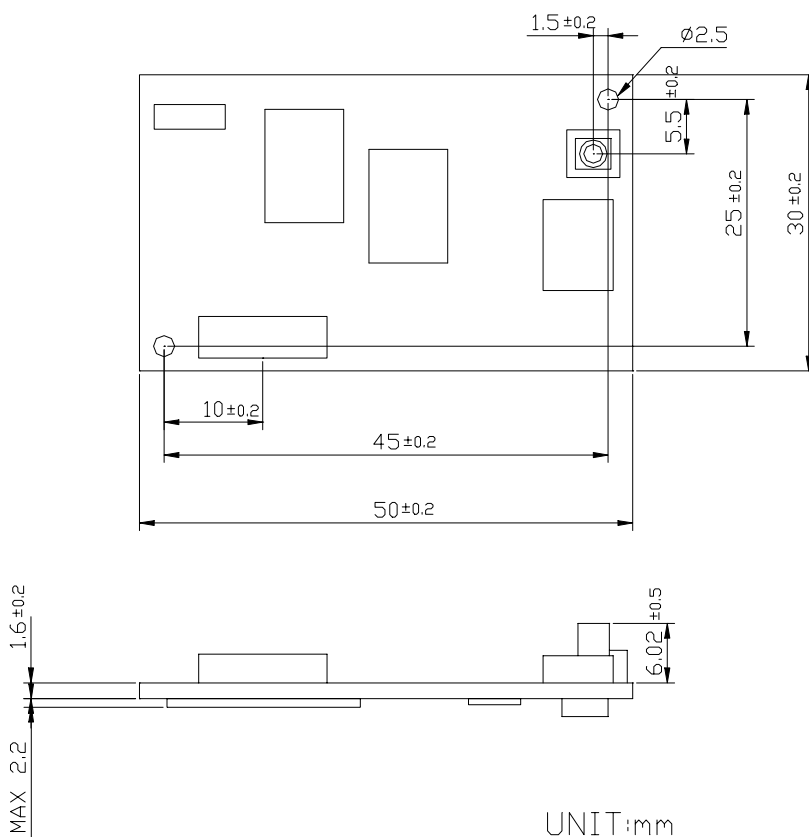


FL-18



OUTLINE & DIMENSIONS



FEATURES

- Digital 11-channel parallel/sequential receiver
- 30 x 50 x 9 mm
- Approximate 24 g (0.05 lb)
- Gyro and speed signal input (Optional)
- 120 mA at 5 VDC (Typical, without antenna)
- Best suited for built-in application
- Differential ready by RTCM SC-104 format
- Asynchronous serial data communication channel (TTL)
- User selectable mask values
- Data out by NMEA-0183 & BINARY format includes:
 - Latitude/ longitude
 - Universal time coordinated
 - Altitude
 - Speed
 - Heading
 - Satellite information

SPECIFICATIONS

Receiving frequency		1575.42 MHz±1 MHz
Receiver channel		Digital 11-channel parallel/sequential
Sensitivity		Better than -130 dBm (elevation angle: 5° or more)
Accuracy (PDOP 3)	a) Position	15 m RMS (without SA), Spherical probability: 95%, 15 m RMS (without SA)
	b) Speed	1 m/s or less (with SA)
	c) Bearing	Approx. 1 degree (with SA)
Dynamics	a) Velocity	Less than 350 km/h (500 km/h: optional)
	b) Acceleration	Less than 1G
Position update time		Every 1 second
Time to position fix (warm start)		Within 60 seconds (at normal temperature)
Position mode		2-D positioning (3 satellites: HDOP<10), 3-D positioning (4 satellites: PDOP<7)
Backup memory		Supported by built-in lithium battery
Initial position data		Not necessary
Almanac and time data		Not necessary
Differential GPS		RTCM SC-104 format acceptable
Power Supply	a) Voltage	5 VDC (ripple 50 mV or less)
	b) Consumption	120 mA (Typical, without Antenna unit)
Antenna	a) Micro-strip patched antenna	Right-hand circular polarized antenna
	b) Directivity Zenith	-2 dB or more
		Elevation 5°
	c) Pre-amplifier Gain	26 dB±3 dB
Noise figure		2.5 dB or less
Temperature range	a) Operation	-30° to 70°C (-22° to 158°F), wider range: optional
	b) Storage	-40° to 85°C (-40° to 185°F)
Data communication		Asynchronous bidirectional data communication with TTL level
Input data format		Exclusive for default setting and RTCM SC-104
a) Baud rate	4800 & 9600 for NMEA & Binary	
	b) Programmable parameters	
	1) Antenna height	0 to 9999 m (Default: 0)
	2) Mask Elevation	0° to 45° (Default: 10)
		Value PDOP
	HDOP	0 to 20 (Default: 10)
	S/N	0 to 25 (Default: 3)
	3) Datum	00 to 85 (Default: 00 WGS-84)
	4) Averaging factor	1 to 3 (Default: 3)
	5) L/L unit of GGA	0: 0.001' or 1: 0.001' (Default: 0)
6) Differential switch	0: OFF or 1: ON (Default: 1)	
7) Differential time out	10 to 180 sec. (Default: 100)	
c) Differential data		RTCM SC-104 format, 4800 baud
d) Input data level		Inverted TTL
Output data format		NMEA-0183 Ver.2.0 Other formats: optional
a) Baud rate		4800 & 9600 for NMEA & Binary
b) Data contents		
Latitude & longitude		In increments of 0.001 minute or 0.0001 minute
Time		UTC (hour, minute, second)
Altitude		In increments of 1 meter
Speed		In increments of 0.1 knot, 0.1 km/h
Course		In increments of 0.1 degree
Others		HDOP, positioning mode
c) Output format		
ZDA+GGA+GLL+VTG+RMC+ZDA		Interval of every 1 second
+PKODA+PKODG, 1+PKODG, 7+GSA		Interval of every 2 seconds
GSV		Interval of every 2 to 6 seconds
d) Output data level		Inverted TTL (NMEA-0183 applicable)

Note: Accuracy subject to change in accordance with DOD civil GPS user policy.

EQUIPMENT LIST

Standard Equipment List

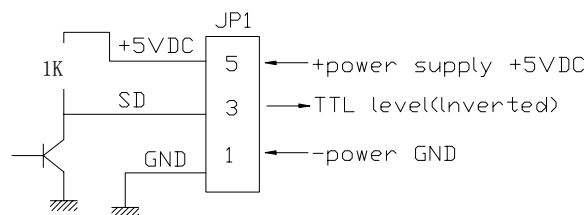
No.	Articles	TYPE	Remarks	Weight/length
1	GPS receiver	FL-18		24 g (0.05lb)

Options

No.	Articles	TYPE	Remarks	Weight/length
1	Data in/out harness	CW-338A	With 5-pin connector, one end plain	200 mm (7 7/8)
2	Antenna unit		With cable 5 m (16 3/8 ft)	120 g (0.27lb)
3	Antenna connecting cable	CW-814	With connectors (H.FL-LP/GT5)	60 mm (2 3/8)
		CW-815	With connectors (FL-LP/BNC)	60 mm (2 3/8)
		D35ELA0010	With connectors (FL-LP/BNC)	150 mm (2 3/8)
4	12 pin connector	52365-12911	Board to Board type (MOLEX)	
5	Shield case		For FL-18	

RECOMMENDED CONNECTION

Data output (TTL)
Recommended input Circuit



11 pin connector (Board to Board) : FL-18 only

Pin No.	Name	Remarks
1	GND	Receiver ground
2	BACKUP IN	+2.5 to 4 VDC
3	SD1 (-)	Inverted TTL level serial OUT
4	RD1 (-)	Inverted TTL level serial IN
5	+5 VDC IN	Receiver +5 VDC IN
6	RD2	Inverted TTL level serial OUT
7	Speed pulse IN	TTL level (0 to 4 kHz)
8	Back signal IN	Reserve
9	Gyro power OUT	+5 VDC
10	Gyro SIGNAL IN	0 to +5 VDC Analog signal
11	Gyro GND	Gyro ground

(*): The input format and the RTCM SC-104 format of differential GPS should be applied to pin 7.