	Ball
	Efratom
	Elektronik
	GmbH

3. SPECIFICATIONS

Antenna/Preamplifier

Frequency:	1565 - 1585 MHz
Polarization:	Right-hand Circular
Gain:	40 - 55 dBi
Output VSWR:	< 2:1
Connector:	N type female
Dimensions:	Height: 84 mm Diameter: 145 mm
Operating Temperature:	-55°C to +85°C

Antenna Cable

Type:	RG213/U
Length:	25 m
Loss:	≤ 10 dB
Connectors:	N type male

Direct current is carried up to the antenna preamplifier on the central conductor of the cable and GPS signals are carried from the antenna to the Receiver/Controller.

Receiver/Controller Module

Receiver Input:	1575.42 MHz (L1) C/A Code
Timing Accuracy:	100 ns rms*)
Frequency Accuracy:	1E-12 rms*)
Position Accuracy:	25 m rms*)

*) Includes Selective Availability (S.A.) as described in the TECHNICAL CHARACTERISTICS OF THE NAVSTAR GPS document published in June 1991 by the NAVSTAR GPS Technical Support Group. Assumes 24h continuous operation in a fixed stationary position with temperature changes of less than +/-2°C/day. Subject to sufficient satellite availability.

(cont.)

Display:	LCD type, 4 lines, 20 characters per line, displays UTC time of day, Day of Year and calendar date, Modified Julian Date, latitude, longitude, altitude (WGS84), frequency offset, control voltage, etc.
Keypad:	6 pushbuttons and keylock switch
1PPS Input:	For time tagging of an applied pulse (leading edge) of an external time/frequency source. Measured value (1ns resolution) is displayed at the AUXILIARY INPUT MENU (see page 24, section 6.4.).
1PPS Output:	This signal will be TTL compatible, 3.75v +/- 1.25v for logic "1", and 0.4v +/- 0.4v for logic "0" into 50 ohm impedance. The leading edge of the positive going "one" pulse, will be time coherent with the relevant UTC second pulse as received by the GPS receiver within max 100 ns[*]. The rise time will be max. 10 ns. Jitter on leading edge will be max 10 ns. Length of pulse will be minimum 7 µs.
Connectors:	N type female (antenna), BNC for 1PPS signals, D9S (RS 232).
Operating Temperature:	0°C to +50°C

[*] see page 7

RS-232 Port: 9.600 Baud, 8 bit word length, 1 start bit,
2 stop bits, no parity, (hardware handshake).
(See page 29 "6.11. RS-232 Interface Menu" for RS-232
settings).
The software utility to be used is provided by a floppy disk
and is enclosed with the MGPS package.

3

Provides:

- **Actual Time**

- **Day of Year**

- **Modified Julian Date**

- **Position**
    Latitude
    Longitude
    Altitude

- **History**
    Date and time of Synchronization by GPS
    Date and time of Time transferred by GPS
    Date and time of Time correction by GPS
    Date and time of Freq. correction by GPS

- **Status**
    Date and time
    Mod. Jul. Date
    Power low   Date and time
    MRK unlock   Date and time
    MRK locked   Date and time
    System state
    Operating mode
    Control voltage
    Software version

- **Satellites**
    Signal level of satellites being tracked

- **Output of Aux Delay Data**
    Tags date and time of applied pulse (leading edge)
    with 1ns resolution.
    (Also displayed at the AUXILIARY INPUT MENU, see
    page 24, section 6.4.)