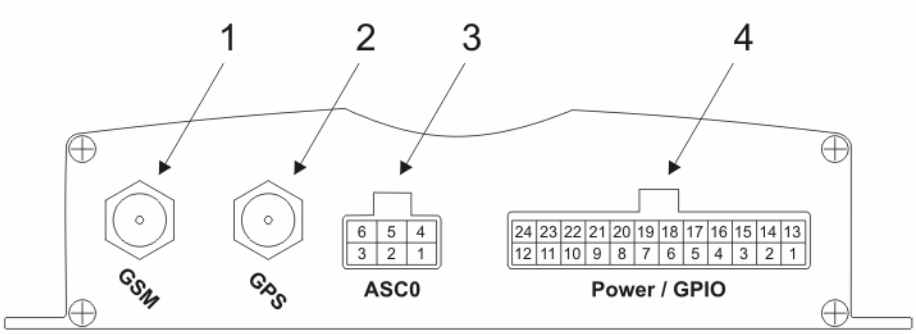
Hunter GPS/GPRS terminal hardware description

Contents

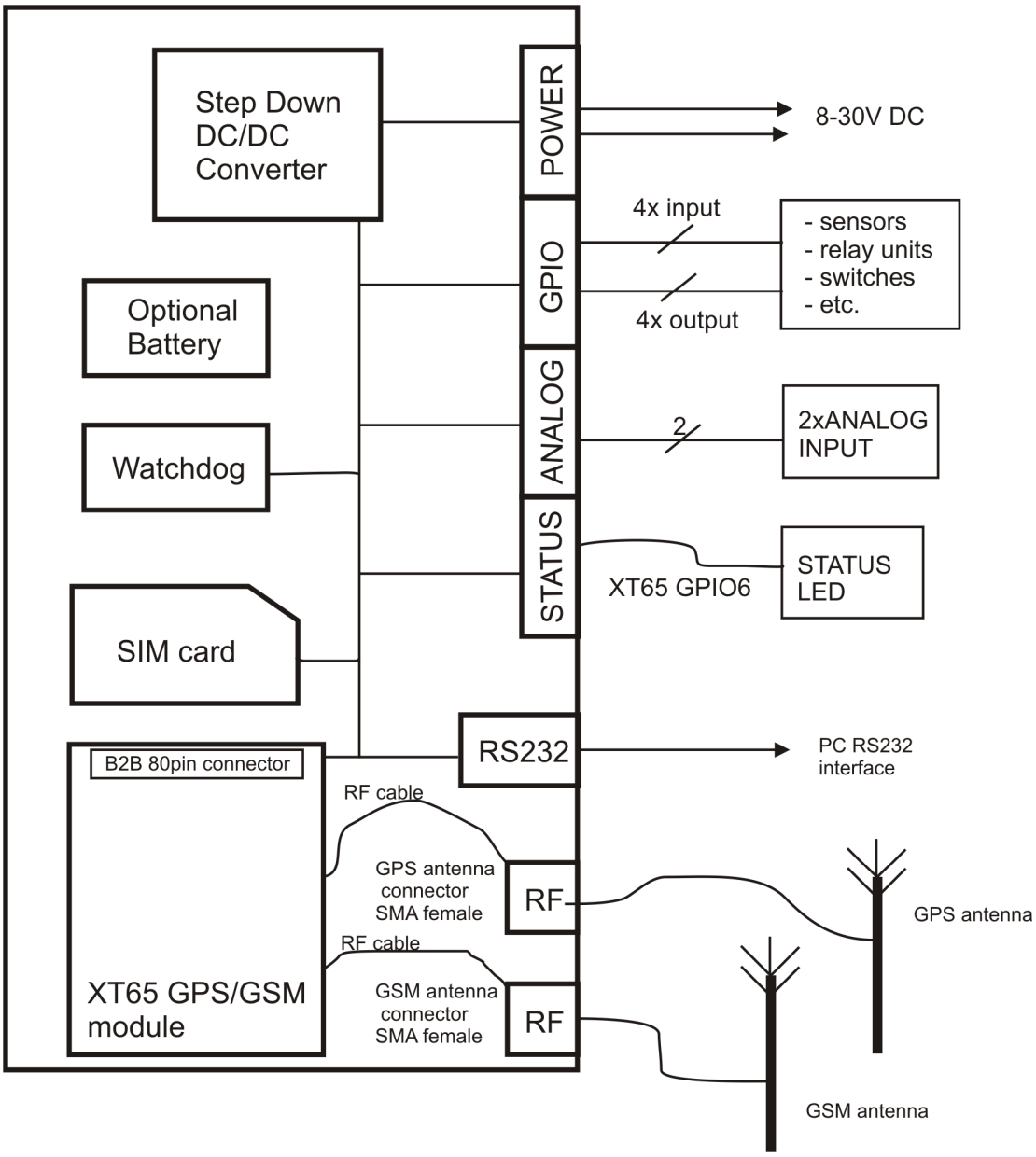
1. Connectors arrangement

Hunter provides following connectors for power supply, interfaces and antennas:

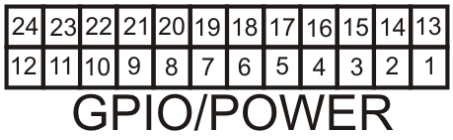
1. SMA antenna connector for GSM
2. SMA antenna connector for GPS
3. Molex Micro-fit 6-pin connector for ASC0 interface
4. Molex Micro-fit 24-pin connector for power supply, input and output pins as well as analog inputs and status LED diode.



2. Block diagram



3. Connectors pin-out

	1. GND 2. RXD (output) 3. TXD (input) 4. RTS (input) 5. CTS (output) 6. DTR (input – used as ignition)
	1. power supply negative input 2. input channel 1 negative inlet 3. input channel 2 negative inlet 4. input channel 3 negative inlet 5. input channel 4 negative inlet 6. output channel 1 negative outlet 7. output channel 2 negative outlet 8. output channel 3 negative outlet 9. output channel 4 negative outlet 10. analog ground 11. analog ground 12. status LED anode outlet 13. power supply positive input 14. input channel 1 positive inlet 15. input channel 2 positive inlet 16. input channel 3 positive inlet 17. input channel 4 positive inlet 18. output channel 1 positive outlet 19. output channel 2 positive outlet 20. output channel 3 positive outlet 21. output channel 4 positive outlet 22. analog channel 2 input 23. analog channel 1 input 24. status LED cathode outlet

4. Power supply ratings

Parameter	Description	Min	Typ	Max	Unit
Vpower	Supply voltage	+8	+12	+30	V
Ipower	Supply current			500mA	mA
Ptot	Supply power			4	W

5. RS232 interface characteristic

Parameter	Description	Conditions	Min	Typ	Max	Unit
V_{OUT}	Transmitter Output Voltage for /RXD, /CTS	@ 5kOhm load	±5	±5.4		V
R_{OUT}	Transmitter Output Resistance /RXD, /CTS		300	50k		Ohm
V_{IN}	Input voltage range /TXD, /RTS, /DTR		-25		25	V
R_{IN}	Input resistance of /TXD, /RTS, /DTR		3	5	7	kOhm
V_{RIHYS}	Input Hysteresis			0.5		V
V_{ilow}	Input Threshold Low		0.6	1.1		V
V_{Ihigh}	Input Threshold High			1.5	2.4	V
Baudrate		Autobauding	1200		468000	bps
		Fixed bit rate	300		468000	bps

6. Input channel characteristics

All 4 input lines are opto-isolated.
Each channel has two pins for connection, positive and negative input.
Each channel is reverse polarity protected.
High voltage level on input is read as “0” by Siemens XT65 pin and low voltage on input is read as “1” on Siemens XT65 pin.

Parameter	Description	Min	Typ	Max	Unit
R_{IN}	Input resistance	8	10	12	kOhm
V_{inmax}	Maximum input voltage			30	V
V_{ilow}	Input Threshold Low	3.5	4.5	5.5	V
V_{Ihigh}	Input Threshold High	4	5	6	V

Channel number	XT65 GPIO
input 1	GPIO1
input 2	GPIO2
input 3	GPIO3
input 4	GPIO10

7. Output channel characteristics

All 4 output lines are open collector opto-isolated.
Each channel has two pins for connection, positive (collector) and negative output (emitter).
XT65 pin logic state “1” provides closed output transistor and XT65 pin logic state “0” provides open output transistor.

Parameter	Description	Min	Typ	Max	Unit
Vcesat	maximum collector – emitter saturation voltage			700	mV
V_{CE0}	maximum collector – emitter voltage			45	V
Iout	maximum sink current			300	mA

Channel number	XT65 GPIO
output 1	GPIO4
output 2	GPIO7
output 3	GPIO8
output 4	GPIO9

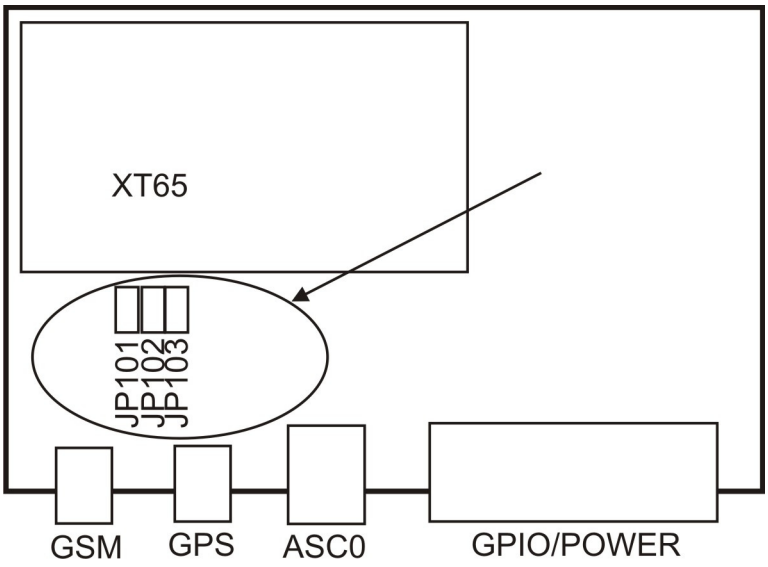
GPIO6 is used to drive the LED diode, and the LED diode is to be connected directly to the connector, without any additional resistors or drivers.

8. Analog line characteristic

Two analog input lines are connected to XT65 analog input lines over resistor network so it can measure voltages up to 10V.
Analog input resistance is minimum 500 kOhm.

9. Watchdog circuit

Hunter has hardware watchdog circuit on board.



Watchdog circuit is connected to XT65 GPIO5 and configured with 3 jumpers

Application must send positive impuls of 100mS width every watchdog interval. If that not happens the watchdog circuit will restart XT65 module.

Watchdog can be disabled (eg. during programming) by putting jumper JP103 in the position. With JP103 removed watchdog circuit is active and running.

Regarding of the state of JP101 and JP102 watchdog intervals are given in the table.

JP101	JP102	interval
jumper putted on	jumper putted on	30 seconds
jumper putted on	jumper removed	120 seconds
jumper removed	jumper putted on	300 seconds
jumper removed	jumper removed	1200 seconds