



KAPS PLC

About KAPS RTU (KP-1400)

KAPS RTU (KP-1400) is a Single Board Computer module based on the Samsung ARM Cortex-A8 S5PV210AH microcontroller enclosed in an aluminum box. A combination of a power supply, a charger for a built-in Li-Ion battery, a GSM/ GPRS modem, a GPS receiver and analogue and digital I/O makes this module very useful in many standalone applications. The KP-1400 uses the Telit GE863-GPS with a quad band (900/950/1800/ 1900 MHz) cellular engine and a SiRFstarIIIITM single chip GPS receiver.

The power supply can be backed-up by a built-in Li-Ion battery and the charger will insure that the battery is fully charged. Two low-power modes allow a very long operation on battery power: Powerdown with wakeup on: timer and external wakeup input. Standby with wakeup on: timer, incoming SMS, and input change.

The KP-1400 has 16 isolated analogue inputs ($\pm 10V$, 0-2.0V or 0-20mA), enabling data acquisition with a resolution up to 24 bits. 8 digital inputs and 8 digital outputs (all opto-isolated) allow the user to control auxiliary equipment. Wireless communication and SMS features are supported by the GSM/GPRS modem. The SIM card is inserted into a push-push SIM card socket placed on a GSM/GPRS/GPS sub module

The KP-1400 comes with a Linux OS and KAPS Proprietary data and location logging application, which can log analogue and digital inputs periodically or based on input events. Data can be stored in an internal RAM, Flash or on a Micro SD card. The system has a web interface for configuration and data retrieval, accessible through a direct USB connection to a PC, through GPRS, or through Ethernet and optionally through SatPhone Modem when used in remote applications without GSM reach

The KAPS RTC KP-1400 represents the latest development within GSM/GPRS technology and holds all the necessary approvals (R&TTE and GCF). The KP-1400 is ideal for data logging and alarm systems. The KP-1400 withstands extended temperatures, shock and vibration of mobile equipment

General specifications

Input voltage : 7-50V DC, operational
Solar panel : 12-50V open circuit voltage
Max input voltage : 60V DC, withstands load-dump and wrong polarization

Power consumption

Power down : 100 μ A
Standby : 0.1W
CPU idle : 0.3W
CPU active : 0.9W
Ethernet active : + (TBD) W
A/D converter on: +0.7W (can be disabled by SW)
GPRS on, idle : +0.15W
GPRS on, transmitting : +2W
GPS on, tracking : +0.7W
Battery charger w/solar panel : Li-Ion, 7.4V 3.5A max
Charging using MPPT

Environmental Data

Operating temperature : -20° to 70° C
Storage temperature : -40° to 85° C
Humidity : 20 to 90% non-condensing
Cyclic humidity : ETS 300 019-2-5 or equal
Vibration : 10-1000 Hz Sine and random at 1-1.5G RMS
Sustained vibration : EN 60068-2-34 & EN 60068-2-36
Shock : IEC 60068-2-27 & IEC 60068-2-29
Size (W x L x H) 200 x 113 x 48 mm
Weight : 572 g (excl. modem, battery & packaging)
CE approvals : Emission: EN 61000-6-3: 2007
Immunity : EN 61000-6-2: 2005
Reliability : Better than IEC 870-4 Class R2
Uptime : >99.97% acc. to IEC 870-4 Class A3 based on a system supplier turnaround time less than 24h

Digital I/O specifications

8 digital inputs, opto-isolated : 0-30V
Isolation : Up to 1000Vrms
Logic 0 : Uin: 0-1.5V
Logic 1 : Uin: 2.5-30V
Input current (max) at 30Vin : Iin: 5mA
Connector : Pluggable terminal block

8 digital outputs, opto-isolated : PNP outputs
Isolation : Up to 1000Vrms
Max load current : 0.5A/output, 1A total
External voltage : 5-30V DC
Protection : Snubber diode at each output
Connector : Pluggable terminal block

Analogue input specifications

Number of single ended inputs : Up to 16 with one common
Number of differential inputs : Pairs of two can be software configured for up to 8 differential inputs
Ranges
(Must be specified in model no.)

-10V to +10V : 0.025% initial accuracy
: 50 ppm/°C
0V to +2.0V : 0.025% initial accuracy
: 10 ppm/°C
0 to 20mA : 0.025% initial accuracy
: 50 ppm/°C

Quad Band GSM/GPRS Modem specifications (optional)

Antenna impedance	: 50
RF Output power	: Class 4 (2W) @ 850 / 900MHz : Class 1 (1W) @ 1800 / 1900MHz
Modem antenna connector	: FME female RF
SMS	: Point-to-point mobile originated and mobile terminated SMS : SMS cell broadcast, Text and PDU mode
Approvals	: Fully type approved conforming with R&TTE, CE, GCF, FCC, PTCRB, IC & Anatel
CSD data transmission	: Transparent up to 14.4 kbps : Non-transparent up to 9.6 kbps : Non-transparent mode V. 110
Fax	: Group 3, Class 1
SIM connector	: Push-push connector inside the module

GPS specifications (optional)

GPS Chip	: SiRFstarIIITM single chip GPS receiver supports 20-channels GPS, L1 1575.42 MHz : Cold start < 35 sec : Hot start < 3 sec
Sensitivity	: -159 dBm (with active antenna)
Accuracy	: < 2.5 m
GPS output format	: NMEA 0183
GPS antenna connector	: SMA male RF
AT commands	: Dedicated GPS AT commands
SBAS support	: WAAS and EGNOS
Antenna impedance	: 50