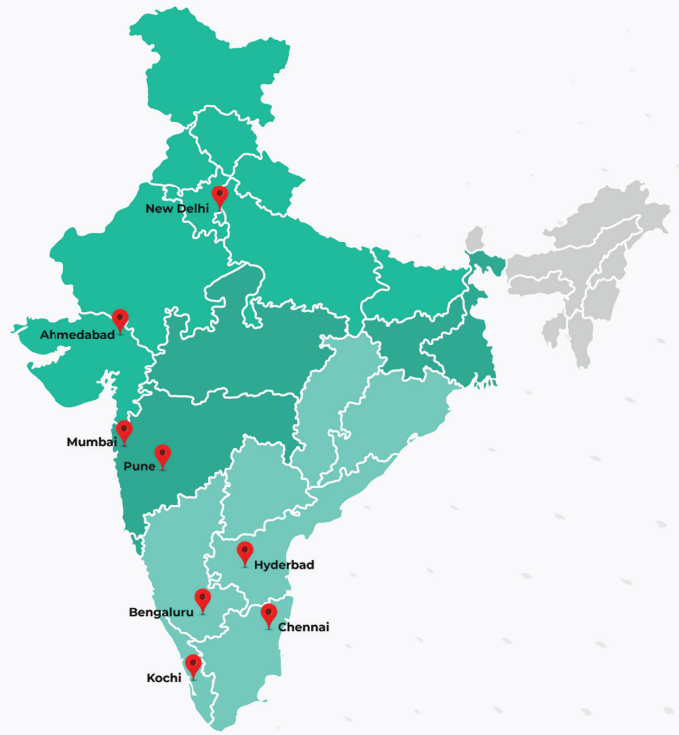
AHMEDABAD

#202, Amarnath Business Centre, Navarangpura, Ahmedabad – 380 009

☎ 91 79489 04307

KOCHI

Padinjarekara House, Varappetty Post, Kothamangalam, Ernakulam District, Kerala - 686691



SMET SINGAPORE PTE .LTD.

230 Victoria Street, #15-01/08, Bugis Junction Towers, Singapore 188024

☎ TEL : 03 - 3452 - 7171 ✉ str.info(at) satori.co.jp

OUR LINES

 RENESAS BIG IDEAS FOR EVERY SPACE	 BOSCH Invented for life	 <i>muRata</i> INNOVATOR IN ELECTRONICS	 ROHM SEMICONDUCTOR	 QUECTEL™	
 Honeywell	 TIANMA	 COSEL	 Panasonic ideas for life		 SGMICRO
 Sensata Technologies	 TAEJIN Technology Co., Ltd. Let us regulate it!		 RAYTAC		 QUALCOMM®
 aimtec Your Power Partner	 Union SEMICONDUCTOR	 Melexis INSPIRED ENGINEERING	 Diotec Semiconductor	 KODENSHI	 FUJITSU
 nichicon	 EVE®	 QORVO™	 FUJITSU OPTICAL COMPONENTS		 AmpliTech "Amplify Your Potential"
 sumida	 ALPHA & OMEGA SEMICONDUCTOR		 HRS HIROSE ELECTRIC CO., LTD.	 OmniPreSense	
 renata batteries SWATCH GROUP	 Firstohm®	 Coilmaster®	 TDK	 ignion™	 AMCOM COMMUNICATIONS The RF Power House
 AKM	 YAGEO	 Dexerials		 mercury	 CT Micro International Corporation
 Beltek					
 XSENS	 MtronPTI® Your Destination for RF Components and Solutions	 OMNIVISION™		 HOPERF	 HONGFA
 ABLIC SII		 MITSUBISHI ELECTRIC		 ATTEND Connect to Your Success	
 PRISMATIC					
 TAIWAN SEMICONDUCTOR		 DEGSON®	 MCV MICROWAVE	 Futaba	 F'DK
 Churod Electronics		 IKSemicon		 vergiga semiconductor	 MinebeaMitsumi Passion to Create Value through Difference
 CAS SCAI		 SUNON®		 SCC 深南电路股份有限公司 SHENNAN CIRCUITS CO., LTD.	