



Innovative GPS solutions for cost optimization

General Description

The **ACTive GPS** AGPS55A Series with embedded GPS antenna enables high performance navigation and solid fix even for the most stringent applications in harsh GPS visibility environments.

It is based on the **high performance** features of the MediaTek 3329 single-chip architecture, Its **-165dBm** tracking sensitivity extends positioning coverage into place like urban canyons and dense foliage environment where the GPS usage was not possible before. **Water-proof** design, easiest and convenient connector allow to add GPS functionality to other electronic equipment.

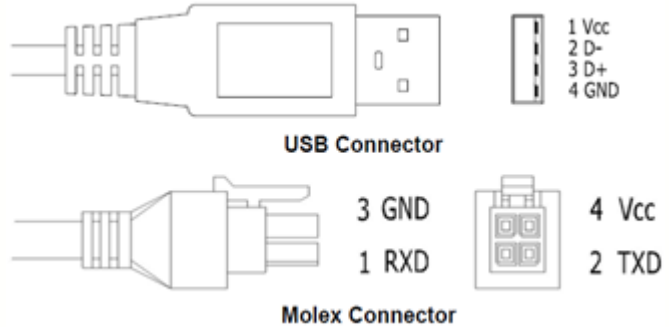
Applications

- LBS (Location Based Service)
- Vehicle navigation system
- PND (Portable Navigation Device)
- Timing application

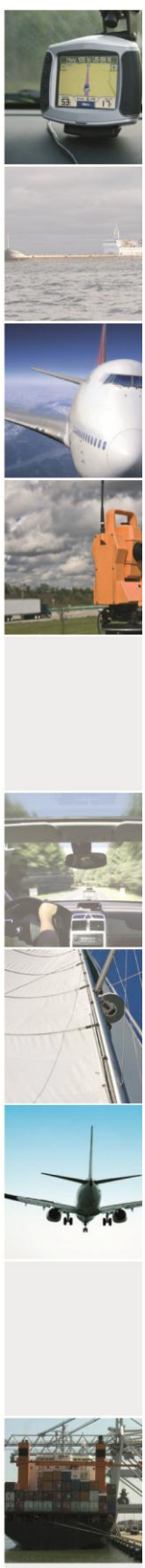
Features

- Ultra high sensitivity: -165dBm
- 22 tracking/66 acquisition-channel receiver
- WAAS/EGNOS/MSAS/GAGAN support
- NMEA protocols (default speed: 9600bps)
- Internal back-up battery
- Serial or USB interface
- Embedded patch antenna
- Industrial temperature range
- RoHS compliant
- Tiny form factor

Pin Assignment



AGPS50 Series Top View



Performance Specification

Parameter	Specification	
GPS receiver		
Receiver Type	L1 frequency band, C/A code, 22 Tracking / 66 Acquisition-Channel	
Sensitivity	Tracking	-165dBm
	Acquisition	-148dBm
Accuracy	Position	3.0m CEP50 without SA(Typical Open Sky)
	Velocity	0.1m/s without SA
	Timing (PPS)	60ns RMS
Acquisition Time	Cold Start	36s
	Warm Start	33s
	Hot Start	1s
	Re-Acquisition	<1s
Power Consumption	Tracking	<30mA @3.3V
	Acquisition	45mA @3.3V
	Sleep/Standby	TBD
Navigation Data Update Rate	1Hz	
Operational Limits	Altitude	Max 18,000m
	Velocity	Max 515m/s
	Acceleration	Less than 4g
Antenna Specifications		
Outline Dimension	25 x 25 x 4.0 mm	
Center Frequency	1575 ± 3 MHz	
Bandwidth	10 MHz min	
Impedance	50 Ω	
Axial Ratio	3 dB max	
Polarization	RHCP	
Mechanical requirements		
Dimension	25 x 25 x 4.0 mm	
Weight	50g	
Power consumption		
VCC	3.3V~5V	
Current	50mA(typical)	
Cable length	Max 5m (Molex version), max 1,5 (USB version)	
Environment		
Operating temperature	40 ~ +85 °C (w/o backup battery)	
Storage temperature	40 ~ +125 °C	
Humidity	≤95%	



Hardware Interfaces Configuration

Power Supply: Regulated power for the SKM50 series is required. The input voltage Vcc should be 3.3V, current is no less than 45mA. Suitable decoupling must be provided by external decoupling circuitry(10uF and 1uF). It can reduce the Noise from power supply and increase power stability.

UART Ports: The SKM50 series supports one full duplex serial channels UART. The serial connections are at 2.85V LVTTTL logic levels, if need different voltage levels, use appropriate level shifters. the data format is however fixed: X, N, 8, 1, i.e. X baud rate, no parity, eight data bits and one stop bit, no other data formats are supported, LSB is sent first. The modules default baud rate is set up 9600bps. The RX & TX recommended to pull up (10KΩ). It can increase the stability of serial data.

USB Ports: The SKM55 series uses single-chip USB to UART bridge, It is a USB 2.0 compliant full-speed device with integrated transceiver. Before using it, please install the appropriate driver.

Pin No.	Pin name	I/O	Description	Remark
UART Port				
1	RX	I	TTL:VOH \geq 0.75 *VCC VOL \leq 0.25VCC	UART Serial Data Input
2	TX	O	TTL:VIH \geq 0.7 *VCC VIL \leq 0.3 *VCC	UART Serial Data Output
3	GND	G	Power Ground	Reference Ground
4	VCC	P	Power Supply	VCC: VCC:3.3V~5V
USB Port				
1	VCC	P	USB Power Supply	VCC: 5V
2	D-	I/O	Data -	
3	D+	I/O	Data +	
4	GND	G	USB Power Supply	Reference ground

Installing the USB Driver to you Laptop (only for USB version)

Driver updates can be found at Silab's web-site:

<http://www.silabs.com/products/mcu/pages/usbtouartbridgevcpcdrivers.aspx> (<http://www.silabs.com>)
Com Port Verification

1. Once your USB Driver has been installed, you will need to confirm which COM Port your PC has assigned to it in order to properly configure any software that will be utilizing the GPS data being received.
2. Your USB GPS must be plugged into your USB port at this time.
3. Using Window's Control Panel, select System > Hardware > Device Manager
4. Then look under the heading of: PORTS (Com & LPT)
5. There should be a listing for: CP210x USB to UART Bridge Controller (COM x) ("x" will actually be the number your PC has assigned the USB GPS receiver).
6. Once you have identified the COM port number, any software that you utilize must be configured to read GPS data from this COM port.

Ordering information

Standard ordering codes:

ACTivE-GPS-15-USB

- USB connector, 1,5m cable length

ACTivE-GPS-30-MF4

- MicroFit 4-pin connector, 3m cable length

* Another type of connector and cable length available on request

ACTE Sp. z o.o. reserves the right to specification changes without notice

