



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

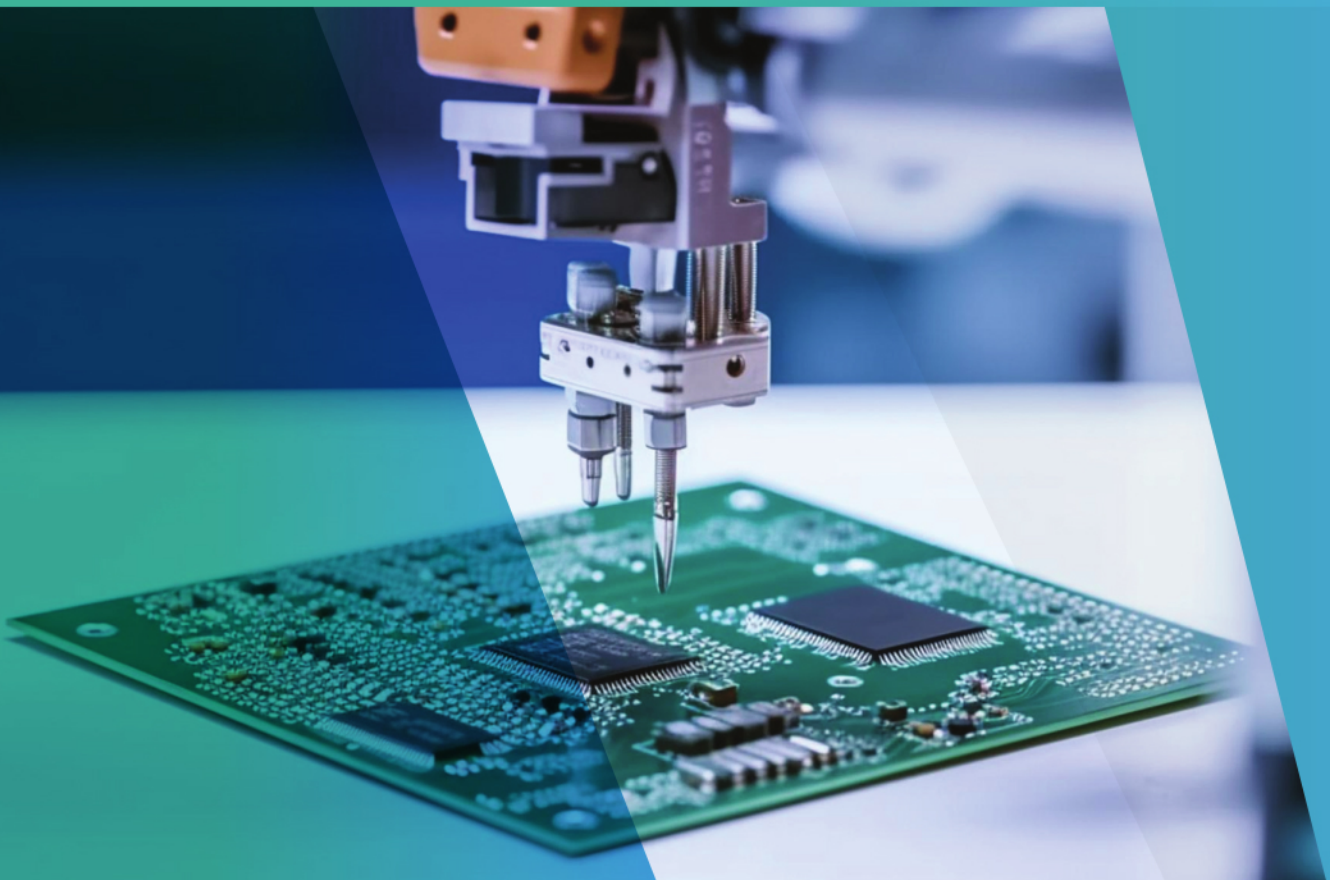
Innovation Is A Change That Unlocks Value.

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

EV Charger 350Watts	03
EV charger - 750Watts	05
EV charger - 1.5KWatts.....	07
2 Wheeler Cluster / Andriod - Quectel SC200R	09
2 Wheeler Cluster / RA6M3 MCU / TFT Display (5/7")	11
2 Wheeler Cluster / RA6M4 MCU / EBN Display	12
USB PD-Charger	13
BLE based TPMS	15
BLE KEY FOB	16
OBD to BLE	17
Head Lamp Driver	18
Lighting Control Unit	19
Sequential LED Indicator	20
Roll Over Sensor for Two Wheeler Safety	21
	22

BLDC ceiling FAN 24V	23
Induction Cooktop	24
ADPCM and Voice Recognition	26

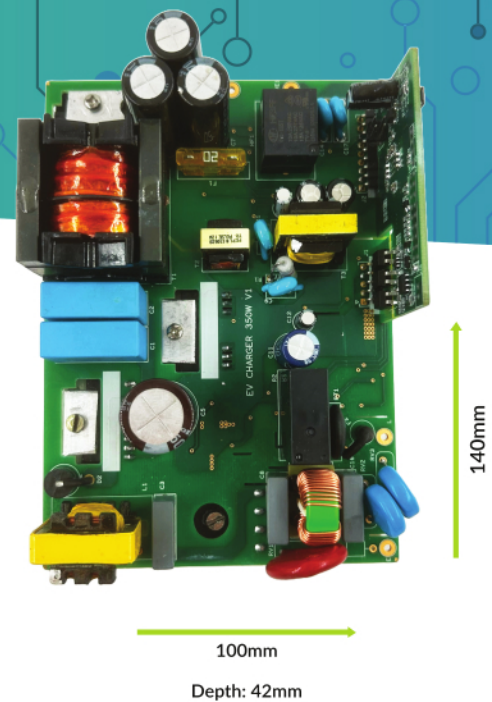
Single Phase Smart Meter	27
3P4W Panel Meter	28
LTCT Meter	29
NIC Card	30
4G Modem	31
DCU for Metering	32
Linux Based handheld POS	34
Solar Water Pump	35
Smoke Detector	36
RX111 Thermal Printer	37
RX651 Thermal Printer - Multi Language.....	38

L1 Registered Fingerprint Module	39
L1 Registered Fingerprintg EVK Module	40
IRIS and Fingerprint	41
IRIS without TFT	43
ABEAS with Fingerprint / 1:1 Match	44
Access Control System / 1:N Match	45
NVR(RZ/G2N) - 16 / 32 Camera	46

EV CHARGER-350W

Description

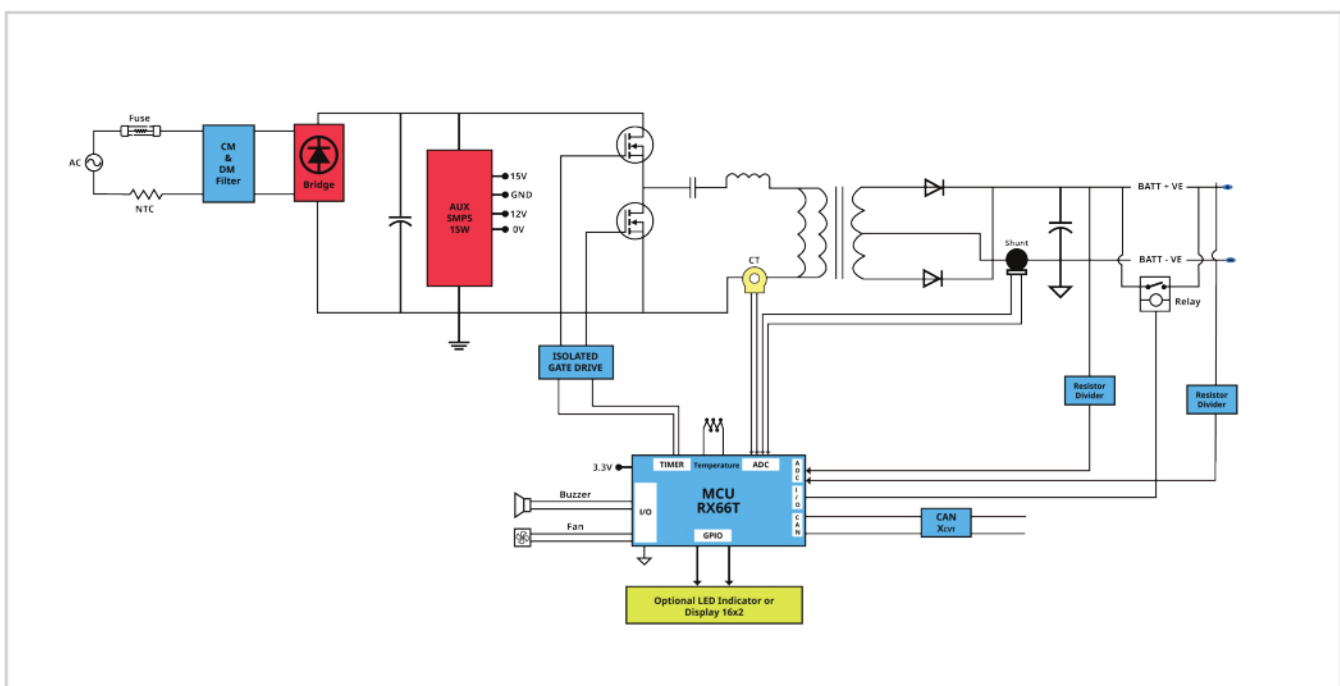
The off-board EV Charger with digital half bridge LLC topology uses mathematical model to achieve high energy density, increasing safety, reducing weight, and improving efficiency, with AIS156 standards. It supports different battery types, and charging methods include pre-charge, CC, CV, CP, floating/trickle, or power exchange on can command this platform can support up from 0.2KW~1.5KW



Features

- Charge voltage 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
- Earth leakage detection: input RCD 30mA at plug input to meet AIS156
- On-board/portable charger have CAN, UART to communicate with BMS

Block Diagram



Electrical Characteristics

SPECIFICATIONS	VALUE	SPECIFICATIONS	VALUE
Max. Output Power	120W~350W	Nominal Default Voltage	51.8VDC
Rated Power	290W	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	<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

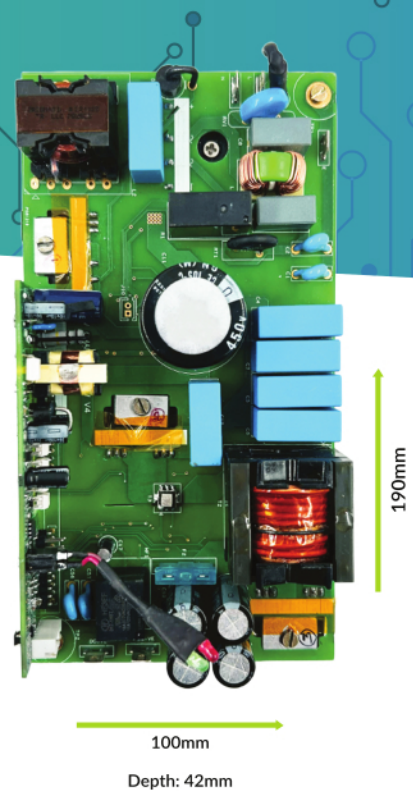
Test Procedure

PROCEDURE	REMARKS	PROCEDURE	REMARKS
LPS	Tested	Soft Start Time	1 Sec
Power Factor Of PFC at Universal Operating Range	120-270	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

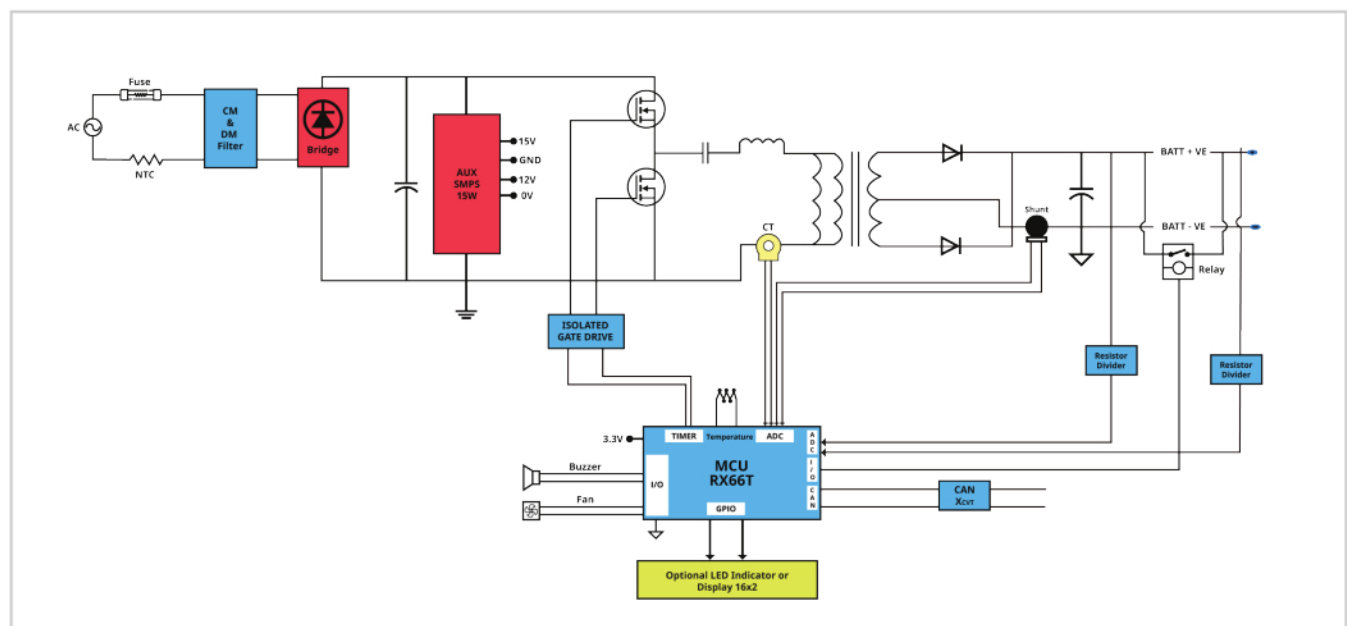
The off-board EV charger with digital half bridge LLC topology uses mathematical model to achieve high energy density, increasing safety, reducing weight, and improving efficiency, with AIS156 standards. It supports different battery types, and charging methods include pre-charge, CC, CV, CP, floating/trickle, or power exchange on CAN command this platform can support up from 0.2KW~1.5KW



Features

- Charge voltage 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 wide input supply 120V~280V
- Earth leakage detection: Input RCD 30mA at plug input to meet AIS156
- On-board/portable charger have CAN, UART to communicate with BMS

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 and Overvoltage Without Jitter	Over Current and 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

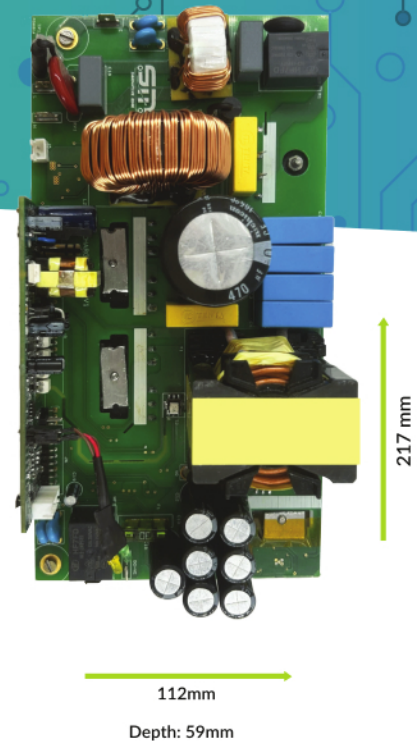
PROCEDURE	REMARKS	PROCEDURE	REMARKS
LPS	Tested	Soft Start Time	1 Sec
Power Factor Of PFC at Universal Operating Range	110-240	Current And Voltage Protection	Tested
Constant Voltage Minimum And Maximum Range	35-60	CAN Communication	Tested
Constant Current Minimum And Maximum Range	1 to 14	Overall Efficiency	95%

EV 750W Variants	48V, 16A	60V, 12.5A	72V, 10.5A
------------------	----------	------------	------------

EV CHARGER-1.5KW

Description

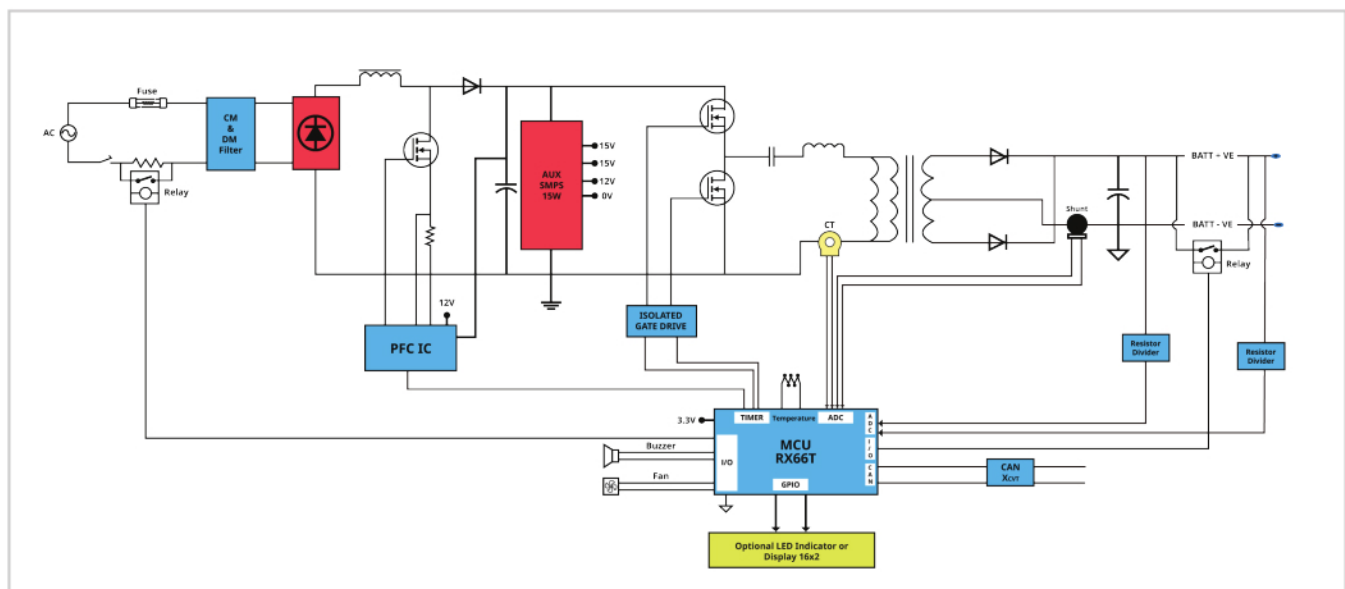
The off-board EV charger with digital half bridge LLC topology uses mathematical modelling to achieve high energy density, increasing safety, reducing weight, and improving efficiency, with AIS156 standards. It supports different battery types, and charging methods include pre-charge, CC, CV, CP, floating/trickle, 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 120v ~ 280v
- Earth leakage detection: Input RCD 30mA at plug input to meet AIS156
- On-board/portable charger have CAN, UART to communicate with BMS

Block Diagram



Electrical Characteristics

SPECIFICATIONS	VALUE	SPECIFICATIONS	VALUE
Max. Output Power	1200W~1500W	Nominal Default Voltage	51.8VDC
Rated Power	1500W	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	<10A	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	25A	No Load / Standby Power Consumption	<1.5W
Max Output Current (33-60V I/P, Continuous)	28A0.5A	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 28	Overall Efficiency	95%

EV 1.5KW Variants	48V, 28A	60V, 25A	72V, 20A
-------------------	----------	----------	----------

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.

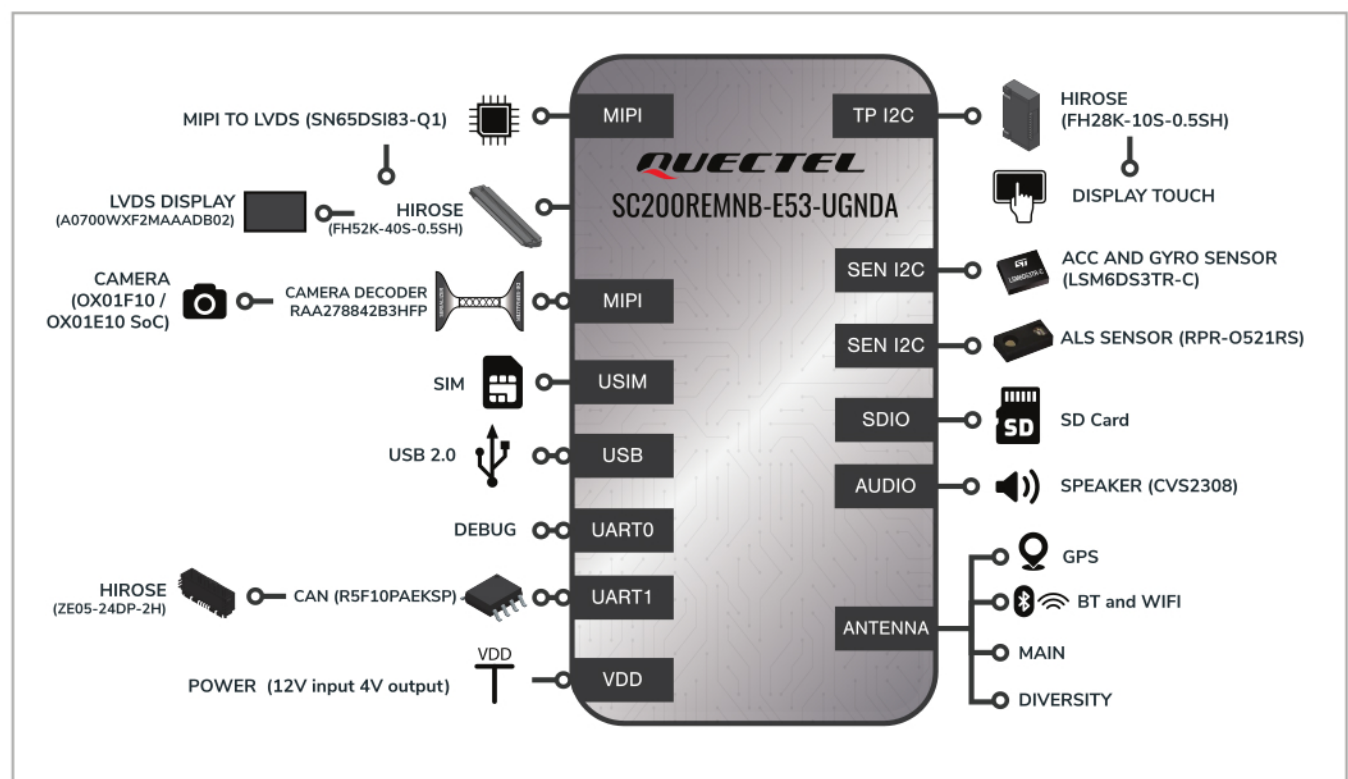


This design has also been upgraded with wireless capabilities for connecting to smartphones, transforming a traditional cluster into a smart one. When developing an Android two-wheeler cluster application, it's crucial to consider safety and ease of use while riding.

Applications

- Navigation
- Weather Updates
- Smart Notifications

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)
GNSS	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.

The cluster reference platform come with evaluation versions of Tuxera RNDIS stack, with smaller footprint files system for free RTOS.



TUXERA

Make it work.

Tuxera is a software development company for embedded filesystems, flash management and network software in Finland. The company focuses on data management software for embedded systems: industry-standard file system technologies (APFS, exFAT, FAT, HFS+, NTFS), other embedded proprietary file systems, flash translation layer software, and networking stacks. This cluster also support LittleFS file system, with smaller footprint files system for freeRTOS.

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

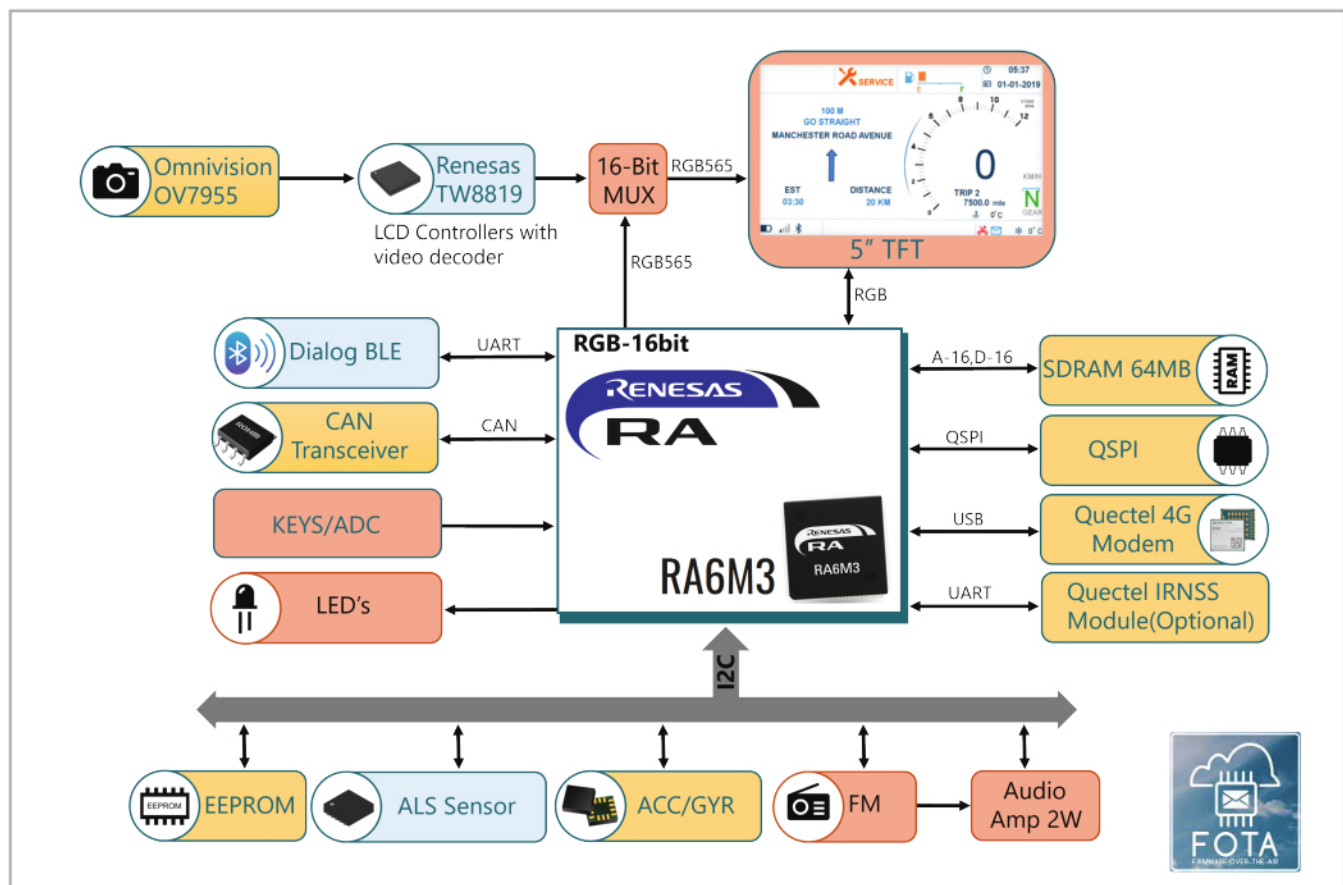
Hardware

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
GYRO & 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

Software

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

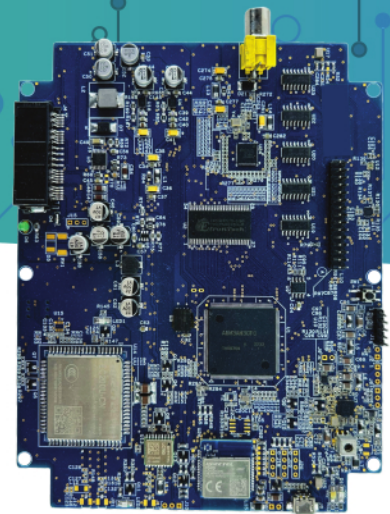
Block Diagram



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.

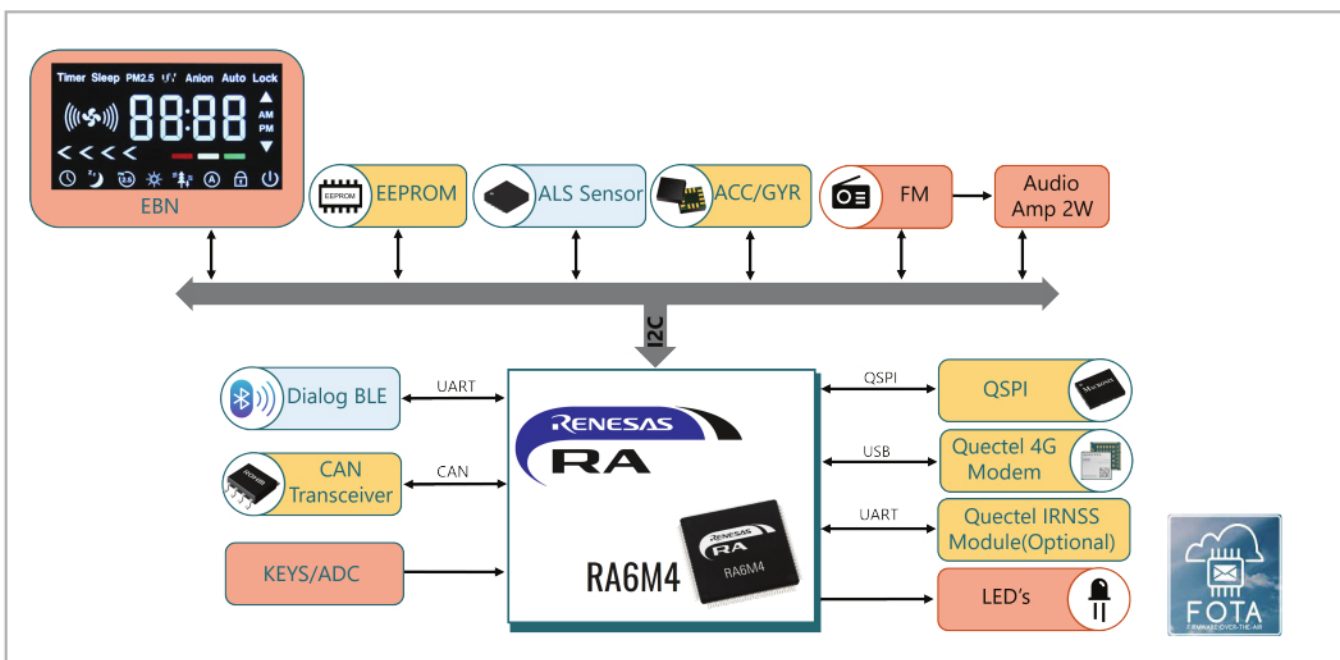


It provides essential data, connectivity choices, and safety elements, all within a streamlined and user-friendly interface tailored specifically for motorcycles. With these features it transforms a traditional cluster into a smart one. The cluster reference platform comes with evaluation versions of Tuxera RNDIS stack, with smaller footprint file system for free RTOS.

TUXERA Make it work.

Tuxera is a software development company for embedded filesystems, flash management and network software in Finland. The company focuses on data management software for embedded systems: industry-standard file system technologies (APFS, exFAT, FAT, HFS+, NTFS), other embedded proprietary file systems, flash translation layer software, and networking stacks. This cluster also supports LittleFS file system, with smaller footprint file system for freeRTOS.

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

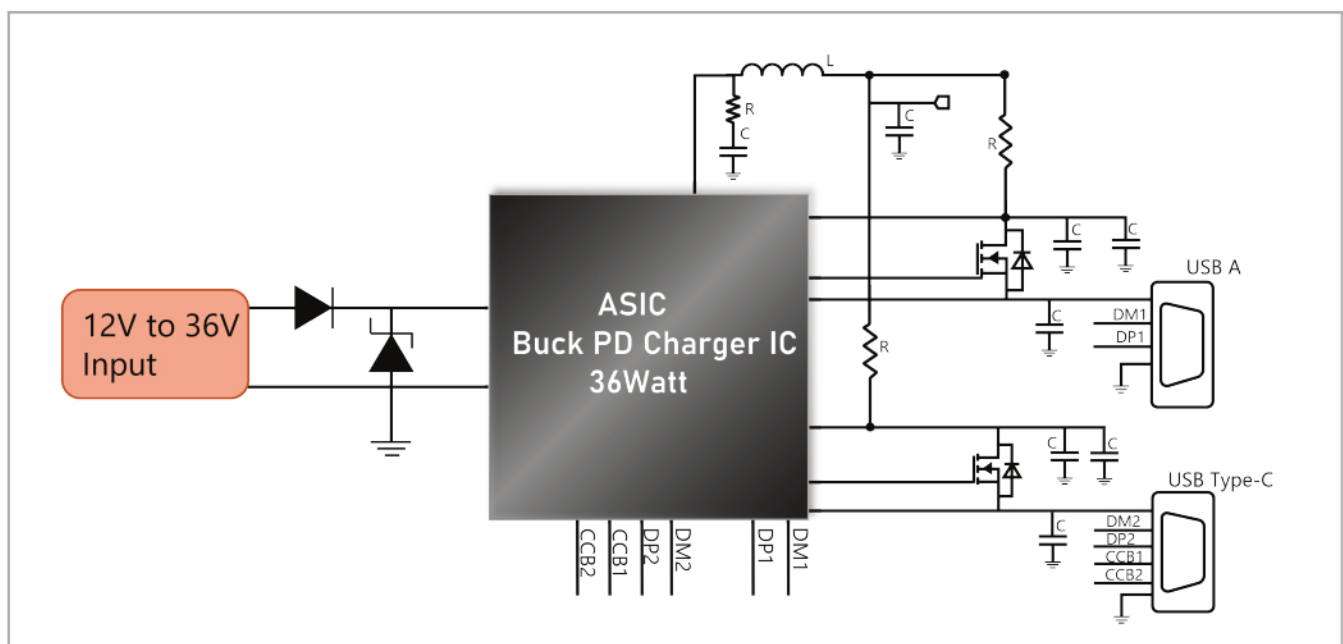
Description

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%
- **Fast Charge Output of Dual Type-C and Dual USB A Ports**
 - Supports Dual Type-A and Type-C
 - Supports Dual O/P Type-A and Type-C Respectively
 - Protocol Supports
 - BC 1.2, QC 3.0 and QC 2.0
 - Fast Charging, Samsung, Oppo, Apple, FCP and SCP
- **Type-C Protocol Output Port**
 - Output Voltage: 5V,9V,12V,15V,20V
 - Supports PD2.0/3.0(PPS) Output Protocol
 - Supports PPS Voltage: 3.3~21V With 20mV/step Output

Block Diagram



TPMS

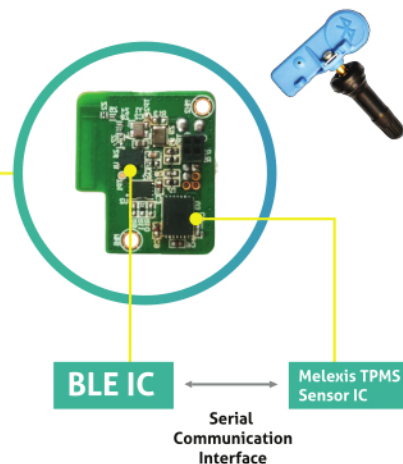


Description

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

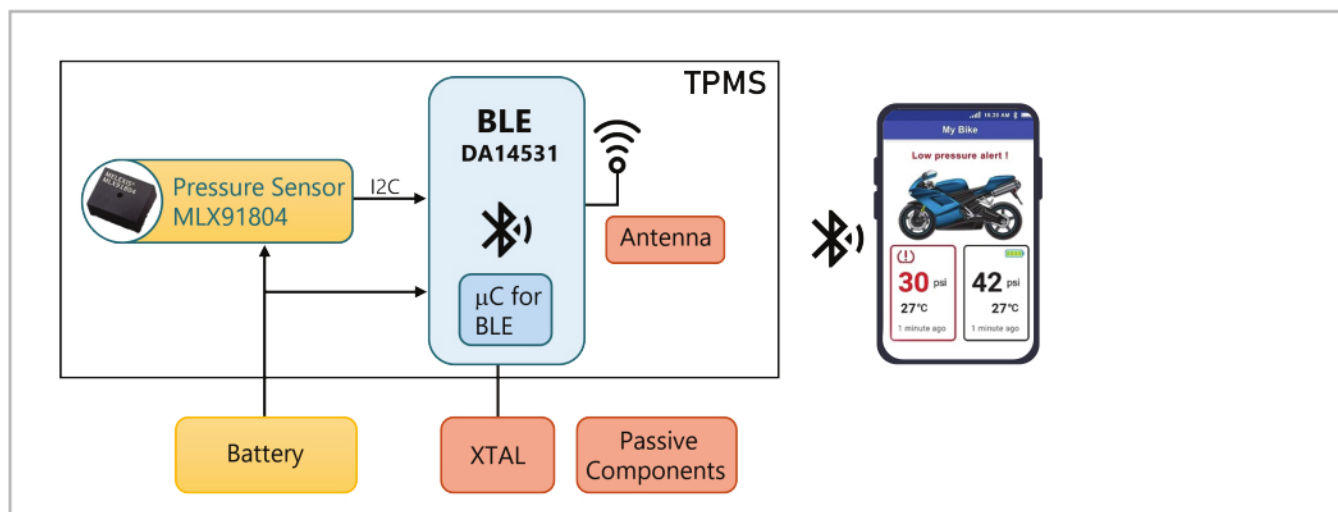
- Automotive Safety
- Off-Road Vehicles



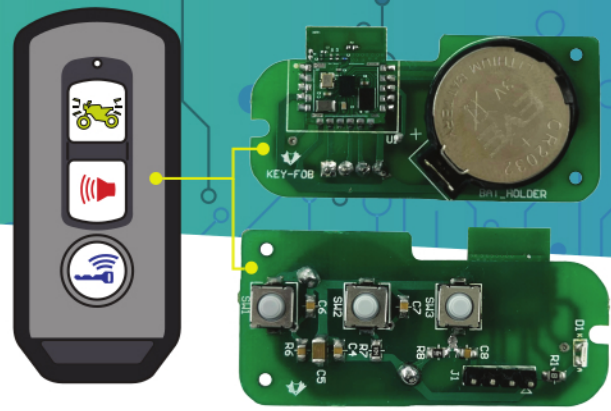
Specifications

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



KEY FOB



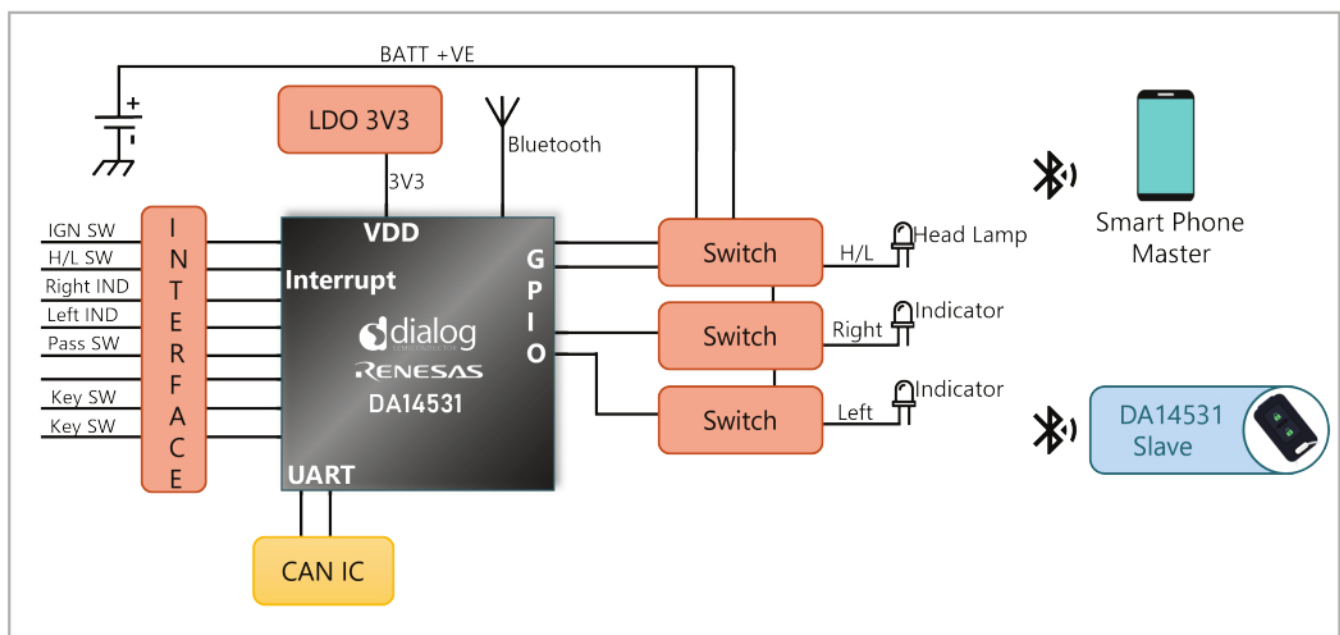
Description

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.

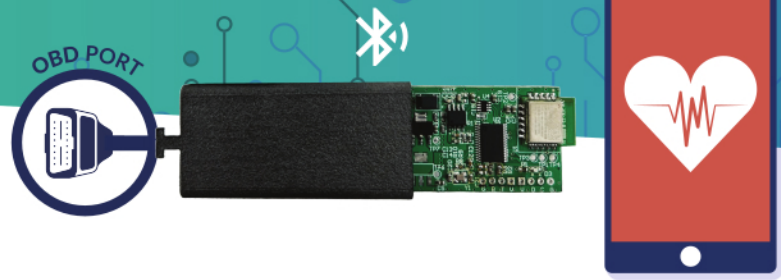
Features

- 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



OBD TO BLE



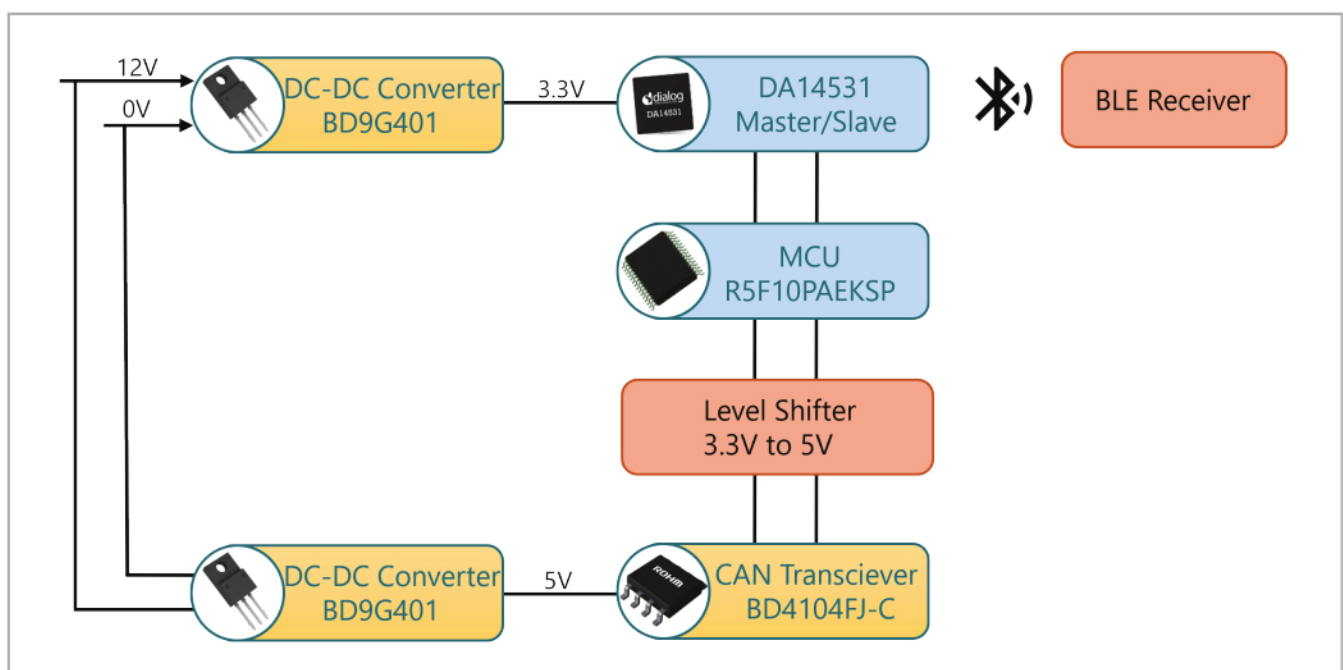
Description

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

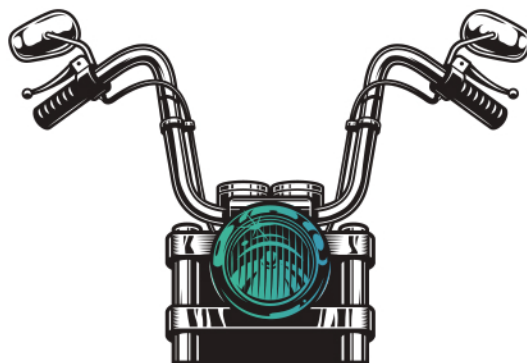
Block Diagram



HEAD LAMP DRIVER

Description

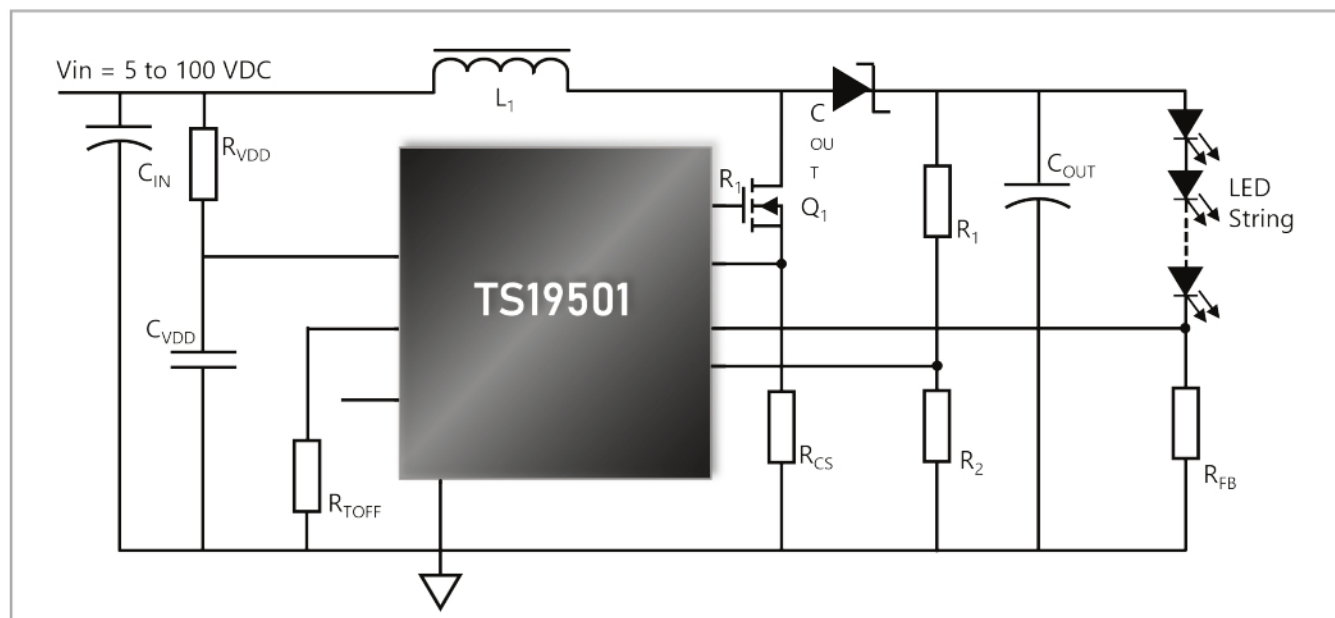
A headlamp driver acts as a power regulator and controller for the headlamp system, ensuring the proper functioning of the bike's lighting system. The headlamp driver plays a vital role in providing adequate illumination for the rider during low light conditions, such as at night or in foggy weather.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

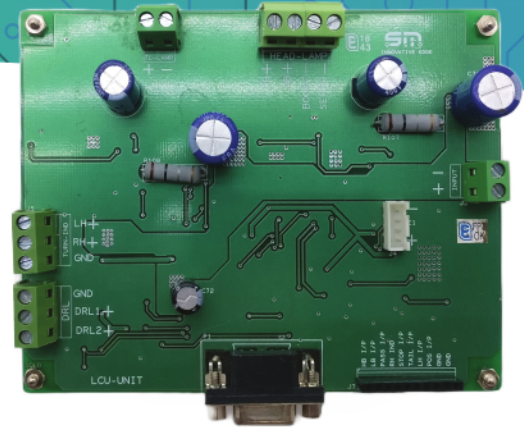
Block Diagram



LIGHTING CONTROL UNIT

Description

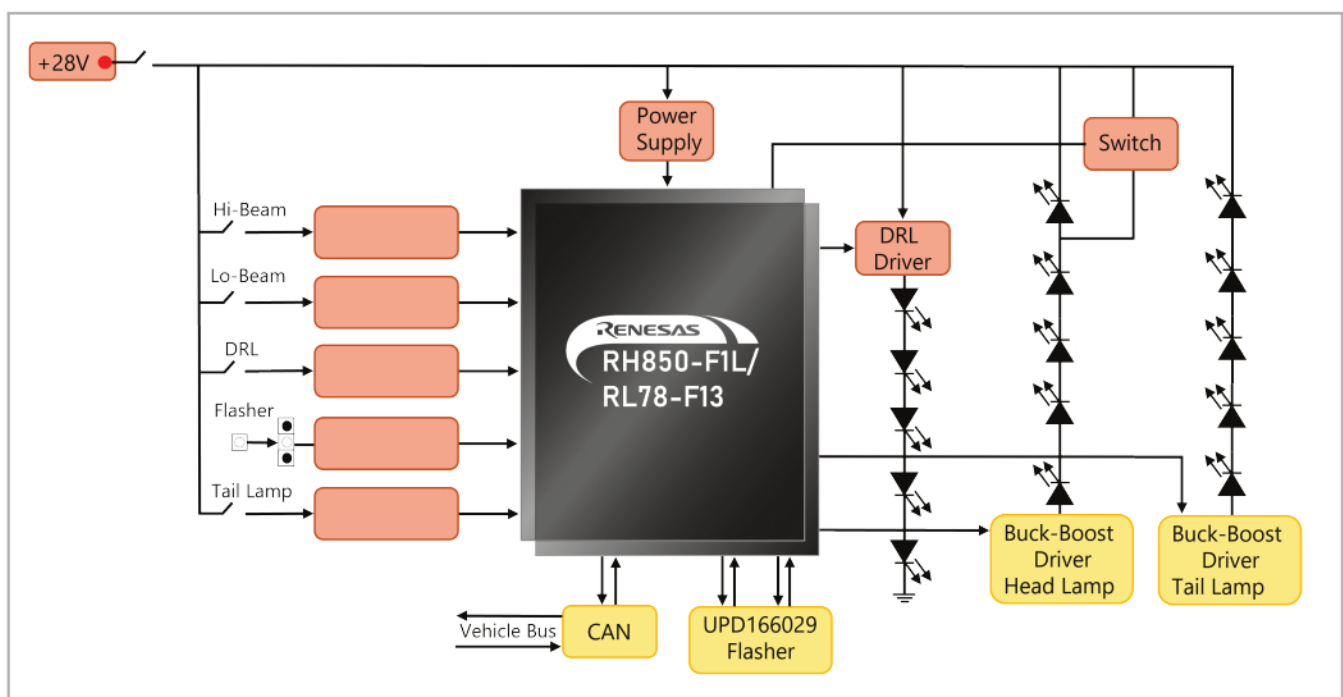
LCU demonstrated here is built around renesas RL78-F13 microcontroller, dual channel UPD for flasher, linear DRL and buck boost driver for head lamp and tail lamp. With the help of diagnostic feature we can compliance the ASIL standard. RL78-F13 for class B LCU RH850-F1L for class D to meet Fu-Sa requirement. It is used in automotive applications.



Features

- Scalable driver power stage. Buck and buck - boost
- Diagnostic feature available for fault detections
- Buck and buck-boost for head lamp and tail lamp driver
- LED Configuration 2LED – 15LED
- Short circuit protection LED anode to body GND
- High side IPD is used for flasher so we can program the flasher time
- Doubling can be done easily with IPD I sense
- It will save the cost / no of LOAD dump IC used in vehicle and wire harness
- Easy interface to VCU Via CAN

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.



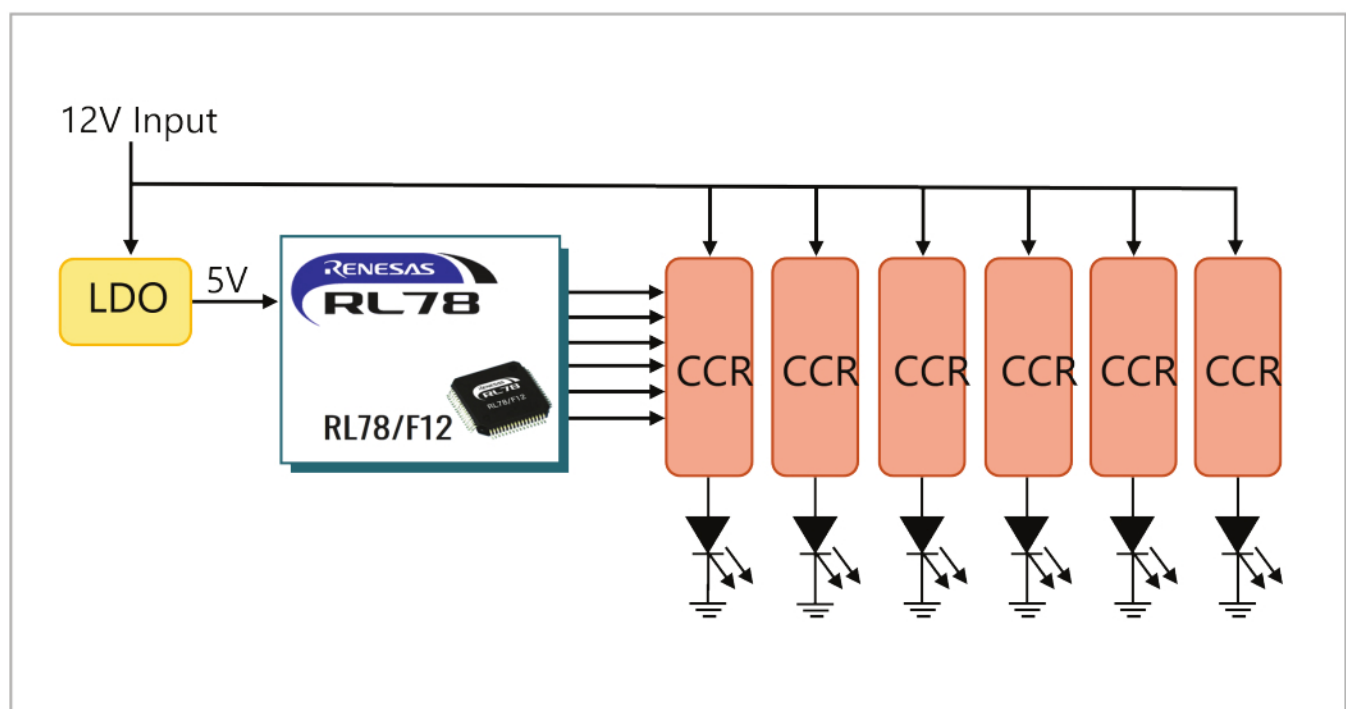
Features

- 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

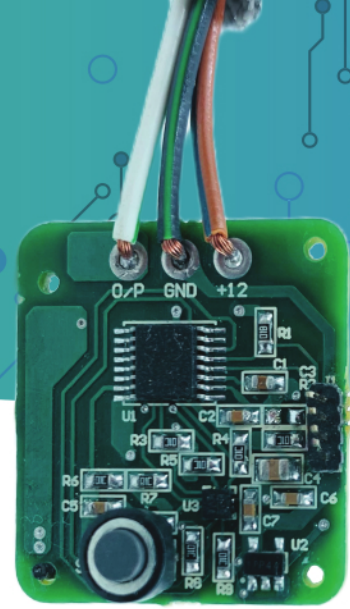
Applications

- 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 & engine kill switch, wait for a few seconds & switch "ON" again.

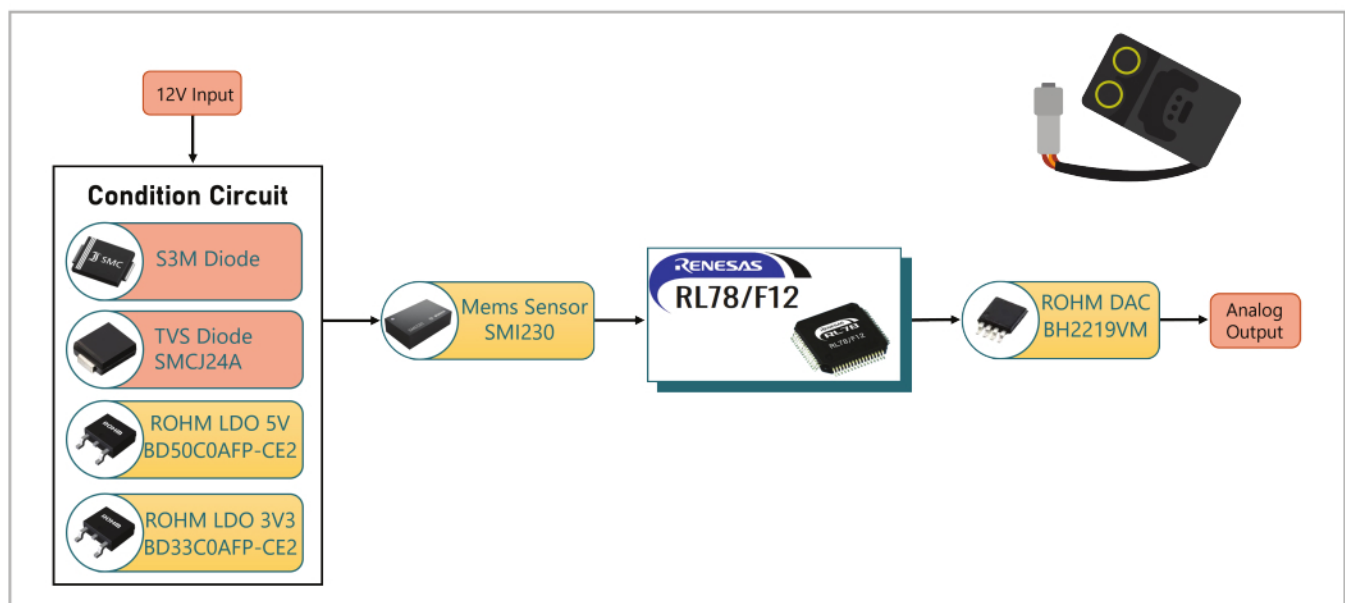
Features

- 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.

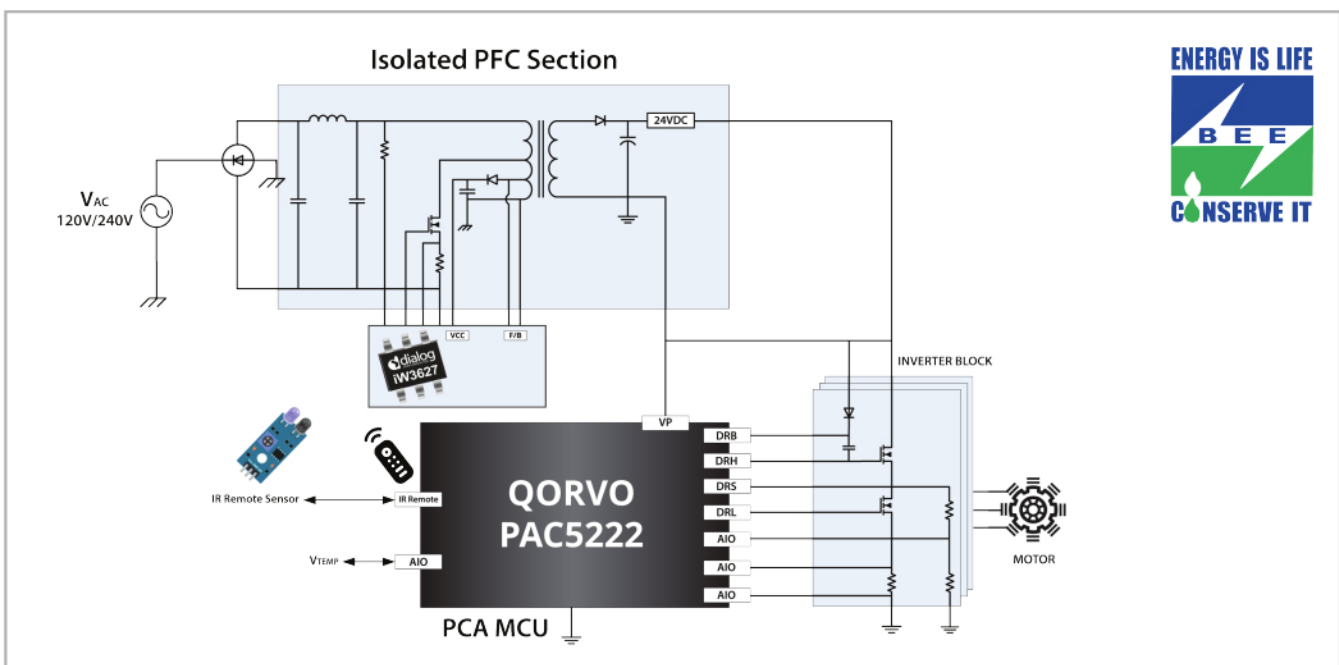
Features

- 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 add-ons features like IPD (Initial position detection), SIM (Start in motion), braking and field weakening.

Applications

- Electric vehicles
- Robotics
- Industrial automation
- Home appliances

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.

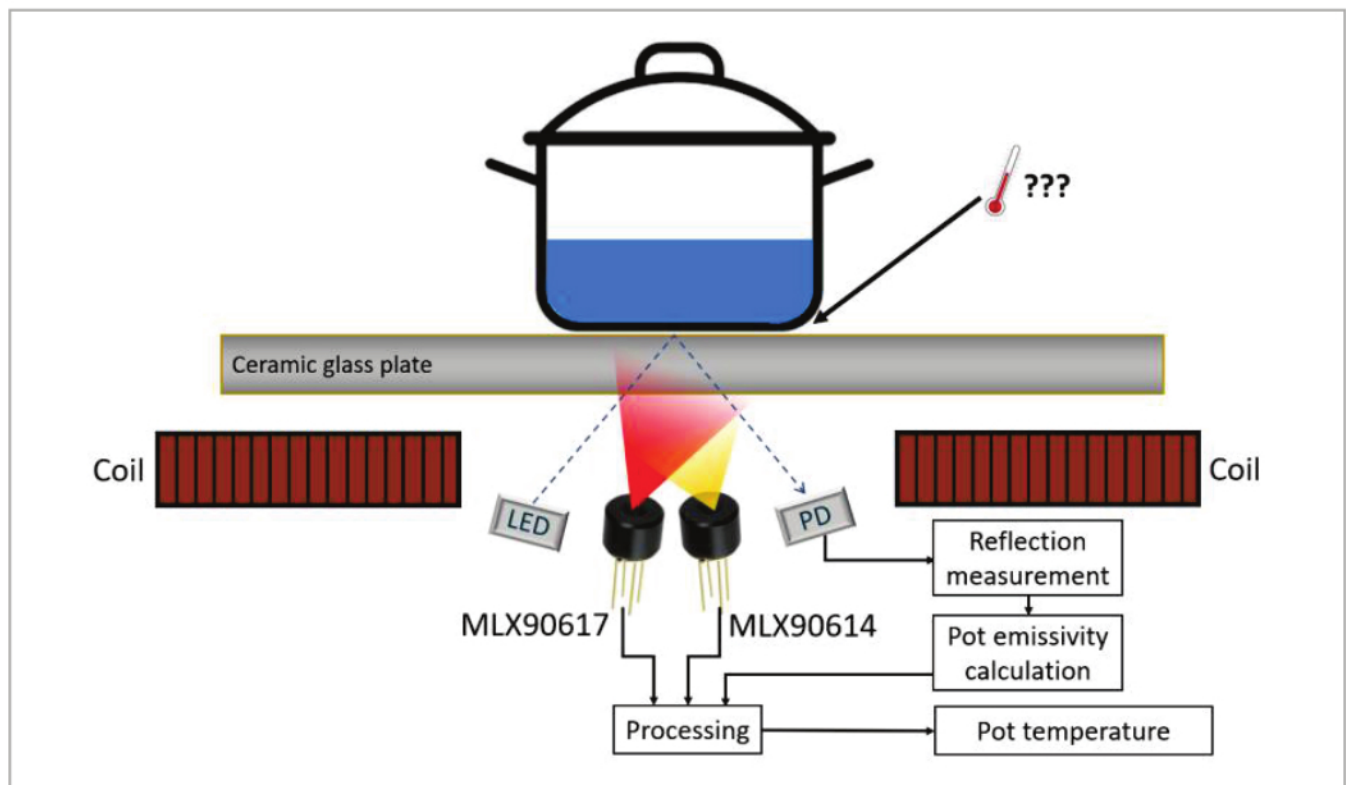
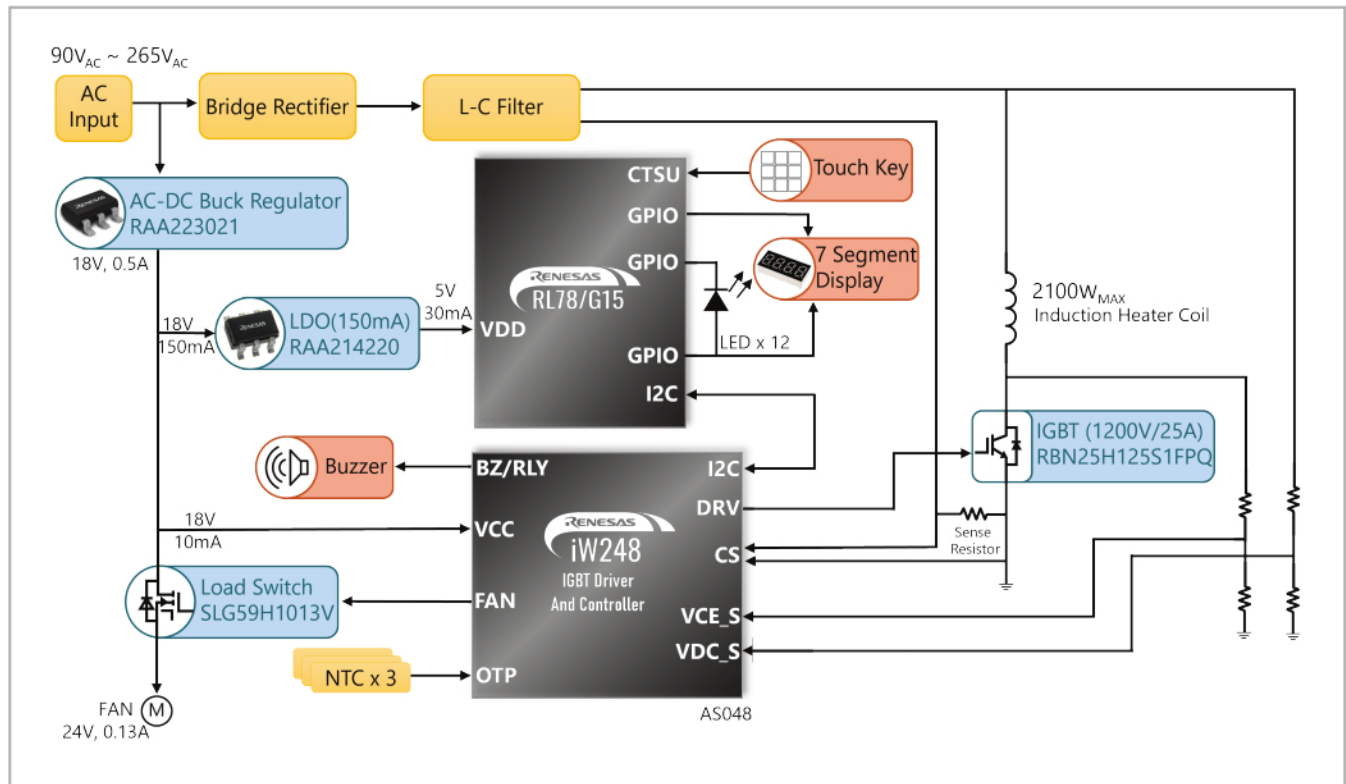
Features

- 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
- MLX90617 can overcome glass plate physical barrier and receive radiation from pot bottom

Applications

- Induction Heating Applications

Block Diagram

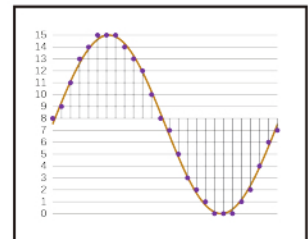
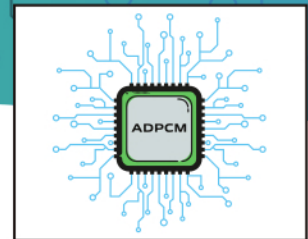


ADPCM AND VOICE RECOGNITION

Description

Adaptive differential pulse-code-modulation (ADPCM) is a simple, moderately efficient technique for digitally encoding and storing speech signals. Signals typically can be represented with acceptable quality by 4 bits of adaptive quantization per nyquist sample. The ADPCM code format is therefore convenient for use with currently evolving renesas RA based microprocessors. 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.

Adaptive differential pulse code modulation (ADPCM) is a very efficient digital coding of waveforms. Voice commands are recognised by the I2S communication and MCU will respond over the external speaker through ADPCM.



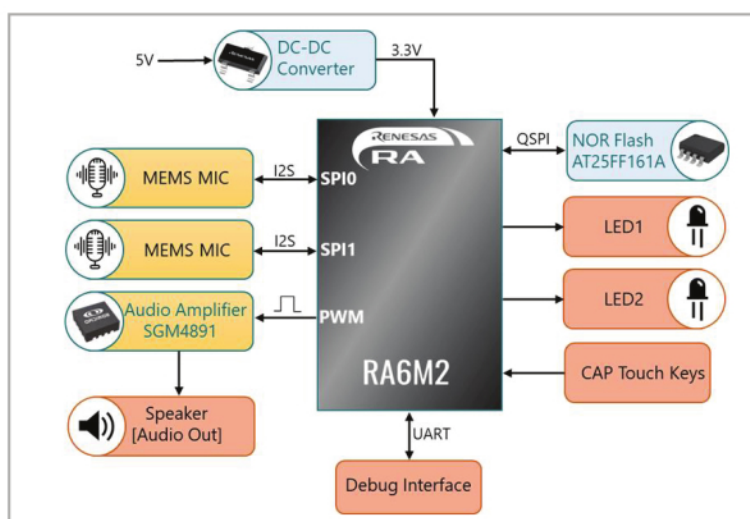
Features

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

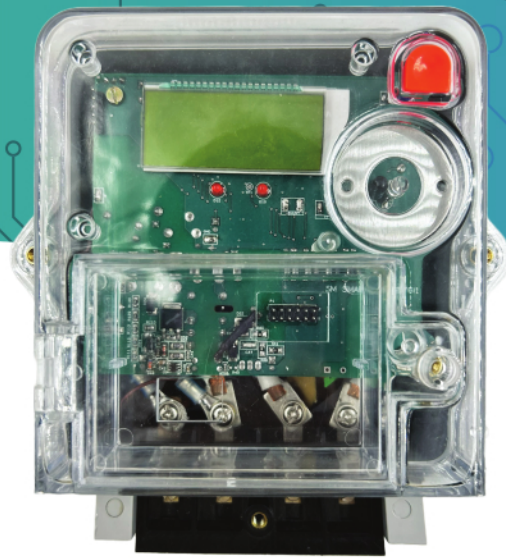
Applications

- 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.

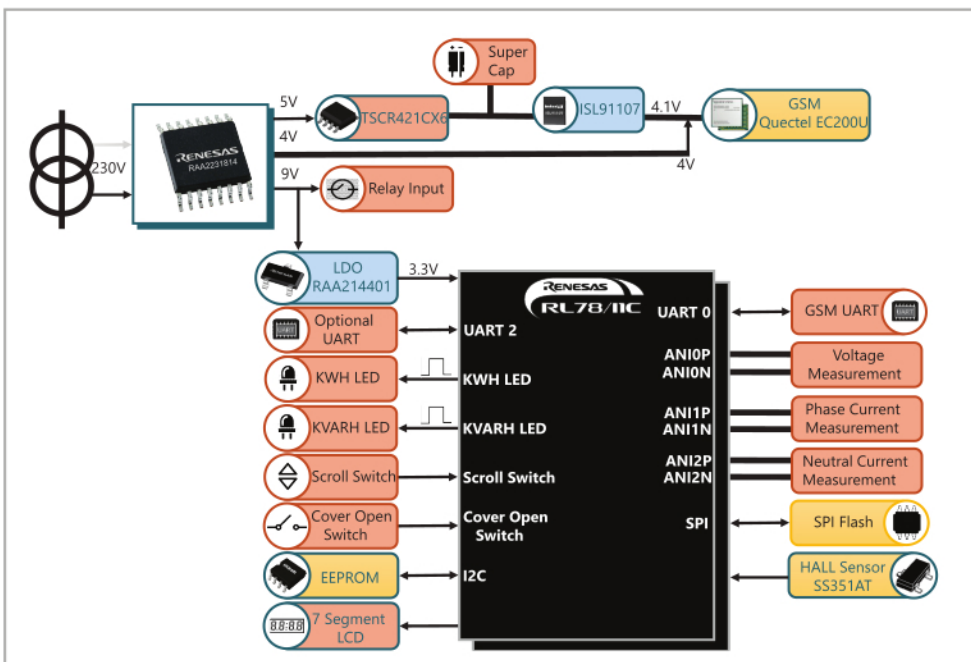
Features

- 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
- Billing Accuracy

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.

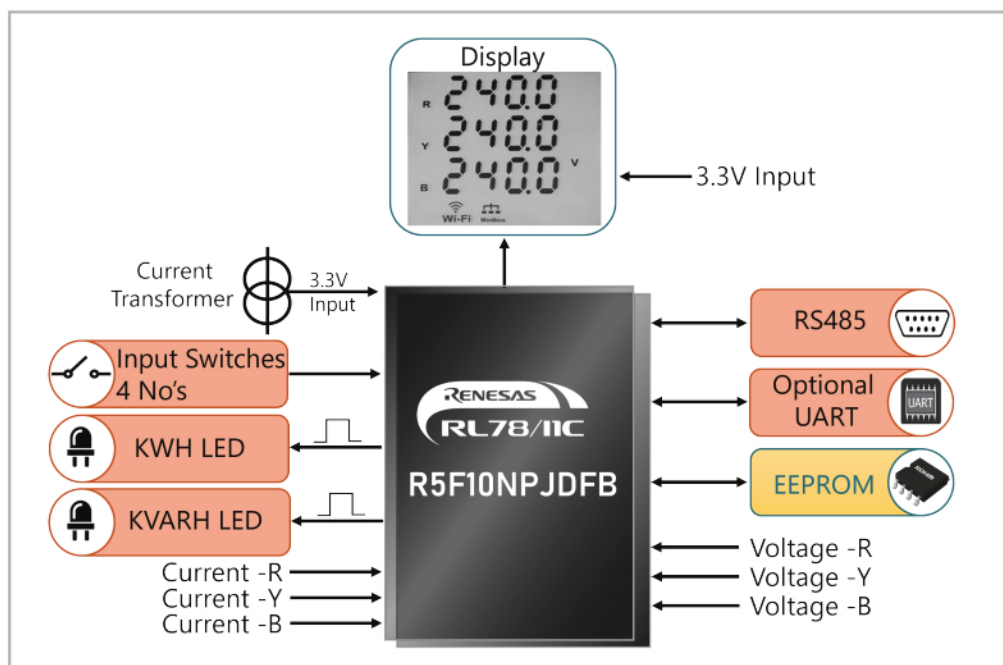
Features

- 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



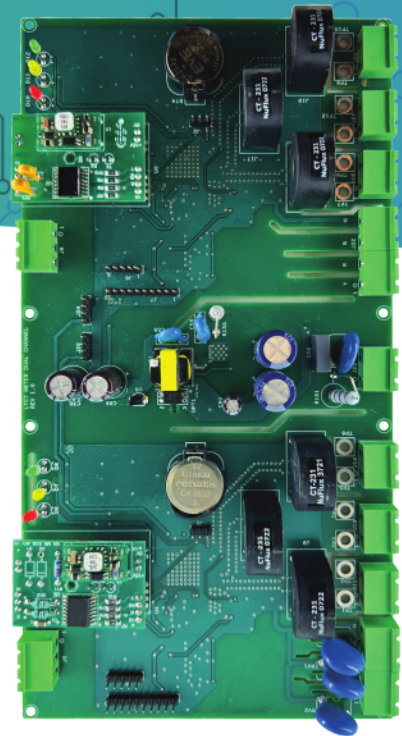
LTCT METER

Description

Low Tension Current Transformer Meter (LTCT) is used to record power consumption of loads ranging from 26 kW to 99 kW. It is a combination of a current transformer (CT) and an energy meter. LTCT meters are highly accurate and reliable.

Features

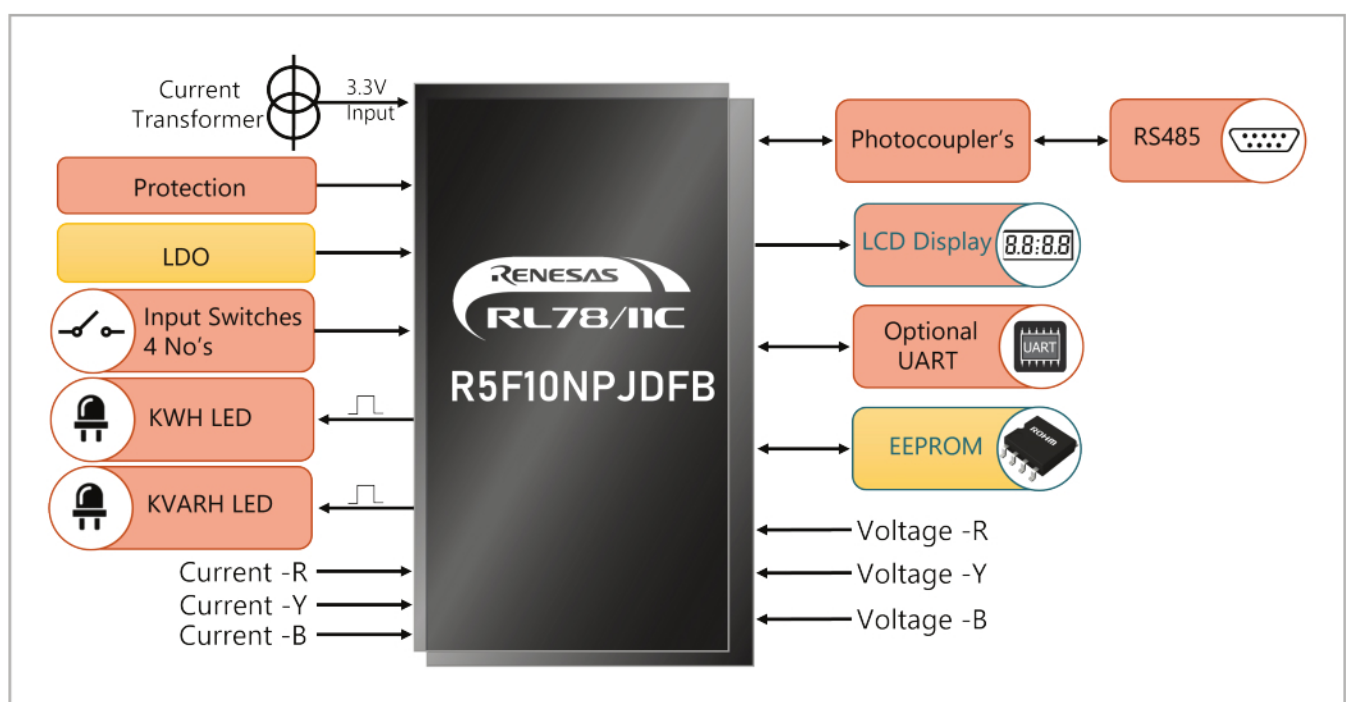
- Meter Accuracy : Class - 1
- Base Current : 1A / 5A
- Max Current : 30A
- Auxillary Supply : 120V - 240V AC
- Communication : RS485 (Modbus PProtocol)
- Harmonics : Detects upto 21st Harmonics



Applications

- Renewable Energy Applications
- Industrial Settings
- Smart Grid Systems
- Commercial Settings

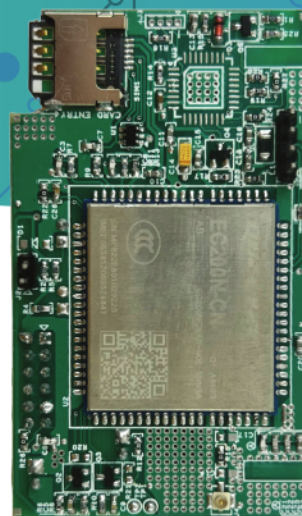
Block Diagram



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 & three-phase electricity meters and leverages any available network to form a highly resilient network for the utility.

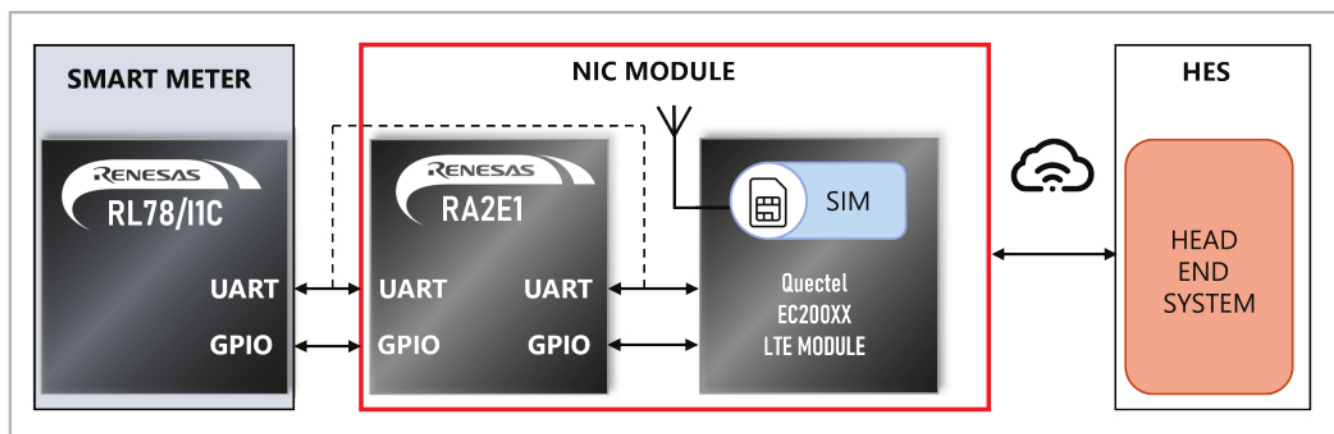
Features

- 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

Applications

- Smart Meters

Block Diagram



4G MODEM

Description

A 4G modem is a device that allows you to connect to the internet via a 4G mobile network, providing fast and reliable internet connectivity. Compared to traditional wired internet connections, a 4G modem offers increased mobility and enables internet access without the requirement of a physical wired connection.

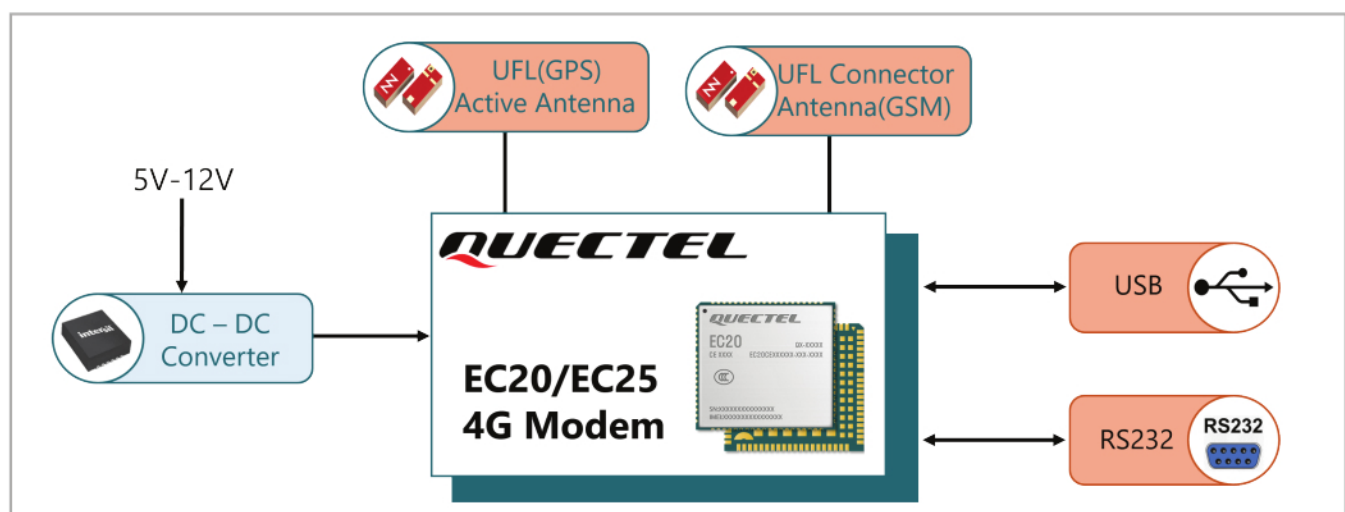
Features

- UART Interface 9.6 to 921.6 kbps
- One 50 Ohm SMA female connector supporting 1 monostatic antenna
- DC voltage range: 5V/2AMP
- LTE high speed packet access
 - LTE FDD: DL upto 150Mbps/UL upto 50Mbps
 - LTE TDD: DL upto 130Mbps/UL upto 35Mbps
- LTE category 4 module optimized for M2M and IoT applications
- Worldwide LTE, UMTS/HSPA+ and GSM/GPRS/EDGE coverage
- Mult-constellation GNSS receiver available for applications requiring fast and accurate Fixes in any environment
- MIMO technology meets demand for data rate and link reliability in modem wireless Communication systems

Applications

- Mobile Internet Connectivity
- Remote Access
- IoT Applications
- Rural Broadband

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.

The specific functionality and features of a DCU depends on the application and the industry in which it is used.

Features

- Processor: RISC-V CPU single core (AX45MP) 1.0 GHz
- Memory: RAM-512MB DDR4, flash- 8GB eMMC, SD-16GB (External)
- Interfaces: RS232, USB2.0, RS485
- LED indications: Network, power and RF data communication
- Inbuilt real time clock (RTC) with battery backup
- Time synchronization – MDAS server, GPRS network, SNTP, GPS (optional)
- Connectivity: 4G fallback to 3G/2G
 - 1.8/3v SIM interface
 - Internal standard SIM card holder that accepts standard / micro SIM
- Communication:
 - Wired: TCP/IP over ethernet
 - Wireless: wifi, GPRS, wirepas, wi-sun, melange, LORA
- Protocols:
 - DCU to MDAS: TCP/IP based socket /FTP
 - Others: TCP/IP, UDP, HTTP, FTP, PPP, CURL, DHCP
- EC20 LTE modem/4G SIM through USB2.0 interface to dial and connect to internet
- USB2.0 Port PPP interface throughput **
 - Upstream: Avg. speed- 565Kb
 - Downstream: Avg. speed - 1508 Kb

(** Depends on internet speed from service provider)

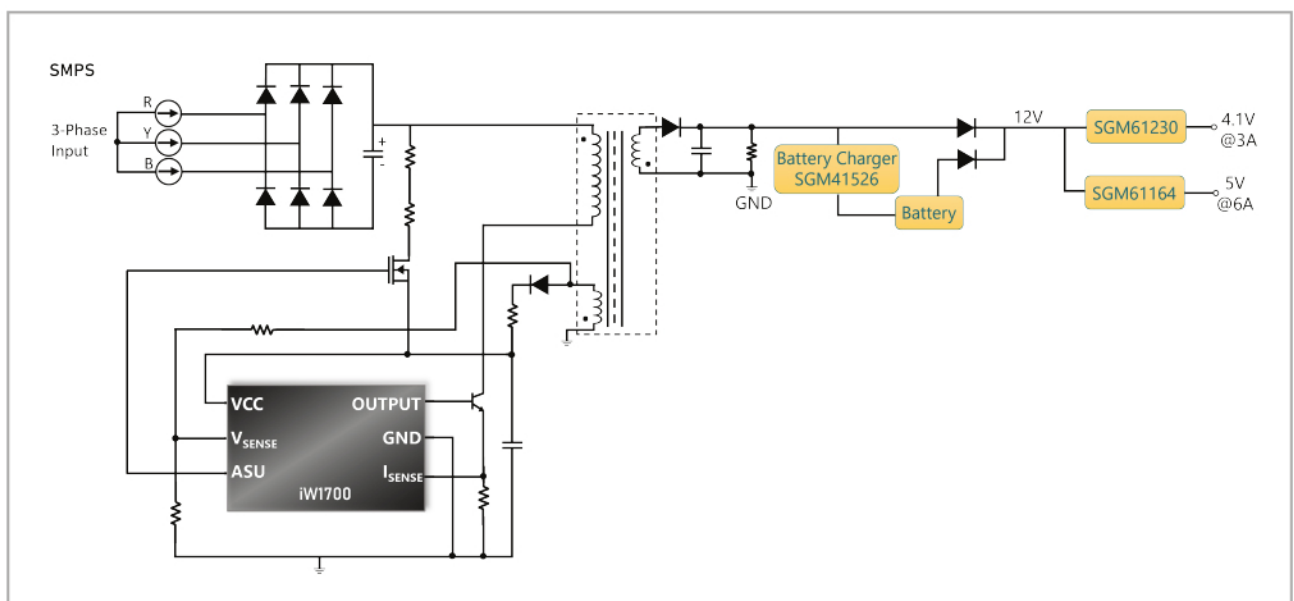
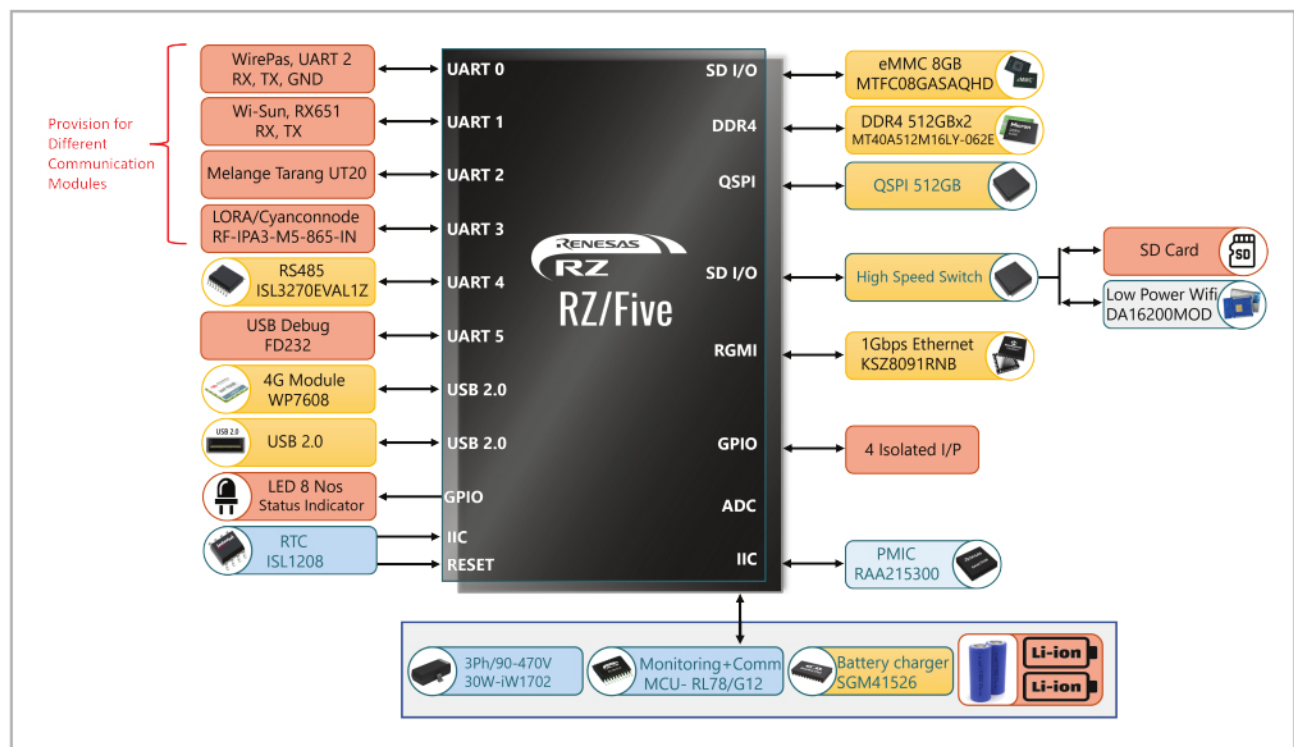
Applications

- Automatic Meter Readings:
 - Energy Meter
 - Gas Meter
 - Water Meter

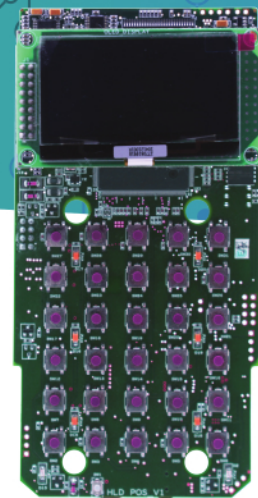
Power Supply Specs

- SMPS type: 3 Phase isolated flyback
- AC input range : 100 – 450 VAC
- PWM switcher: Low 1.7 μ A start-up current
- Zero no-load power consumption
- Active start-up circuit to reduce turn-on time
- Output voltage : 12VDC
- Output current: 3.5A
- Output power: 40W
- Efficiency: 80-85%

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.

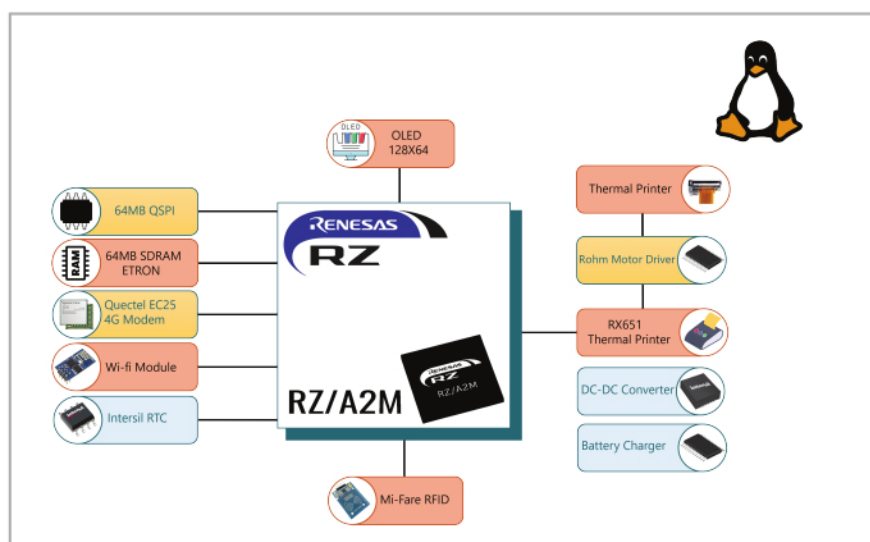
Features

- Renesas RZA1H based microprocessor
- 128x64 OLED display
- RX651 based thermal pinter
- 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.

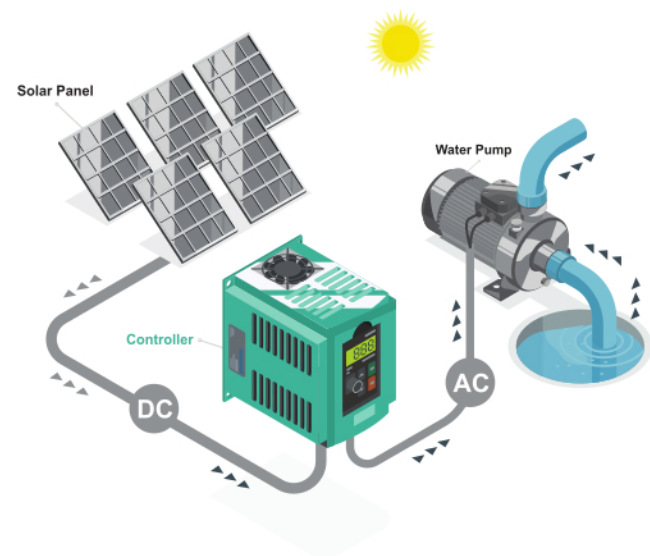


Features

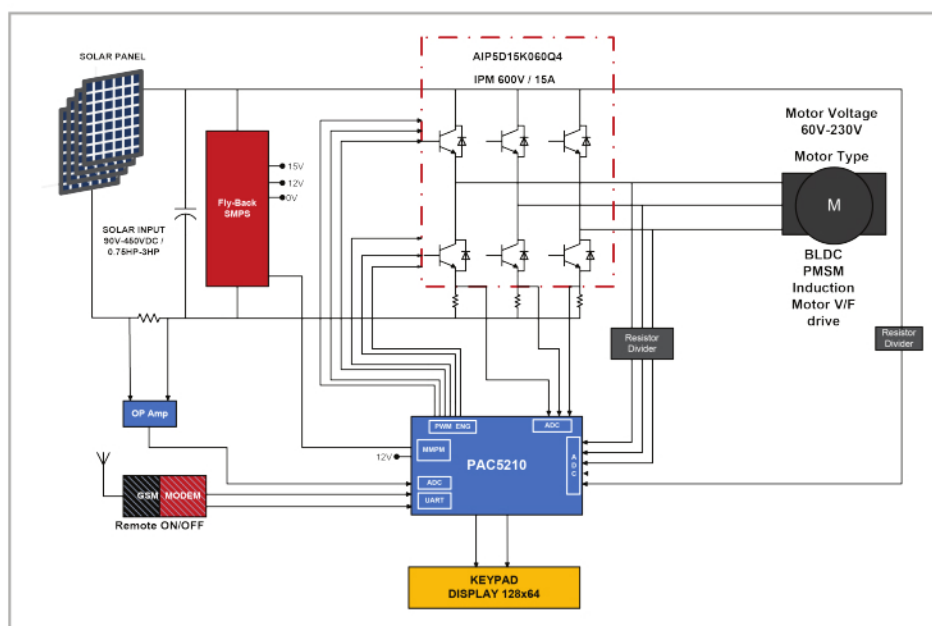
- Operating Voltage 120V-450VDC
- Output Power: up-to 2KW
- Built in MPPT algorithm
- Motor type: BLDC or PMSM
- Dry Run
- GSM interface / isolated UART
- Isolated 24VDC output for RMU
- 16x2 LCD display

Applications

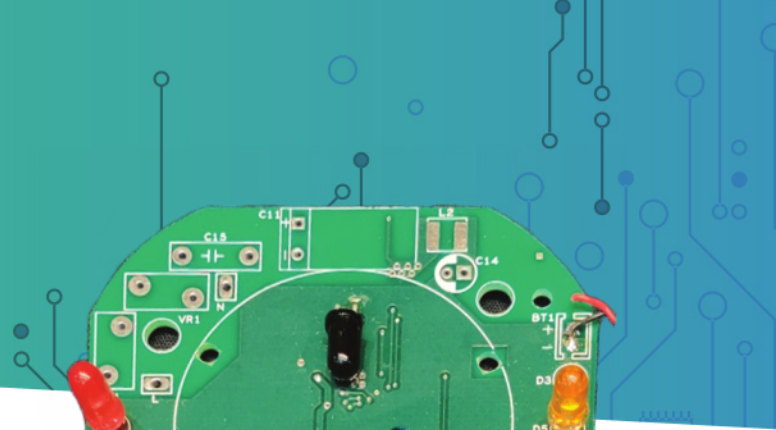
- Agricultural Irrigation
- Community Water Projects
- Domestic Water Supply



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.

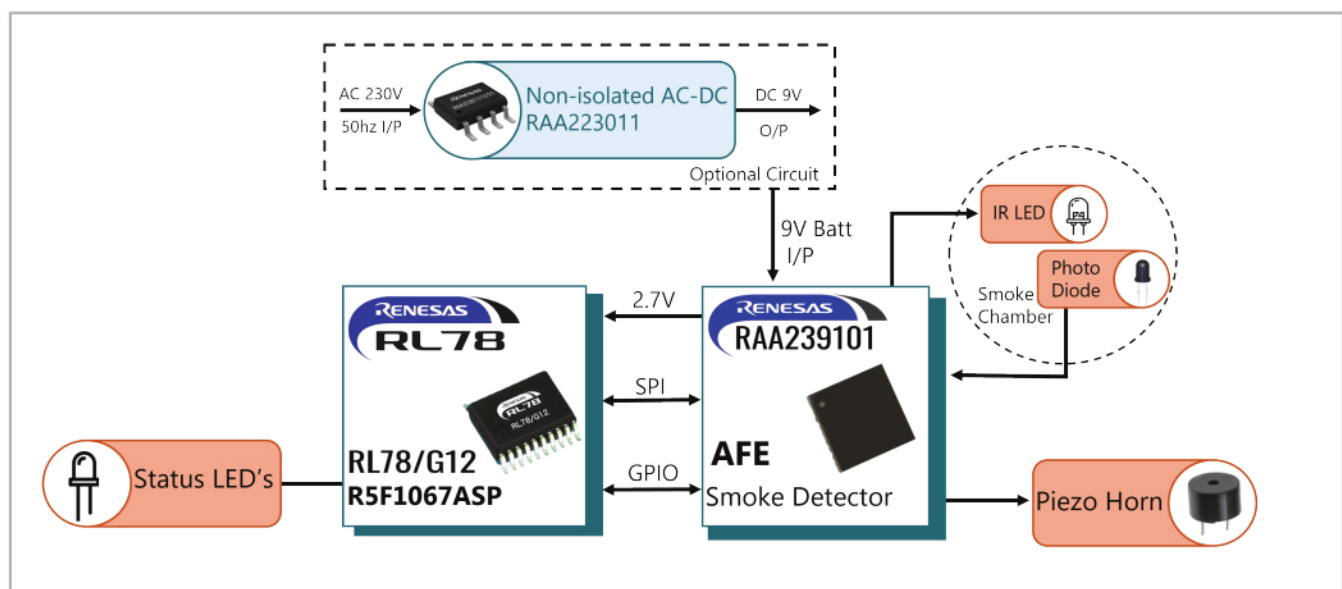
Features

- 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.

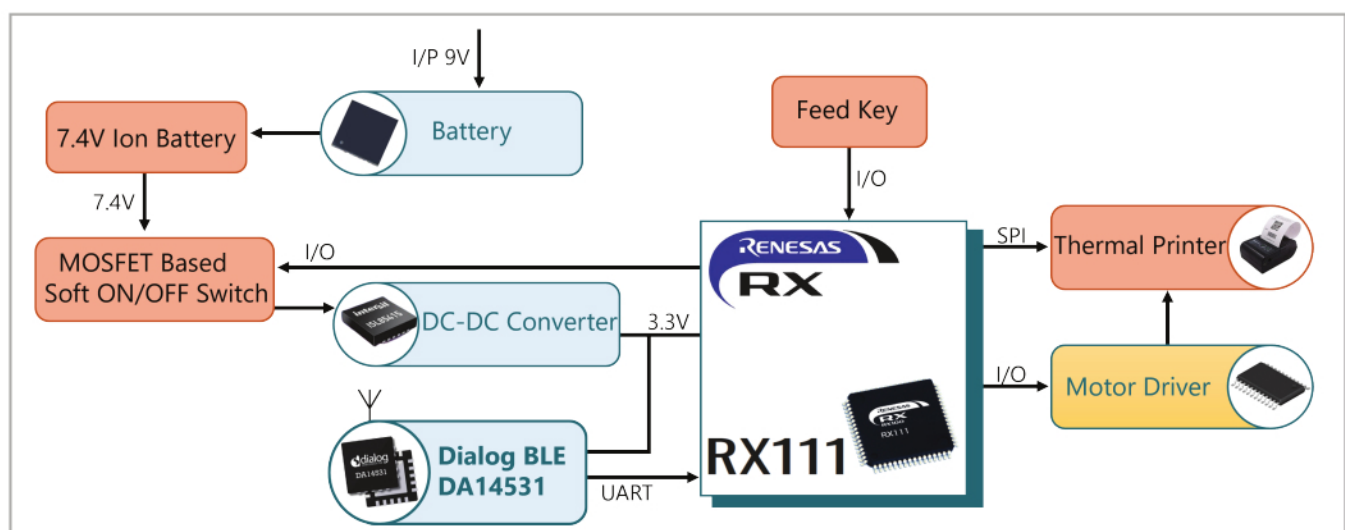
Features

- 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.

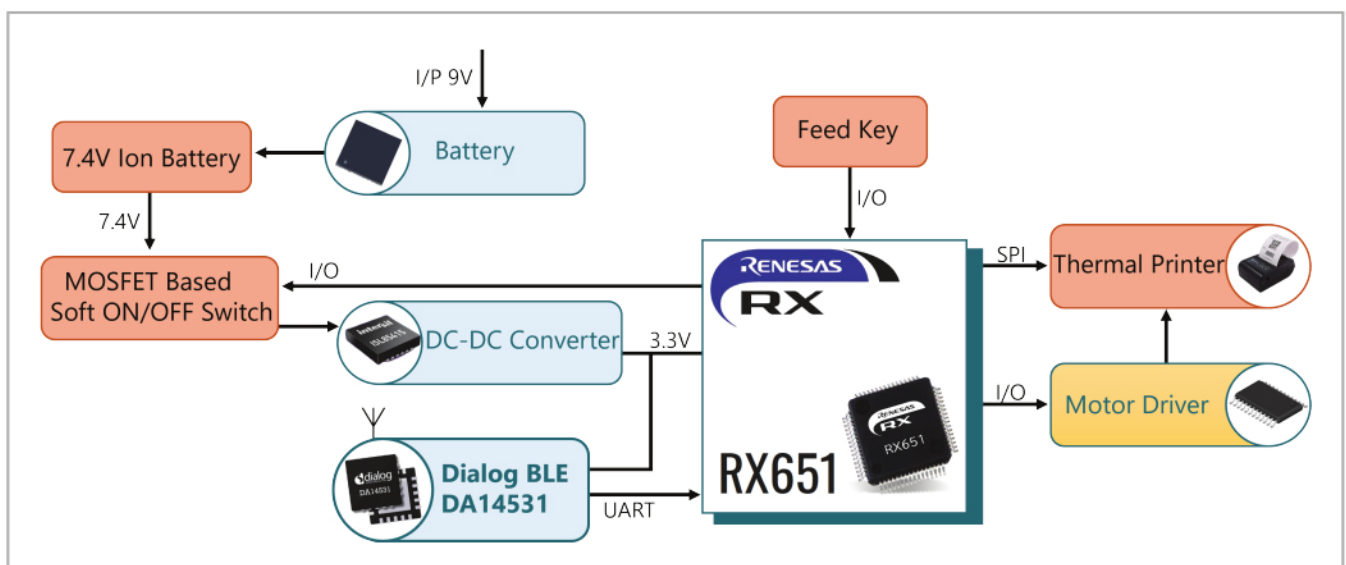
Features

- 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

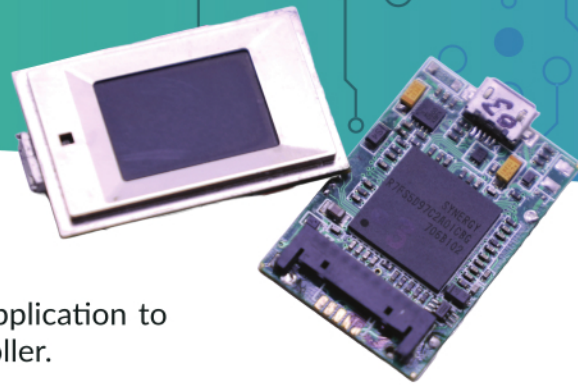
- Retail Industry
- Manufacturing
- POS Systems
- Medical Equipment

Block Diagram



मराठी मराठी
ગુજરાતી ગુજરાતી
తెలుగు తెలుగు
हिन्दी हिन्दी
മലയാളം മലയാളം
भाषा বাংলা
ଓଡ଼ିଆ ଓଡ଼ିଆ
தமிழ் தமிழ்
සිංහල සිංහල
অসমীয়া অসমীয়া

TARJANI MODULE



L1 Registered
Device Integrated!!

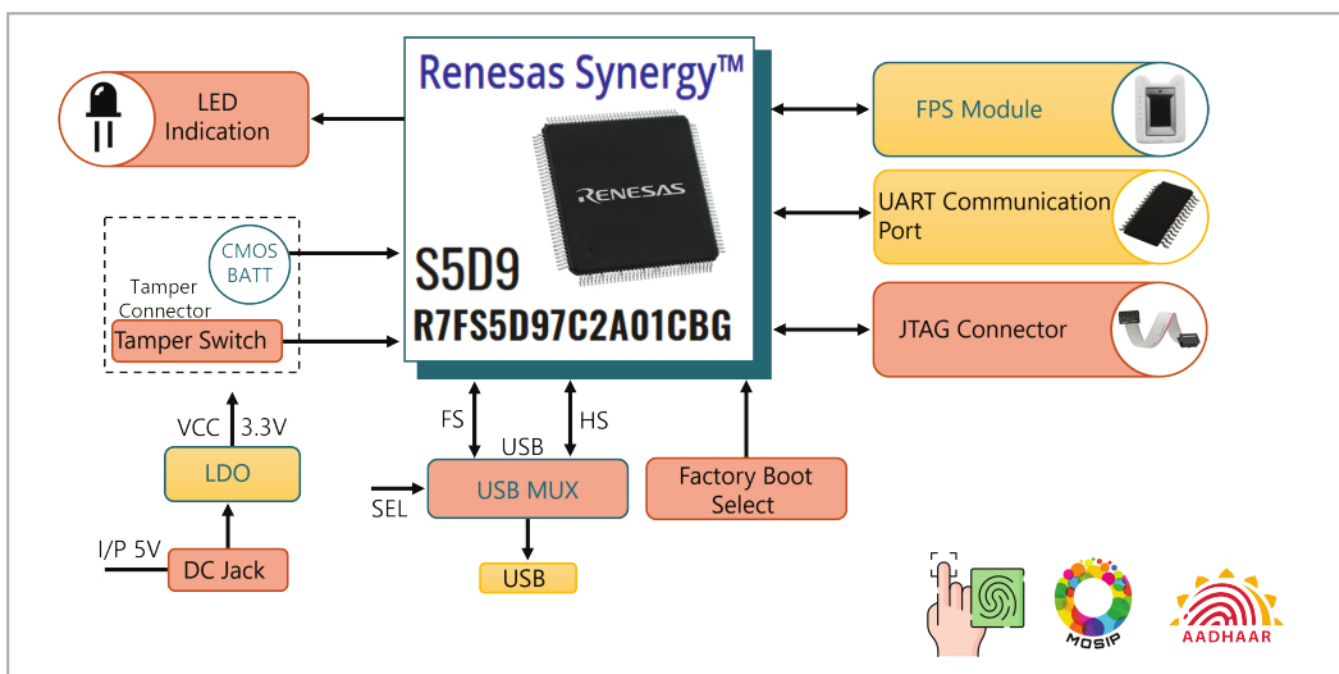
Description

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 support @ 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

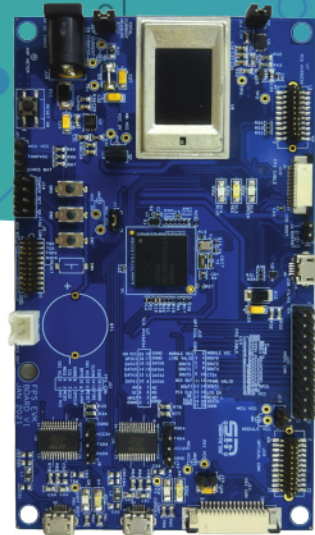
Block Diagram



FPS EVK MODULE

Description

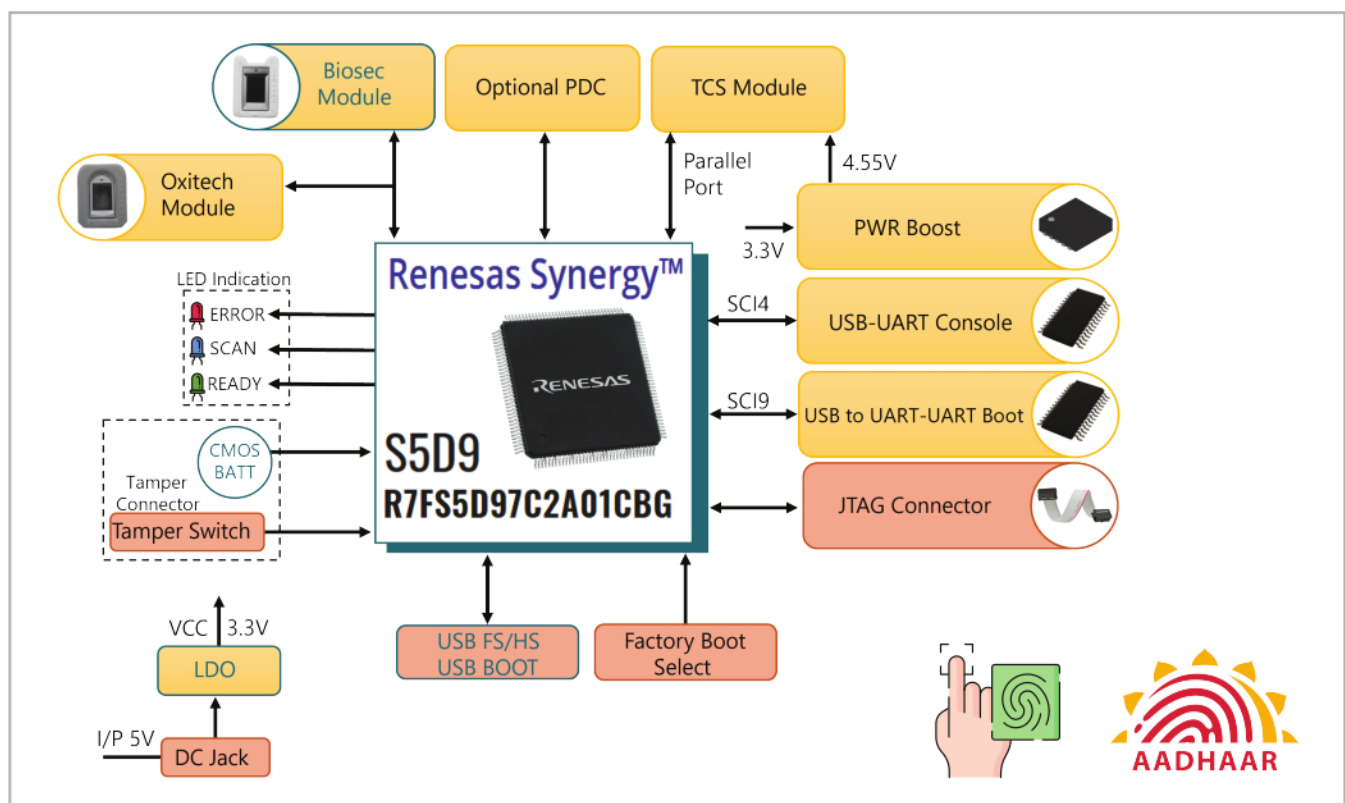
The Tarjani – Evaluation Kit (EVK) V1 enables developers to get started with initial firmware development for finger print sensor(FPS) L1 certification. The major components of EVK – V1 consists of renesas microcontroller and biosec fps module enabled for multiple sensor interface (i.e SPI, PDC And Parallel 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

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 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 rely 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.

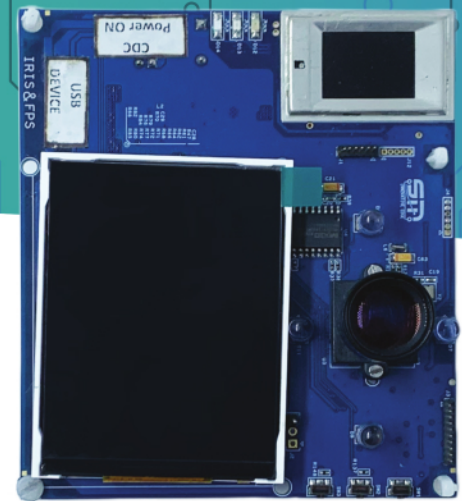
Iris recognition is an automated method of biometric identification that uses mathematical pattern-recognition techniques on video images of one or both of the irises of an individual's eyes, whose complex patterns are unique, stable, and can be seen from some distance.

Features

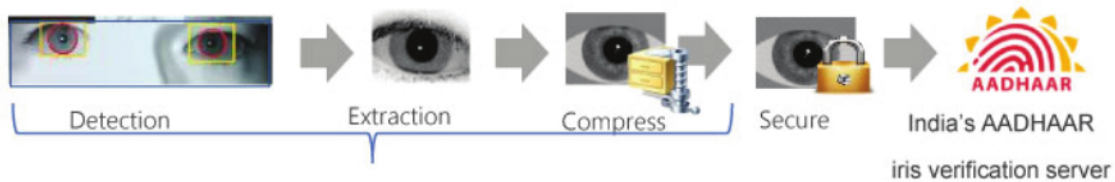
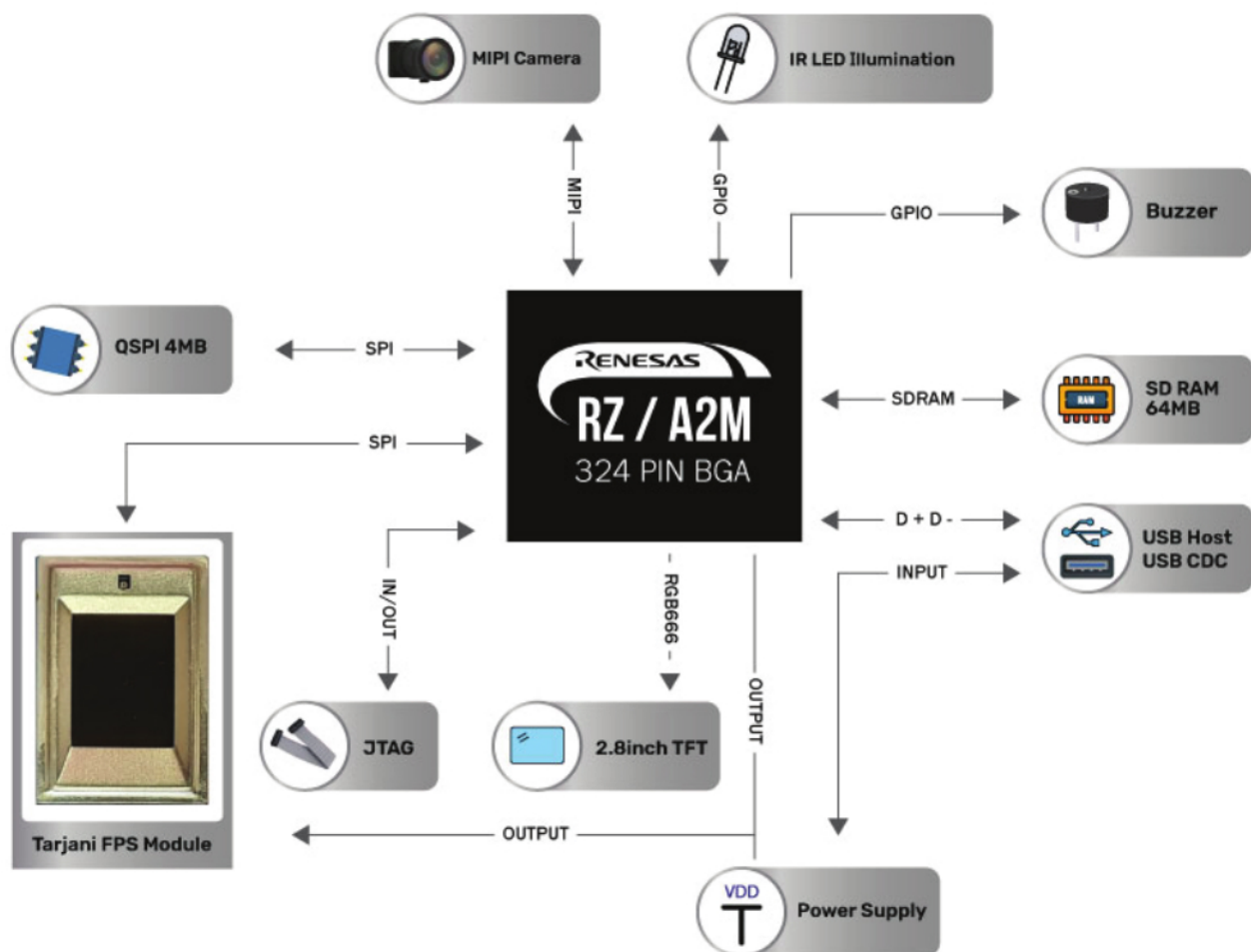
- RZ/A2M (324 Pin BGA).(R7S921058VCBG)
- MIPI CAMERA (MT9V034LCC)
- Quad SPI (MX25L51245G-M-SOP16P)
- USB 2.0 WITH CDC interface
- USB 2.0 is host interface
- Intersil buck regulator(ISL80505,ISL80030A)
- Buzzer interface
- Indication Tri Color LED
- IR LED control
- FPS sensor interface
- 2.8inch TFT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

Applications

- Access Control
- Time and Attendance
- Law Enforcement
- Healthcare



Block Diagram



ISO/IEC 19794-6:2011 Standard



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.

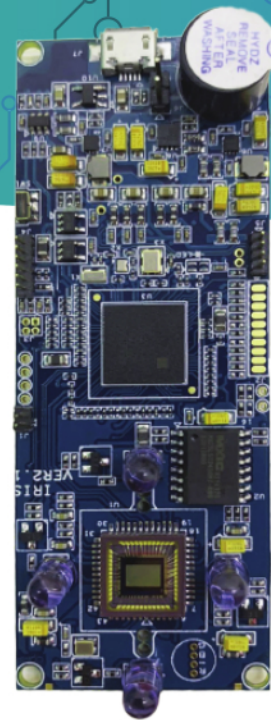
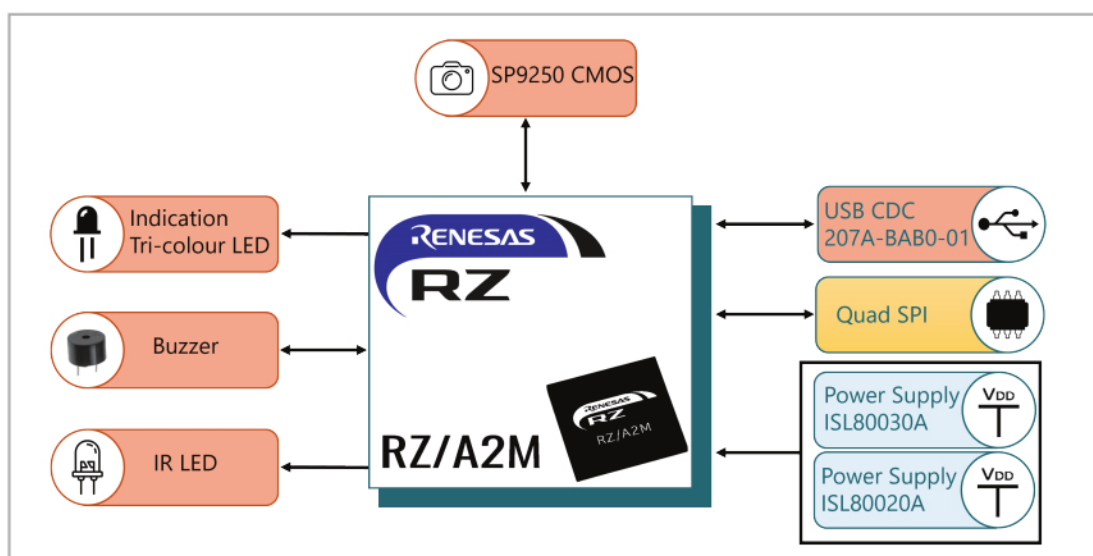
Features

- 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!!



AADHAAR ENABLED FINGERPRINT TERMINAL



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).

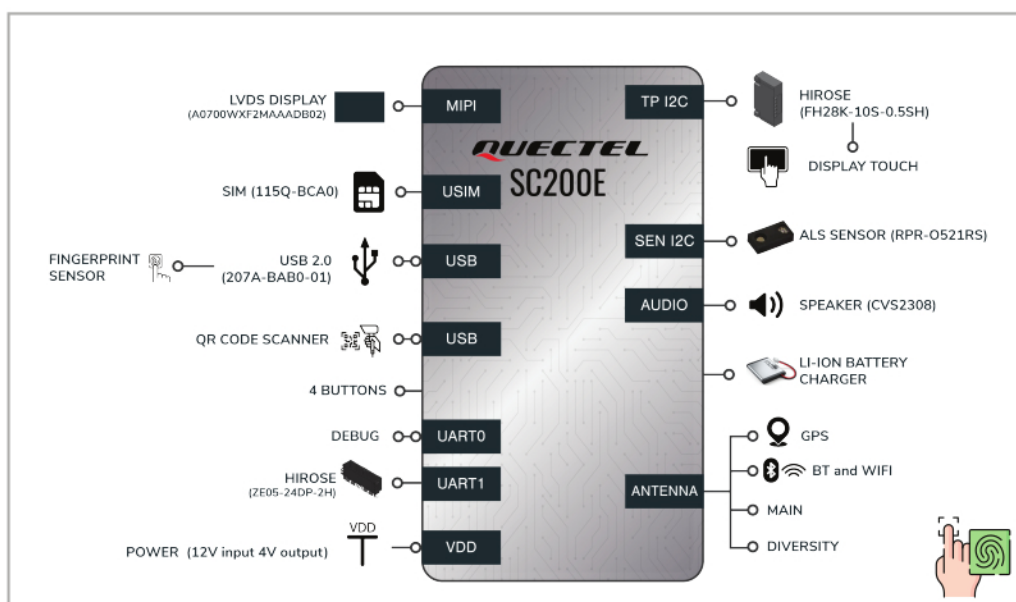
Features

- 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
- Border Control / Airports
- Financial
- Time and Attendance
- Healthcare Biometrics
- Justice / Law Enforce-

Block Diagram



Version 13

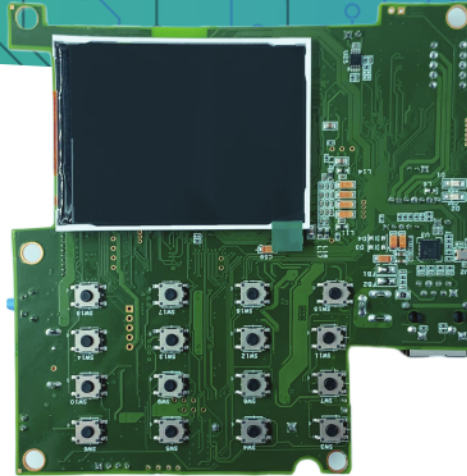


Kernel Version 4.19

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.



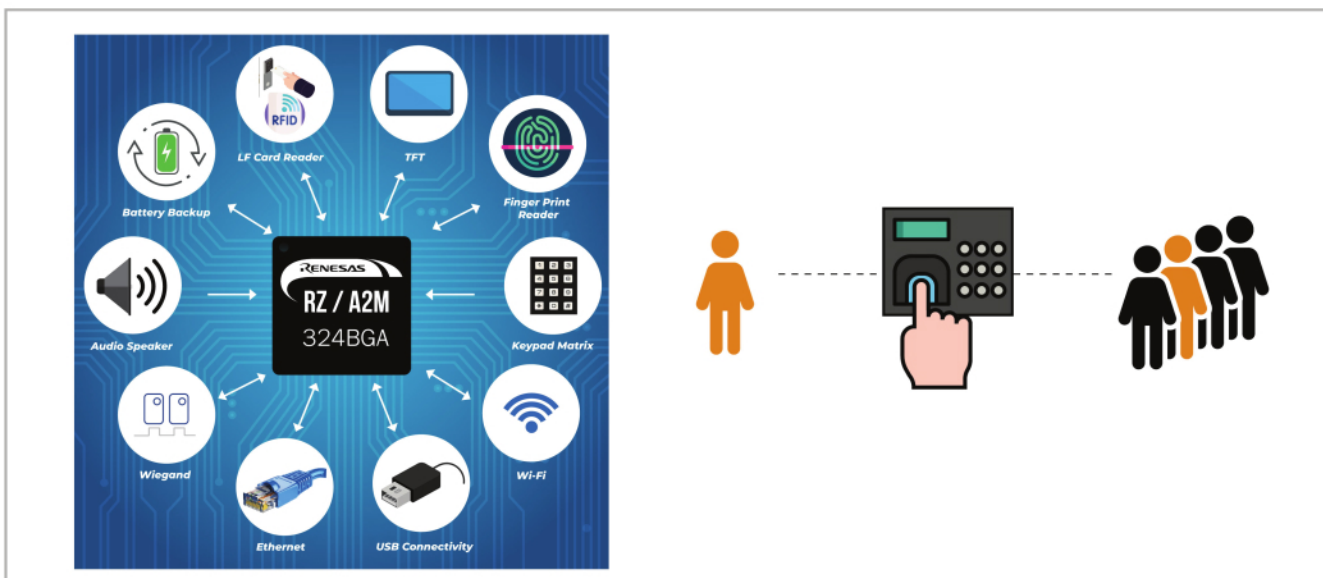
Features

- Linux OS
- Dedicated Data Base Storage 64MB
- 2.8 inch - TFT
- Fingerprint reader
- LF card reader
- Wiegand interface
- Key pad matrix
- Wi-Fi
- Relay contact
- Wi-Fi
- Ethernet
- RS - 485
- USB connectivity
- Speaker
- Battery backup

Applications

- Industrial Applications
- Home Automation & Security Systems
- Education Facilities
- Government And Military Installations

Block Diagram

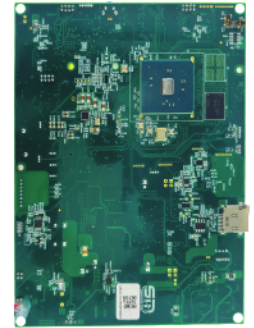
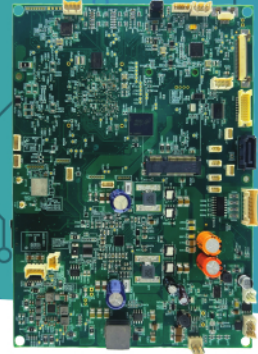


RZ/G2N (NVR)

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 4.19 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.264 Decoder and Wayland Sink
- 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 algorithms
- Supports QT for GUI application developement
- Supports scaling

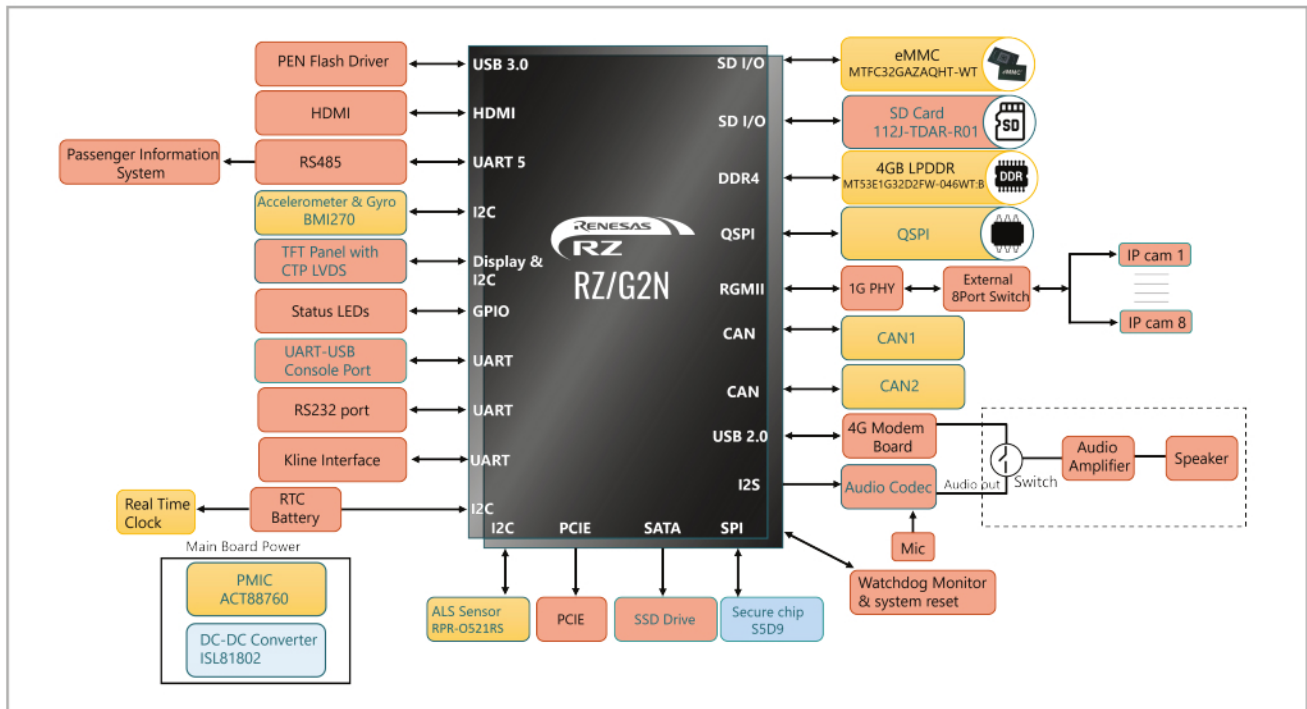
Software Environment

- Host Setup: Ubuntu 16.04 LTS
- Yocto SDK RZ/G Verified Linux package For 64 bit kernel version 1.0.6
- Open source Gstreamer version 1.0
- Resolution Supported: Upto 1920x1080p
- Bit Rate Supported : Upto 4096
- Software Stacks Supported:
 - Web browser: Firefox
 - Web server: Apache / Lighttpd
 - Backend script: PHP
 - RDBMS support: MySQL / SQLite

Applications

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

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 40 2717 6676

MUMBAI

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

☎ +91 99203 01580 / +91 94492 73720

CHENNAI

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

☎ +91-9884910577

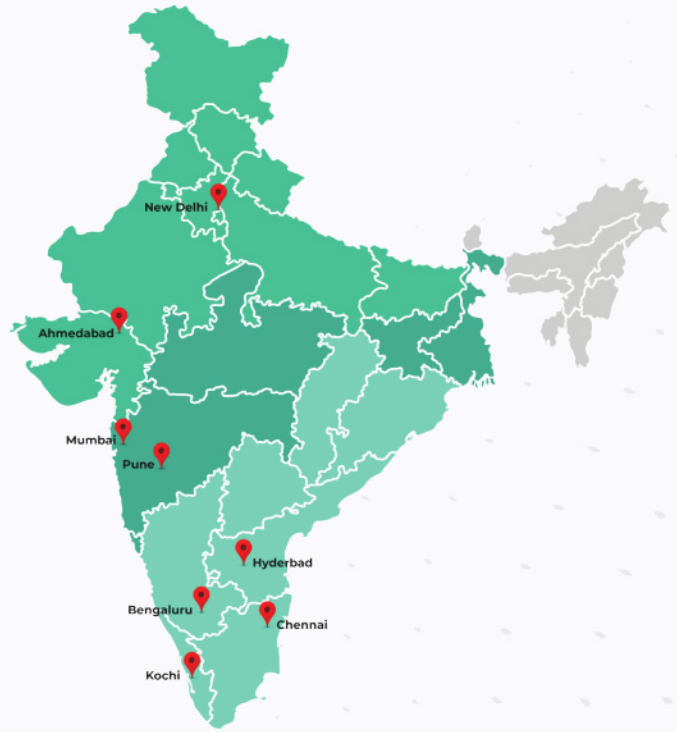
AHMEDABAD

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

☎ +91 79 4890 4307

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

