Customer Specification

Slim

Slim with GPS

DIN horizontal

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Physical

Form factor:	PCMCIA type III, no PCMCIA connector	
Size:	g18 (GPRS) DV Slim:	44.29x88.45x10.4mm (see drawings in this spec)
	g18 (GPRS) DVG with GPS:	44.54x88.45x17.6mm
	g18 (GPRS) DV DIN:	40x80.2x7.5 mm
Mounting:	Four 2.43mm Ø holes provided on non DIN models	
Weight:	g18 (GPRS) DV Slim:	35.5g
	g18 (GPRS) (GPRS) DVG with GPS:	49g
	g18 (GPRS) DV DIN:	22g
Volume:	g18 (GPRS) DV Slim:	36.8 cc
	g18 (GPRS) DVG with GPS:	57.0 cc
	g18 (GPRS) DV DIN:	24.1 cc
Housing material:	Plastic housing PC/ABS	
Interface connector:	g18 (GPRS) DV Slim/ DVG:	36 pin ZIF socket @ 0.5mm pitch ELCO #04-6240-036-800
	g18 (GPRS) DV Horizontal Board Only:	28 pin dual in line pin socket @1.27 pitch (SAMTEC # CLP-114-02-L-D) and 36 pin ZIF socket

RF output connector: MMCX Jack (female) 50Ω GSM and GPS Mating connectors Plug (Male)

Coax	Huber-Shuhner	Johnson Components
RG178	11-MMCX-50-1-1	135-3302-001
RG316	11-MMCX-50-2-3	135-3403-001

Environmental

Operational temperature:	-30 to +60 degrees C
Storage temperature:	-40 to +85 degrees C
Shock:	20 g's with 11 millisecond duration, 20 impacts in three mutually perpendicular planes
Vibration:	IS-19: 1.5g acceleration, 5 to 500 Hz @ 0.1 octave/minute in three mutually perpendicular planes

Performance

Operating systems: GSM 900MHz, DCS 1800MHz, PCS 1900MHz.

Voltage:③ 3.0 to 6V measured at the I/O connector during the transmit slot (576us out of 4.6ms)

Current:
=7.2 +/- 0.5 mA @ DRX 2 Stand by (sleep)
=3.5 +/- 0.5 mA @ DRX 9 Stand by (sleep)
< 150uA off current
300mA avg. in call at power level 5 (max. 350 mA)
1.2 A peak @ 217 Hz at power level 5 (max. 1.8A)

Power out:
GSM – Power levels #19 to 5, 5dBm to 33dBm per ETSI.
DCS – Power levels # 15 to 0, 0dBm to 30 dBm per ETSI.
PCS – Power levels # 15 to 0, 0 dBm to 30 dBm per FCC.

SIM Card Reader:① Options:
1. Internal - chip SIM CR 3/5V SIM
2. External - Local interface 3/5 SIM
3. External - Remote interface (DSC interface) 5V only

Interface: Options:
1. 9 line RS232 Serial Asynchronous full flow control , 3V logic level (DCE flow direction)
   - → Vih 2.0 V min, 5.5 V max
   - → Vil 0.8 V max
   - → Voh 2.5 V min @100 uA
   - → Vol 0.2 V max @ 100 uA
2. Wizard application SW, which runs on PC, used to activate PDP context (GPRS only)
3. Motorola Proprietary DSC Bus
4. GPS interface (TxD, RxD, 1PPS, RTCM and Antenna voltage), on Slim-GPS model.

Host Protocol:		CSD mode: AT commands including GSM 07.07,GSM 07. 05 (see Developers manual for specific AT commands supported) GRRS mode: AT commands per standard for GSM 07.60 and 07.07 ver 7.5.0. (see Developers manual for specific AT commands supported)
Data:	CSD	1. at 9.6, 19.2 and 57.6 kbps (over the air rate depending on network, 1.14 kbps max) 2. Circuit Switched Data
	GPRS	RS232 user data: 57.6 kbps (over-the- air data rate depends on schemes used SC1-CS4) GPRS packet data (SMG31) Class B (only when a handset is used), multi slot class 1, 2 and 4, coding schemes CS1 to CS4. 1X (uplink)/2X (downlink) or 1X (uplink)/3X (downlink)
PC FAX:		Class 1 using Winfax, alternate between fax and voice (TS61)
SMS:		Send and receive (PDU and block mode per GSM 07.05)
Voice Call:		Supported I/O with external H/SET
Audio:		Analog - Full duplex I/O on interface connector Digital - Motorola Proprietary DSC Bus Echo canceling activated by AT for HandsFree Audio applications (analog only)
GPS:		Independent GPS receiver (GPS model only) GPS (TXD, RXD, 1PPS, RTCM, Antenna Voltage) Functions are available on the ZIF and DIN header/socket connector at 3V logic levels. 1. 12 parallel channel 2. L1 1574,42 MHz 3. Code plus carrier tracking (carrier aided tracking) 4. Positional accuracy: 100 meters 2dRMS with SA as per DoD specifications, less than 25 meters SEP without SA Additional specifications available on request

Interface connector, 36 pin description Slim , Slim with GPS and DIN Horizontal

Pin #	Function	Pin #	Function
1	TX Enable	19	SIM CR I/O Data
2	GPS RXD	20	SIM CR Clock
3	GPS TXD	21	TS (Turn on/stand by) ⑤
4	RS232 – TXD ⑦	22	DSC - Enable
5	RS232 – RXD⑧	23	DSC - Downlink
6	RS232 – DTR	24	DSC - Uplink
7	RS232 – DCD for CSD call/PDP context indicator ⑩	25	Analog Audio GND
8	RS232 – RTS	26	GND
9	RS232 – CTS	27	GND
10	RS232 – DSR	28	GND
11	RS232 – RI	29	GND
12	Man test	30	Vcc (3.0 – 6 Vdc)
13	Analog Audio In	31	Vcc (3.0 – 6 Vdc)
14	Analog Audio Out and Power on/off ⑥	32	Vcc (3.0 – 6 Vdc)
15	Wake up/GPRS coverage indicator ⑨	33	Vcc (3.0 – 6 Vdc)
16	Input I/O (custom definition) & SIM CR DET ④	34	GPS Ant. PWR (3/5 Vdc)
17	SIM CR Vcc (3/5Vdc)	35	RX for differential GPS RTCM
18	SIM CR Reset (RST)	36	GPS 1 pps

Functions on pin numbers 2,3,34,35 and 36 on units with GPS only

Slim, Slim with GPS and DIN horizontal models Functions available on 36 pin ZIF

VCC input	3.0 to 6Vdc
Full RS232 - 9 pins	TXD, RXD, RTS,CTS, DSR, DTR,DCD RI at 3V levels
External SIM connections	SIM Clock, SIM reset, SIM I/O, SIM VCC,SIM PD
DSC bus	DSC_EN, Downlink, Uplink Motorola proprietary BUS
Audio In/Out	Audio out and On/Off in the same pin, audio in Signal and analog ground
Man_Test line	Used to detect standard Motorola accessories
TS line (mobport).	Used to turn on the radio when Vcc is applied
TX_EN line	This line is an indication when the radio is transmitting (Open drain)
GPS (GPS option only)	TXD & RXD in 3V levels, 1PPS, RTCM, Antenna power. RXD and TXD lines are at 3V levels. The GPS receiver is the Motorola M12

Interface connector, 28 pin description DIN horizontal

Pin #	Function	Pin #	Function
1	Vcc (3.0 – 6) Vdc	15	NC
2	Vcc (3.0 – 6)Vdc	16	TX Enable
3	SIM CR I/O Data	17	Analog Audio GND
4	SIM CR Reset (RST)	18	Analog Audio Out and Power on/off ⑥
5	SIM CR Vcc (3/5Vdc)	19	Analog Audio In
6	SIM CR DET	20	DSC - Enable
7	RS232 – DTR	21	RS232 - DSR
8	TS (Turn on/stand by) ⑤	22	DSC - Downlink
9	Man test	23	DSC - Uplink
10	Wake up/GPRS coverage indicator ⑨	24	SIM CR Clock
11	GND	25	RS232 – TXD ⑦
12	GND	26	RS232 - RXD ⑧
13	RS232 – RI	27	RS232 - CTS
14	RS232 – DCD for CSD call/PDP context indicator ⑩	28	RS232 - RTS

DIN horizontal Functions available on 28 pin ZIF

VCC input	3.0 to 6Vdc
Full RS232 - 9 pins	TXD, RXD, RTS,CTS, DSR, DTR,DCD RI at 3V levels
External SIM connections	SIM Clock, SIM reset, SIM I/O, SIM VCC,SIM PD
DSC bus	DSC_EN, Downlink, Uplink Motorola proprietary BUS
Audio In/Out	Audio out and On/Off in the same pin, audio in Signal and analog ground
Man_Test line	Used to detect standard Motorola accessories
TS line (Turn on / Stand by	Used to turn on the radio when Vcc is applied
TX_EN line	This line is an indication when the radio is transmitting (Open drain)

Pin 14 on 36 pin connector and pin 18 on 28 pin connector Definition (Audio Out, Rec audio)

- Freq. Response: max +/- 3db from 300 to 3000 Hz
- Output impedance: max. 1000 Ω
- Distortion: max. 5%
- Audio level: max 1.2V ptp
- Headset ②

Pin 13 on 36 pin connector and pin 19 on 28 pin connector Definition (Audio In, Transmit audio)

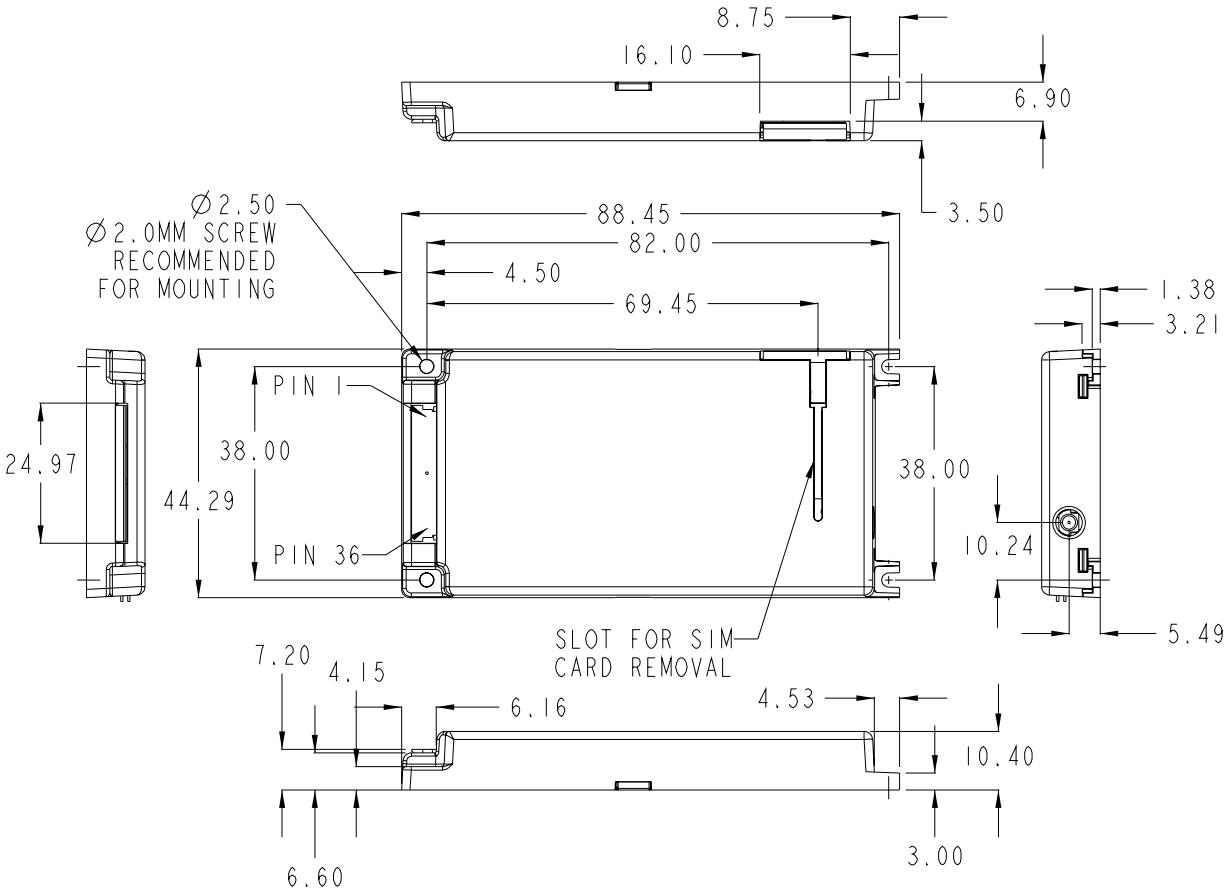
- Freq. response: max +_3dB from 300 to 3000 Hz
- Input impedance: 10K Ω
- Distortion: max. 5%
- Input level: max. 700mVptp.
- Headset ②

Footnotes:

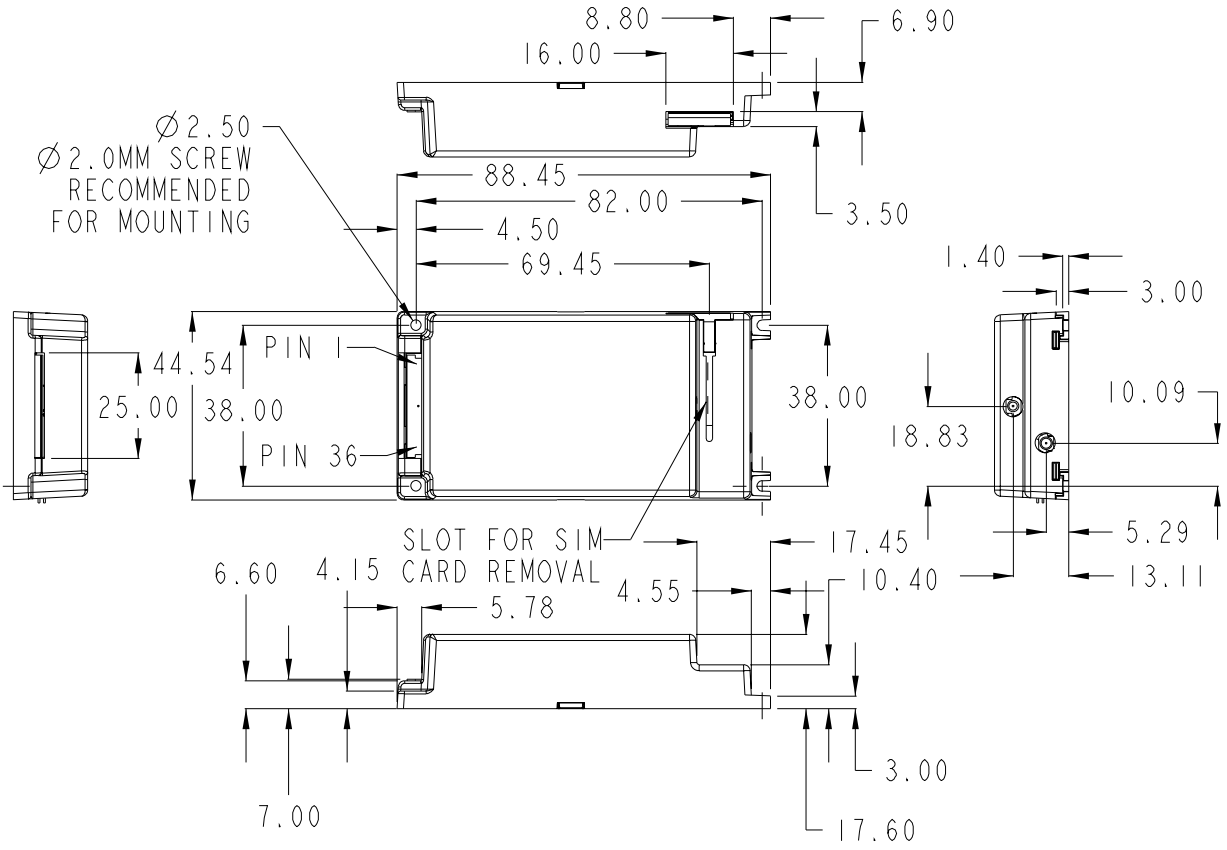
① One SIM card can be used with option 1 and 2. With option 3 two SIM cards can be in the system. When connecting the remote card reader to evaluation board use handset connector.
② When using Motorola head set SYN4937A and SYN6962A; evaluation board demonstrates this implementation.
③ It is recommended that a 1000 uF capacitor be placed across GND and VCC as close as possible to the flex cable on versions with a housing or the 28 way connector on the DIN version. This will prevent Vcc drop during peak current which has a 543µs duration every 4.3ms due to GSM power pulses. Voltage must not drop below 3.0vdc or the performance of the module will be degraded.
④ Custom definition will be considered for specific applications.
⑤ Logic high will turn unit on, logic low put the unit into stand by mode. You must turn unit on before placing unit into standby mode. An alternate way to power the radio on is by using the On/Off pin
⑥ The Audio Out line is used to send out the detected audio and as a toggle On/Off pin.
⑦ Data received by g18 (DCE flow)
⑧ Data sent from g18 (DCE flow)
⑨ Wake up line is bi – directional
- When going from non GPRS coverage to GPRS coverage, a negative pulse will be generated on this line
- When the g18 wants to send data to the DTE (host), a negative pulse will be generated on this line
- When DTE (host) wants to send data (while the g18 is in sleep mode) it can send a wake up to the g18

⑩ GPRS PDP context active – DCD line will be active (low)
GPRS PDP context not active – DCD line will be inactive (high)

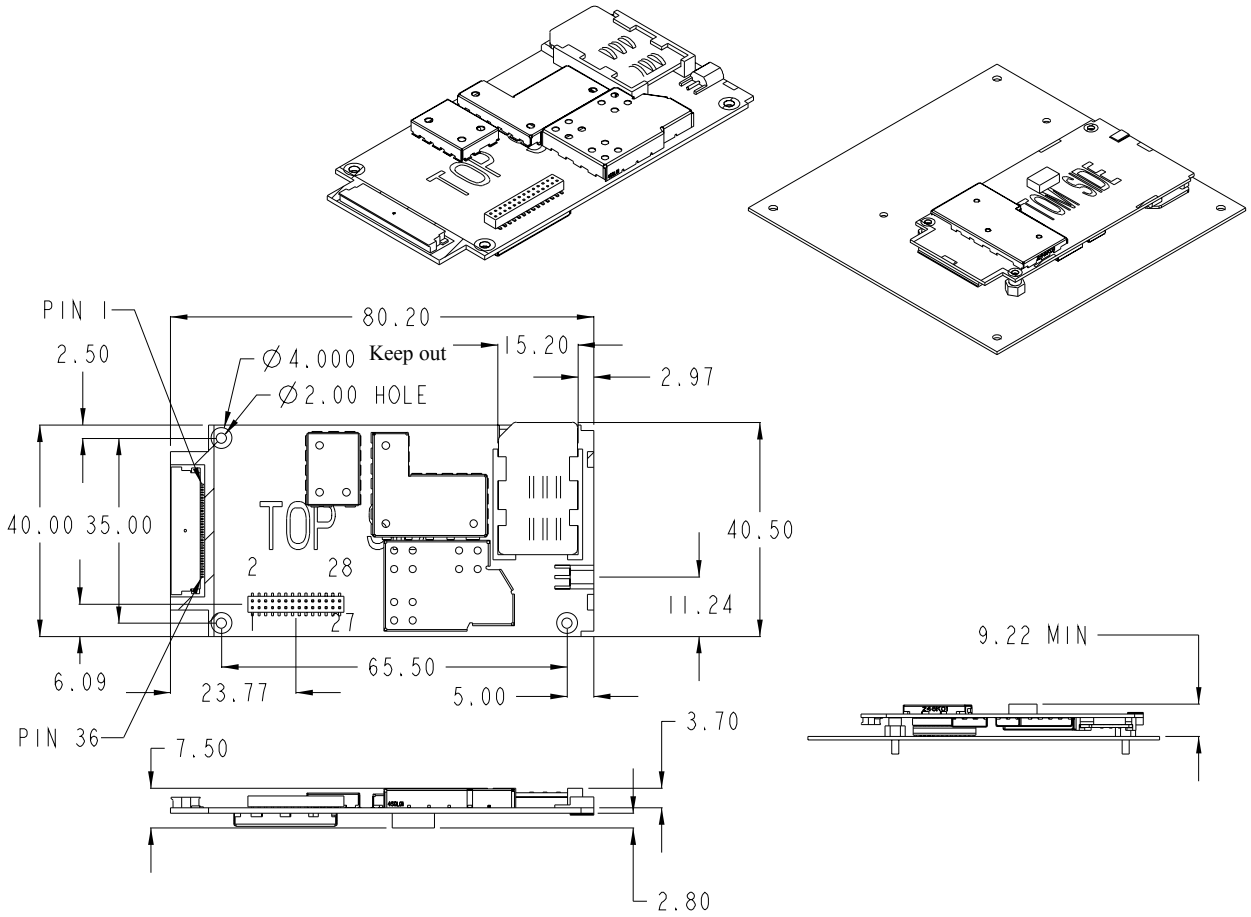
Remarks
1. Revision notes are contained in the developers manual.
2. Evaluation kit is available for developer integration.



g18 (GPRS) DV Slim



g18 (GPRS) DV Slim with GPS



g18 (GPRS) DV DIN Horizontal

Keep out

g18 Sales model table

Language pack Description	Language 01 Western Europe	Language 03 GSM 1900 NA	Language 06 Nordic	Language 07 East Europe	Language 08 Mid East	Language 08 Mid East Arabic
g18 DV slim	SE2836xF5Z8	SE2836xF5Z6	SE2836xF5Y5	SE2836xF5Y6	SE2836xF5Z5	SE2841xF5Z5
g18 DV slim w/GPS	SE2837xF5Z8	SE2837xF5Z6	SE2837xF5Y5	SE2837xF5Y6	SE2837xF5Z5	SE2842xF5Z5
g18 DV DIN Horz	SE2838xF5Z8	SE2838xF5Z6	SE2838xF5Y5	SE2838xF5Y6	SE2838xF5Z5	SE2843xF5Z5
Languages						
Arabic					X	X
Bulgarian				X		
Chinese-Complex						
Chinese-Simplified						
Croatian				X		
Czech				X		
Danish	X		X			
Dutch	X				X	X
English	X		X	X	X	X
English-American		X				
Estonian			X			
Finnish	X		X			
French	X				X	X
French-Canadian		X				
German	X	X		X	X	X
Greek	X				X	X
Hebrew					X	X
Hungarian	X					
Indonesian-Bahasa						
Italian	X	X			X	X
Latvian			X			
Lithuanian			X			
Norwegian	X		X			
Polish				X		
Portuguese	X	X				
Romanian				X		
Russian			X		X	X
Serbian				X		
Slovak				X		
Slovenian				X		
Spanish	X					
Spanish-American		X				
Swedish	X		X			
Thai						
Turkish	X				X	X
Ukrainian			X			
Vietnamese w/tonal marks						

Note: GPS models available Dec 2001
"x" indicates version level