

# iMAG-DMC-LS

## Low Size 3D Magnetometer for Harsh Environment

iMAG-DMC-LS is a three axes magnetometer being designed to be used on helicopters and in other harsh environment. The sensor can be calibrated in hard-magnetic and soft-magnetic environment and delivers magnetic north with high bandwidth.



- 3 D magnetometer
- azimuth accuracy 0.5 deg ( $2\sigma$ )
- up to +/-45 deg roll/pitch capability
- up to 50 Hz data rate
- RS232 / RS422 interfaces
- Wide supply voltage, full EMI/EMC protection for aviation applications
- direct supported by iVRU-xxx and iNAT

The iMAG-DMC-LS provides an interface for plug & play operation with iMAR's vertical reference units of type iVRU-xx and iNAT navigation

systems. As an option the unit can be delivered as a heavy-weight design in a casted quadratic housing.

### Technical Data of iMAG-DMC-LS:

Feature	Performance	
Sensor Range:	$\pm 100 \mu\text{Tesla}$	[1 Gauss = $100 \mu\text{Tesla}$ , earth magnetic field is between $30 \mu\text{Tesla}$ (equator) and $60 \mu\text{Tesla}$ (poles)]
Resolution:	$< 0.01 \mu\text{Tesla}$	
Noise:	$< 0.02 \mu\text{Tesla}$	
Roll/Pitch Range:	$< +/- 45^\circ$ $+/- 80^\circ$	within specification ( $0.2^\circ$ heading) operational
Heading Accuracy:	0.5 deg ( $2\sigma$ ), depends on environment	
Digital Interface:	UART RS232 or RS422 (factory set), no galvanic insulation from power supply	
Start-up-time:	$< 0.3$ s	
Output Data Rate:	up to 50 Hz via RS232/RS422	
Connector:	MIL-C-38999-III, 13 pin	
Temperature:	$-40...+71^\circ\text{C}$ (case temperature) operational, $-32...+55^\circ\text{C}$ calibrated	
Power:	$4...6$ V DC (standard); $< 1$ W @ 5 V	
Size / Weight:	$40 \times 41 \times 90$ mm (metal case, IP68, plus connector), approx. 200 grams	
Environmental Prot.:	MIL-STD-810F (sand/dust/water/humidity/temp./shock/vibr.); MIL-STD-461E	
Shock, Vibration:	50 g, 11 ms ; $5...2'000$ Hz 5 g(rms); endurance aviation proved (DO160E)	

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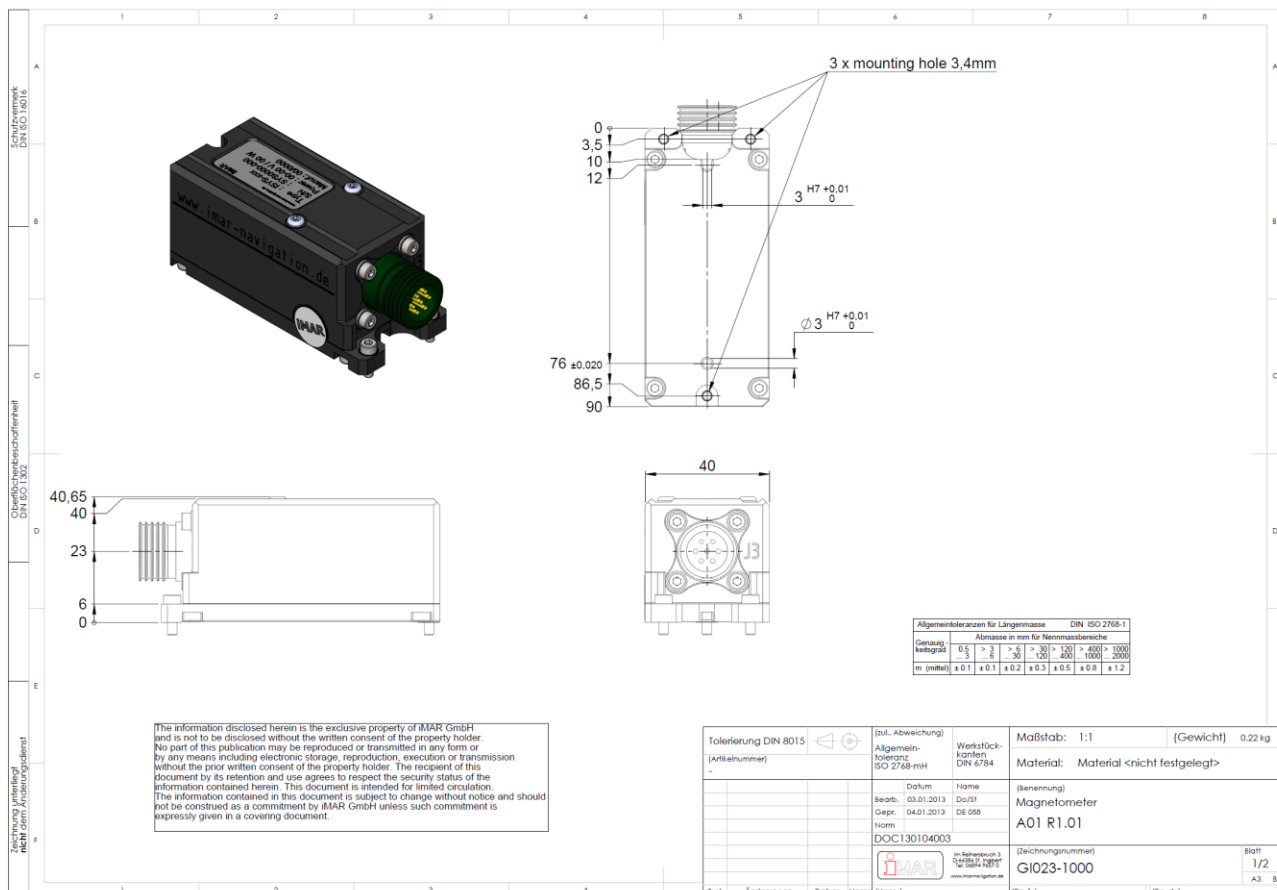
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## Connector Pinout and Drawing of iMAG-DMC-LS:

System Connector: MIL-C-38999 III, Type 20WB35PN (13 pin)

Pin 1:	V_IN	4...6 V DC or 9...16 V DC
Pin 2:	Power_GND	
Pin 3:	RS232_RxD	
Pin 4:	RS232_TxD	
Pin 5:	RS422_RxD+	
Pin 6:	RS422_TxD+	
Pin 7:	RS422_RxD-	
Pin 8:	RS422_TxD-	
Pin 9:	N/C	
Pin 10:	N/C	
Pin 11:	Sig_GND	(for power supply 9-36 V identical to PGND)
Pin 12:	Sig_GND	
Pin 13:	PE / Case	



## Important Installation Hints:

Do not install the magnetometer close to magnetic sources like motors or drive systems, electric power lines or magnets to avoid any distortion of the earth magnetic field. Do not use ferro-magnetic screws for assembly (better: V2A screws).

