

# 2018

## GENERAL CATALOGUE



**PREMO**  
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## GENERAL CATALOGUE 2018

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PREMO 3DCoil is protected under spanish patent number: P200102446

3DCoil Cap Adaptor is protected under Spanish patent number: W2013003888

3DCoil Split Base is protected under Spanish patent number: EP14380009

Alma Flexible Antenna is protected under Spanish patent number: EP16380004

PREMO planar transformers are protected under Spanish patent number: P200201465

3DPower technology is protected under international patent: WO2018083249

PREMO inductive coupler is protected under european patent: Blocking filter is protected under Spanish patent number: ES1134166U

To get more information about PREMO patents please check out: *PREMO Innovation: The Patents Book*.

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Severo Ochoa 47 Parque Tecnológico de Andalucía  
29590 Campanillas - Málaga - Spain

[info@grupopremo.com](mailto:info@grupopremo.com)  
[www.grupopremo.com](http://www.grupopremo.com)

<https://3dcoil.grupopremo.com>  
T: +34 951 231 320



# GENERAL CATALOGUE 2018

## CONTENTS

### 01. RFID COMPONENTS | PAG 24

#### 1.1 RFID TRANSPONDERS

- 1.1.1 SINGLE AXIS TRANSPONDERS INDUCTORS | PAG 26
- 1.1.2 3-AXES TRANSPONDER INDUCTORS | PAG 62
- 1.1.3 NFC ANTENNAS | PAG 106

#### 1.2 EMITTER ANTENNAS

- 1.2.1 SHORT RANGE | PAG 128
- 1.2.2 MIDDLE RANGE | PAG 158
- 1.2.3 LONG RANGE | PAG 172

#### 1.3 TELECOILS

### 02. VR EM TRACKING SENSORS | PAG 192

- 2.1 Rx EM MOTION TRACKING SENSORS | PAG 199
- 2.2 Tx EM MOTION TRACKING ANTENNAS | PAG 212

### 03. WIRELESS CHARGING ANTENNAS | PAG 228

### 04. INDUCTIVE COMPONENTS | PAG 234

- 4.1 OBC TRANSFORMERS | PAG 238
- 4.2 DCDC TRANSFORMERS | PAG 242
- 4.3 3DPOWER | PAG 252
- 4.4 PFC CHOKES | PAG 262
- 4.5 HIGH-CURRENT DC CHOKE | PAG 270
- 4.6 COMMON MODE CHOKES | PAG 276
- 4.7 RESONANT CHOKES | PAG 294
- 4.8 GATE-DRIVE TRANSFORMERS | PAG 304
- 4.9 CURRENT TRANSFORMERS | PAG 314
- 4.10 FLYBACK TRANSFORMERS | PAG 320
- 4.11 PLC TRANSFORMERS | PAG 328

### 05. PLC COMPONENTS | PAG 334

- 5.1 INDUCTIVE COUPLERS | PAG 336
- 5.2 BLOKING FILTERS | PAG 350

	PAG
<b>1. RFID TRANSPONDERS</b>	<b>10</b>
INTRODUCTION	12
RAPID GUIDE	16
<b>1.1 RFID TRANSPONDERS</b>	<b>24</b>
<b>1.1.1 SINGLE AXIS TRANSPONDER INDUCTORS</b>	<b>26</b>
TP0502CAP- SMD Transponder Coil with CAP 5.4x2.8x2.9mm	New 28
TP0602 - Micro SMD Hard Ferrite Transponder Inductor 6.6x2.3x1.75mm	30
TP0602CAP- Micro SMD Hard Ferrite Transponder Inductor with CAP 7.1x2.9x2.05mm	New 32
TP0702 - SMD Hard Ferrite Mechanically Improved Transponder Inductor 7.7x3x2.5x2.2mm	34
TP0702U - SMD Transponder Coil with CAP 7.8x2.2x2.5mm MAX	36
TP0702UCAP - SMD Transponder Coil with CAP 8.7x2.7x3mm MAX	38
TP0702CAP - SMD CAP Hard Ferrite Mechanically Improved Transp. Inductor 8.7x2.7x3mm	40
TR1102 - SMD Ferrite Transponder Inductor 11x2.6x2.2mm	42
TR1102CAP - SMD CAP Ferrite Transponder Inductor 11.8x3.1x 2.6mm	44
SDTR1103 - SMD Drop Resistant Transponder Coil 11.8x3.6x2.5mm	46
SDTR1103CAP - SMD Drop Resistant Transponder 12.1x4.0x2.9mm	48
SDTR1103EM - SMD Transponder Coil 11.4x3.5x2.4mm	50
SDTR1103-HF1 - SMD Drop Resistant Transponder Coil High Frequency 11.8x3.6x2.5mm MAX	52
ZC1003 - 1003 SMD Z AXIS Coil low profile 10x10x3.2mm	54
ZAC1203 - Z AXES SMD Z AXIS Air Coil low profile 14.3x12x2.5mm	56
GENERAL SPECIFICATIONS TRANSPONDER INDUCTORS SMD PACKING	58
<b>1.1.2 3-AXIS TRANSPONDER INDUCTORS (3DCOILS)<sup>TM</sup></b>	<b>62</b>
3DC06ISO - SMD 3D Coil 7x7x2.3 mm	64
3DC06EM - SMD Transponder Coil 7.9x7.9x2.45mm	New 66
3DC09LP - SMD 3D Coil 9.5x9.5x3.1 mm	68
3DC11LP - SMD 3D-Coil low profile 13x11.6x3.15 mm	70
3DC11LP - AOI - SMD 3D11 Coil low profile AOI 13x11.6x3.45 mm	72
3DC11LP - AOIF - SMD 3D11 Coil low profile AOI (foam option) 13x11.6x4.7 mm	74
3DC11LP - AOIC - SMD 3D11 Coil low profile AOI (cap option) 13x11.6x4.15 mm	76
3DC11LPCAP - SMD CAP 3D Coil low profile 13x12.8x3.7mm	78
3DC11F - SMD 3D Coil low profile 13x11.6x4.35mm	80
3DC11AOI-05DR - SMD 3D Coil 13x11.6x3.9mm Half Drumcore	82
3DC11-DR - SMD 3D Coil Drumcore 13x11.6x3.9mm	84

	PAG
3DC12EM - SMD 3D Coil 12.9 x 12.5 x 3.65mm Epoxy Moulding	86
3DC14EM - SMD Epoxy Molded 3D Coil 12x12x3.2mm	New 88
3DC14EM-ULP- SMD 3D Coil Ultra-Low-Profile 14x12x1.65mm	New 90
3DC14EMR-ULP SMD 3D Coil Ultra-Low-Profile 14x12x1.65mm	New 92
3DC1515 - SMD 3D Coil 17.5x15.5x3.8 mm	94
3DC15CAP - SMD CAP 3D Coil 17.5x16x4.1mm MAX	96
3DC15F - SMD 3D Coil 17.5x16.0x4.0 mm MAX	98
3DC12S - SMD 3D Coil Cap Adaptor 12.5x13.5x2.6mm	New 100
3DC13S - SMD 3D Coil Cap Adaptor 13.25x13.55x4.05mm	New 102
3DC14S - SMD Foam Label 3D Coil 13.25x13.55x4.05mm	New 104
<b>1.1.3 NFC ANTENNAS</b>	<b>106</b>
TC0502HF - NFC SMD antenna 5.2x2.4x2.7mm MAX	108
SDTR1103 - HF2 SMD Transponder for NFC applications 11.8x3.6x4.2.5mm	110
3DC15HF SMD 3D Coil 17.5x16.0x4.0 mm MAX	112
4DC15NF - 4D-Coil 125kHz-PKE	114
2D1D15 SMD 3D Coil 17.5x16.0x4.0mm MAX	116
ZC1003HF - SMD Z axis for NFC applications 10x10x3.2mm	118
<b>1.2 EMITTER ANTENNAS</b>	<b>120</b>
Introduction	122
Rapid Guide	124
<b>1.2.1 SHORT RANGE</b>	<b>128</b>
SEA - SMD Small Emitter Antenna 50.80x10.60x6.80mm	130
KGEA-SMD - Keyless Go Emitter Antenna SMD 75x15x6.3mm	132
KGEA-BFCR - Keyless Go Emitter Antenna Housing Plastic with Resin and Outside Connector 145x26x12mm	134
LFAD-BF/BFC - Diabolo antenna shape for smart entry system	New 136
KGEA-BFCWX - Keyless Go Emitter Antenna Potted with Unsealed/Sealed Connector 103x20x9mm	140
KGEA-BFCAM - Keyless Go Emitter Antenna Low Profile Potted Unsealed/ Sealed Connector 85x16.8x7mm	142
KGEA-HB LF interior antenna shape h bridge 116,75x20x23mm	144
KGEA-HBT	New 146
KGEA-HBB - Short Range Antenna LF for smart entry system. External housing + LPM (cover)	New 148
KGEA-HBW - Short Range Antenna LF for smart entry system. External housing (integrated connector) + PU-resin (filled)	New 150
KGEA-DHS - Door Handle antenna LF for smart entry system (+SWITCH )	New 152
KGEA-DHSL - Door Handle antenna LF for smart entry system (SWITCH and LED)	New 154

	PAG
<b>1.2.2 MIDDLE RANGE</b>	<b>158</b>
KGEA-MR - Middle Range Antenna LF for smart entry system	<b>New</b> 160
KGEA-MRHB - Middle Range Antenna LF for smart entry system	<b>New</b> 164
LFAD-MR - Middle Range Antenna LF for smart entry system	<b>New</b> 168
<b>1.2.3 LONG RANGE ANTENNA</b>	<b>172</b>
KGEA-AF/AFC - Long Range Flexible Antenna LF for smart entry system	174
KGEA-AFULR - Ultra Long Range Flexible Antenna LF for smart entry system	<b>New</b> 176
<b>1.3 TELECOILS</b>	<b>178</b>
<b>INTRODUCTION</b>	<b>180</b>
TC0502 - SMD Telecoil 5.1x2.3x2.6mm	182
TP0602-TC - Micro SMD Hard Ferrite Telecoil 6.6x2.3x1.75mm	184
TC0902 - SMD Telecoil 9x1.5x2mm	186
TC1102 - SMD Telecoil 10.5x1.4x2mm	188
<b>GENERAL SPECIFICATIONS TELECOIL PACKING</b>	<b>190</b>
<b>2. VR EM TRACKING SENSORS</b>	<b>192</b>
<b>INTRODUCTION</b>	<b>194</b>
<b>2.1 Rx EM MOTION TRACKING SENSORS</b>	<b>199</b>
3DV06 - SMD 3D Coil 7x7x2.3mm	<b>New</b> 200
3DV09 - SMD 3D Coil 9.5x9.5x3.2mm	<b>New</b> 202
3DV11AOI - SMD 3D Coil 11.6x11.6x3.2mm	<b>New</b> 204
3DV15 - SMD 3D Coil 15.6x15.6x3.8mm	<b>New</b> 206
3DCC08 - 3D Coil Cube receiver sensor for VR magnetic tracking system 16.5x14.8x11.8mm	<b>New</b> 208
3DCC10 - 3D Coil Cube receiver sensor for VR magnetic tracking system 17.4x15.2x13.9mm	<b>New</b> 210
<b>2.2 Tx EM MOTION TRACKING ANTENNAS</b>	<b>212</b>
3DCC20 - 3D Coil Cube emitter for VR magnetic tracking system 30.7x30.75x30.7mm	<b>New</b> 214
3D20LW - 3D Coil Cube emitter for VR magnetic tracking system 30.7x30.7x30.2mm	<b>New</b> 216
3DCC28 - 3D Coil Cube emitter for VR magnetic tracking system 39.5x39.5x38.6mm	<b>New</b> 218
3D28LW - 3D Coil Cube emitter for VR magnetic tracking system 39.5x39.5x38.6mm	<b>New</b> 220
3DCD90 - 3D Electromagnetic Tracking Disc 105x20mm	<b>New</b> 222
3DTX08 - 3D Coil Cube receiver sensor for VR magnetic tracking system 16.5x14.8x11.8 mm	<b>New</b> 224
3DTX10 - 3D Coil Cube receiver sensor for VR magnetic tracking system 17.4x15.2x13.9 mm	<b>New</b> 226

	PAG
<b>3. WIRELESS CHARGING ANTENNAS</b>	<b>228</b>
WC-TX-001-90K - Ground assembly flexible-pad for the wireless power transfer in the electric vehicles.	<b>New</b> 230
WC-RX-002-90K - Vehicle assembly flexible-pad for the wireless power transfer in the electric vehicles.	<b>New</b> 232
<b>4. INDUCTIVE COMPONENTS</b>	<b>234</b>
<b>4.1 OBC TRANSFORMERS</b>	<b>236</b>
BC3.5LHB0.5T - LLC Half-Bridge 1:2 Transformer 3.5kW 100-250kHz	<b>New</b> 238
BC3.5LFB1.4 - LLC Full-Bridge 1.4:1 Transformer 3.5kW 70-200kHz	<b>New</b> 240
<b>4.2 DCDC TRANSFORMERS</b>	<b>242</b>
DCDC414-002 - ZVS PSFB Transformer 3kW 100kHz 20:1+1	<b>New</b> 244
DCDC214-002 - ZVS PSFB Transformer 2,5kW 100kHz 30:1+1	<b>New</b> 246
DCDC2400-001 - Push-Pull Transformer 2kW 100kHz 1+1:12	<b>New</b> 248
NPT-001 - Power Transformers for HEV Systems	250
<b>4.3 3DPOWER</b>	<b>252</b>
3DP-3kWHVHV-001 - Full Bridge LLC Transformer 270μH+ Resonant Choke 27μH	<b>New</b> 245
3DP-3kWHVHV-002 - Full Bridge LLC Transformer 270μH + Resonant Choke 27μH	<b>New</b> 256
3DP-3kWHVLV-001 - Full Bridge LLC Transformer 950 μH + Resonant Choke 21 μH + Parallel Inductor 50 μH	<b>New</b> 258
3DP-7kWHVHV-001 - Full Bridge LLC Transformer 160 μH + Resonant Choke 13 μH	<b>New</b> 260
<b>4.4 PFC CHOKES</b>	<b>262</b>
PFC-001 - PFC Choke 310μH / 17Arms / 6App / 67kHz	264
PFC5260-8H - PFC Choke 260μH / 8Arms / 15Apk / 100kHz	<b>New</b> 266
PFC500-8H - PFC Choke 500μH / 8Arms / 15Apk / 90kHz	<b>New</b> 268
<b>4.5 HIGH CURRENT DC CHOKES</b>	<b>270</b>
HPC2R0-230 - High Power Planar Choke 2μH / 230Adc	<b>New</b> 272
HPC1R0-180 - High Power Planar Choke 1μH / 180Adc	<b>New</b> 274

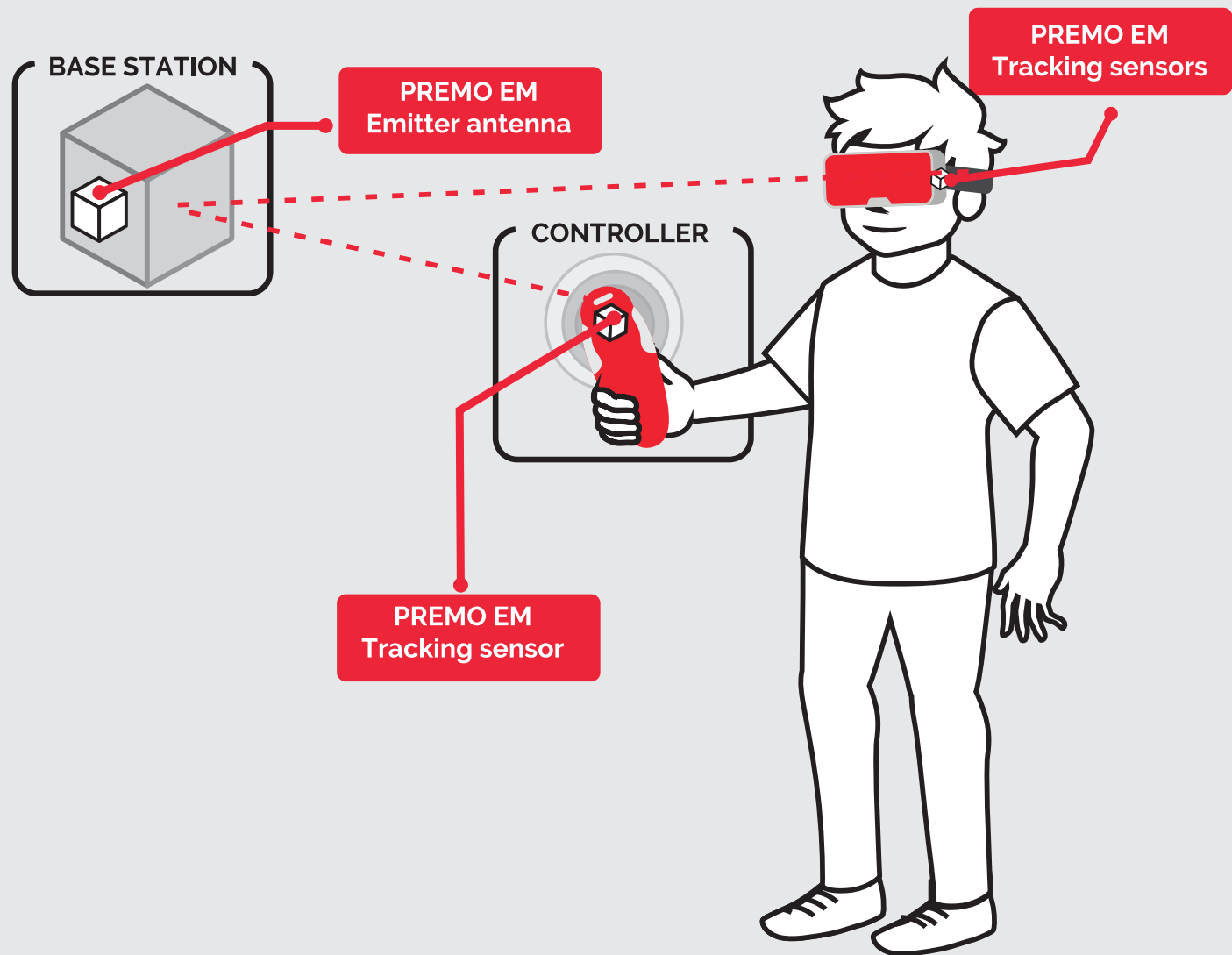
	PAG
<b>4.6 COMMON MODE CHOKES</b>	<b>276</b>
CMCN4R0-12H - Common Mode Choke 2x4mH / 12Adc	New 278
CMCF2R0-16V - Common Mode Choke 2x2mH / 16Arms	New 280
CMCF0R9-16V - Common Mode Choke 2x0.9mH / 16Adc	New 282
CMCN4R3-16H3 - CMC 3P+N 4x4.3mH / 16+16+16+48Arms	New 284
CMCN1R0-36V - Common Mode Choke 2x1mH / 36Adc	New 286
CMCN25R-16V - Common Mode Choke 2x25mH / 16Arms	New 288
CMCN10R-16V - Common Mode Choke 2x10mH / 16Arms	New 290
CURVES OF PERFORMANCES	292
<b>4.7 RESONANT CHOKES</b>	<b>294</b>
RINDZ14R-14 - ZVS Resonant Inductor 14μH 14Apk 100kHz	New 296
RINDLS6R3-30T - LLC Serial Resonant Inductor 6.3μH/30Apk 100-250kHz	New 298
RINDLS22R-29 - LLC Serial Resonant Ind. 22μH/29Apk 70-200kHz	New 300
RINDLP36R-5 - LLC Parallel Resonant Ind. 36μH/5Apk 100-250kHz	New 302
<b>4.8 GATE-DRIVE TRANSFORMERS</b>	<b>304</b>
GDAU-001 - Isolated SMD Gate Drive Transformer up to 150Vμs	306
GDAU-002 - Gate-Drive Transformer 1:1:5 16Vus	New 308
GDAU-003 - Gate-Drive Transformer 2:1 200Vus	New 310
GDAU-004 - Push-pull Gate-Drive Transformer 1:1:1.3:1.3 2x11Vus	New 312
<b>4.9 CURRENT TRANSFORMERS</b>	<b>314</b>
CSAU-100 - Automotive HEV Current Transformer up to 35 Amps	316
CS-35A - Automotive EV/HEV Isolated SMD Current Transformer up to 35Amps	318
<b>4.10 FLYBACK TRANSFORMERS</b>	<b>320</b>
FLYT-001 - Flyback Tr. 5W/100kHz 10:3:7+4:10+4	New 322
FLYT-002 - Flyback Tr. 16W/100kHz 5:9:9:9:9	New 324
FLYT-003 - Flyback Tr. 5W/100kHz 7:5:7:5:5:5	New 326
<b>4.11 PLC TRANSFORMERS</b>	<b>328</b>
PLC-001 - 2-30MHz 1:1:1 6μH	New 330
PLC-002 - 2-30MHz 1:1 15μH	New 332

	PAG
<b>5. PLC COMPONENTS</b>	<b>334</b>
<b>5.1 INDUCTIVE COUPLERS</b>	<b>336</b>
INTRODUCTION	338
MICU 300A - Medium Voltage Inductive Coupling Units	340
MICU 300A-S/LF - MV ICU-300A / Low Freq. (30-500kHz)	342
MICU 300A OH/LF - MV ICU 300A Low Freq.(30-500kHz) Outdoor Overhead	344
MICU 300A-W/LF - MV ICU/Low Freq. (30-500kHz) Underground WR Immersion	348
<b>5.2 BLOCKING FILTERS</b>	<b>350</b>
INTRODUCTION	352
BF (PLC BLOCKING FILTERS-SINGLE PHASE)	354
CONTACT	358

02

# AR VR EM TRACKING SENSORS





01 INTRODUCTION

Electromagnetic motion tracking systems work by using a low frequency isotropic magnetic field generator (3D emitter) and one or several isotropic 3D magnetic sensors. Emitter and receiver sides need special 3D magnetic coils to generate and receive the magnetic field signals.

These sensors offered to the AR/VR market include more than six degrees of freedom (6DOF): 3 positions and 3 orientations generated by 3 transmitter coils and 3 receiver coils. Typical operating frequencies range are from a few kHz (even Hz) to several kHz (20-50-60kHz).

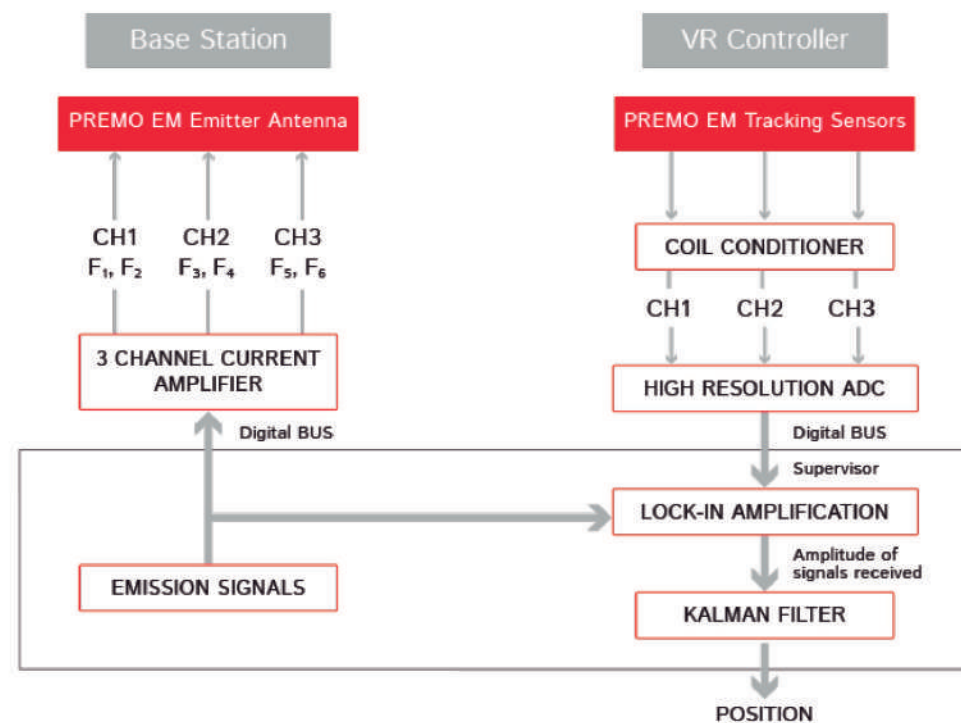
Premo's 3DCoils and 3DCoilCube motion tracking magnetic sensors use a 3D emitter antenna that generates an electromagnetic field. The use of low frequency/long wavelength signals allow tracking sensors to be embedded or out of sightline, ideal for any virtual reality controller.

Due to Premo's wide experience in these products, we offer a large portfolio of Tx/Rx electromagnetic tracking sensors, covering all kinds of range, dimensions or performance constraints. From cube to low-profile configurations, and from lower to higher sensitivities, the range of possibilities is very wide. They are entirely customizable and deliverable within 4 weeks. We are equipped to produce over 50 million 3DCoils and 3DCoilCubes per year.

3DCoilCube™







## >> 3DCOILCUBE (TX, RX COILS)

Choosing the right digital hardware in virtual reality and augmented reality systems is one of the most important decisions you will make. Cubic design is the most effective approach to an isotropic magnetic coil emitter or receiver.

Already used in some of the world's most advanced VR/AR devices, the 3DCoilCube has an unmatched precision of 0.001m and can track the smallest, slowest movements for optimum 3D motion tracking.

## >> 3DCOIL (RX COILS)

The low profile 3DCoil design achieves electromagnetic sensitivity isotropy by clever design techniques and fine-tuned windings calculations. By using these, the sensor volume required shrinks to SMT PCB mounted components standards (<3.5mm height).

## >> CUSTOM SOLUTIONS

PREMO biggest competitive advantage is the short time-to-market performance when developing a custom-made solution according to customer specifics.

A wide variety of EM sensors can be designed to meet AR/VR systems requirements. From cube configurations to low-profile configurations, and from lower to higher sensitivities, the range of possibilities is very wide:

- › Shapes (i.e. rectangular, quasi-cub, ultralow-profile)
- › Inductance: Tx (20µH – 2mH), Rx(300µH – 7mH)
- › Operation frequency (3 – 300kHz)
- › Standard cables to male/female connector
- › FPC connection
- › Over-Molded (low pressure molding)

## >> VR CONSULTING EXPERT - AMFITECH



PREMO has entered a strategic partnership with Amfitech, highly specialized in electromagnetic tracking systems development and customization.

AmfiTrack is an embedded stand-alone, high precision and low cost electromagnetic tracking system based on electromagnetic field (EMF) tracking, using an EMF transmitter and one or more EMF receivers

Our VR/AR EM Trackers are included in AmfiTrack six degrees of freedom (6DOF) 3D tracking system.

More info at: <http://amfitrack.com>

## >> KITS

PREMO Tx/Rx VR Sensors Kit includes a set of Tx & Rx coils. Place the transmitter in gloves, remote controls or in the console and the receiver in the VR glasses. Let the magnetic field do the rest. This unique, wireless, Tx/Rx motion sensing technology leaves no movement undetected

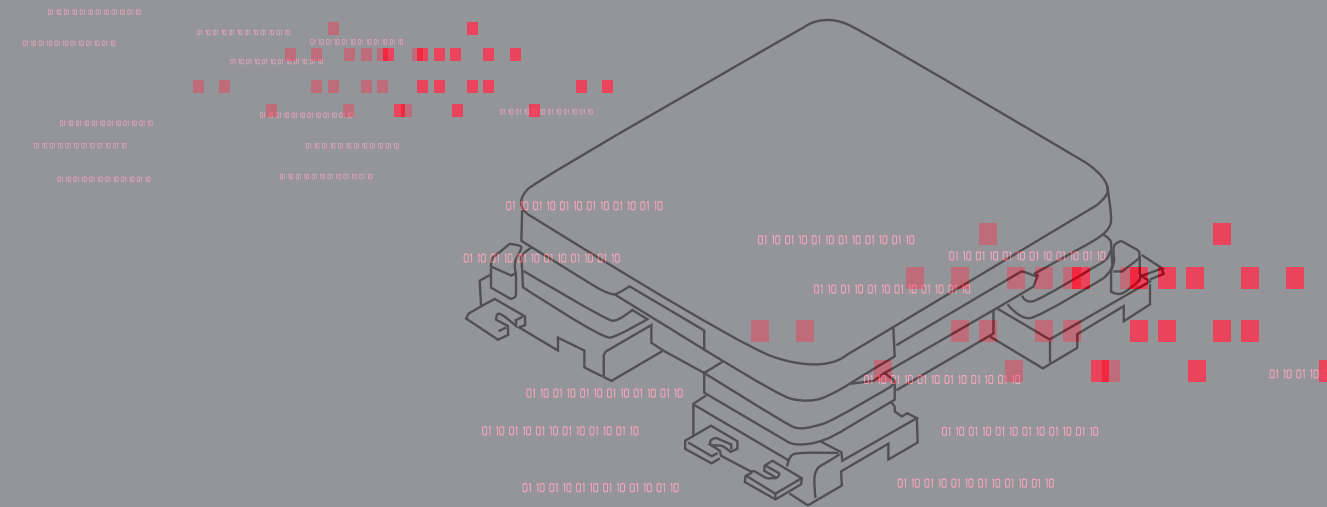
PREMO AR/VR Demo Kit is an Electromagnetic Motion Tracking System Demo kit. Main benefits are full six degrees of freedom (6DOF) tracking, high precision, low system components cost, easy installation, and no line-of-sight issue, which as a very notable advantage compared with camera-based tracking systems. AmfiTrack is an embedded stand-alone, high precision and low cost electromagnetic tracking system based on electromagnetic field (EMF) tracking, using an EMF transmitter and one or more EMF receivers.



# 2.1

## AR VR EM TRACKING SENSORS

### Rx EM MOTION TRACKING SENSORS



New

# 3DV06

## SMD 3D Coil

7x7x2.3mm

Rx EM MOTION TRACKING SENSORS



### FEATURES

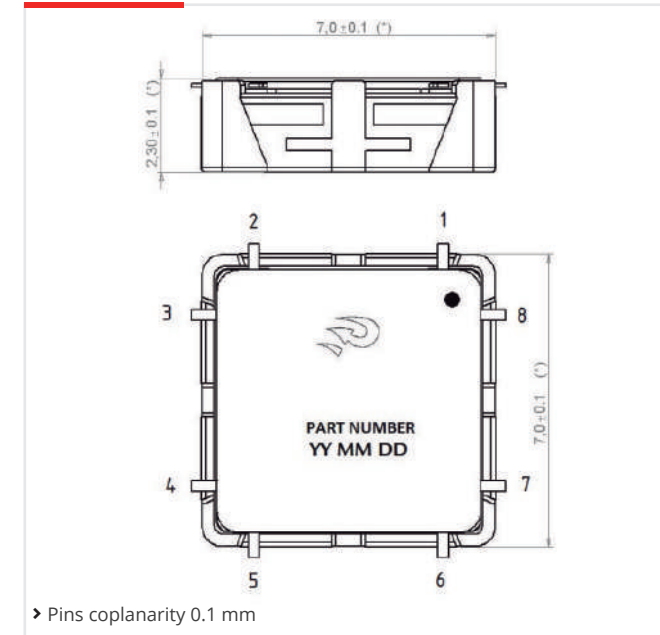
Electromagnetic motion tracking system Works by using one low frequency isotropic magnetic field generator and one or several isotropic 3D magnetic sensors. 3D coils have huge flexibility in terms of customization and setup to fulfill the application needs or environment changes. This is the smallest 3D coil in the market allowing to be used for very small volumes to be traced.

## 01 CHARACTERISTICS

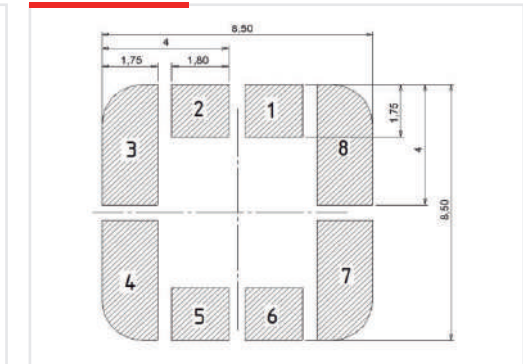
- › Size 7x7x2.3 mm
- › SMD solution
- › Suitable for AOI
- › High stability in temperature (-40 °C to +85 °C)
- › Labelled to allow P&P operations
- › Same sensitivity in the three axis.

## 02 DIMENSIONS

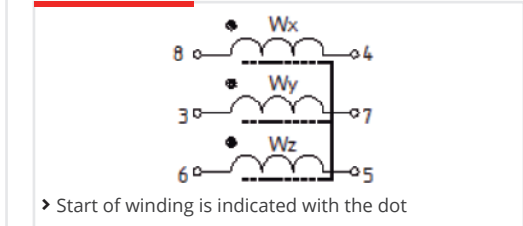
### DIMENSIONS (mm)



### RECOMMENDED PAD-LAYOUT



### ELECTRICAL DIAGRAM



### ELECTRICAL SPECIFICATIONS

Code	L <sub>x,y,z</sub> nom (mH)	Q <sub>x,y,z</sub> nom	f (kHz)	SRF <sub>x,y</sub> (kHz) Min	SRF <sub>z</sub> (kHz) Min	DCR <sub>x</sub> (Ohm) Max	DCR <sub>y</sub> (Ohm) Max	DCR <sub>z</sub> (Ohm) Max	Sensit. <sub>x,y,z</sub> (mV/A/m) Min (*)
3DV06-A-S0100J	1.0 / 1.0 / 5.8	3.4/3/3.5	20	1000	1000	44	49	230	2.7
3DV06-A-S0340J	3.40 / 3.40 / 10.2	3.5/3/4.0	20	500	750	141	154	350	5

(\*) Ask for sensitivity test set up and recommendations

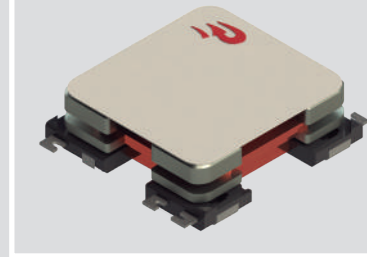
New

## 3DV09

### SMD 3D Coil

9.5x9.5x3.2mm

Rx EM MOTION TRACKING SENSORS



### FEATURES

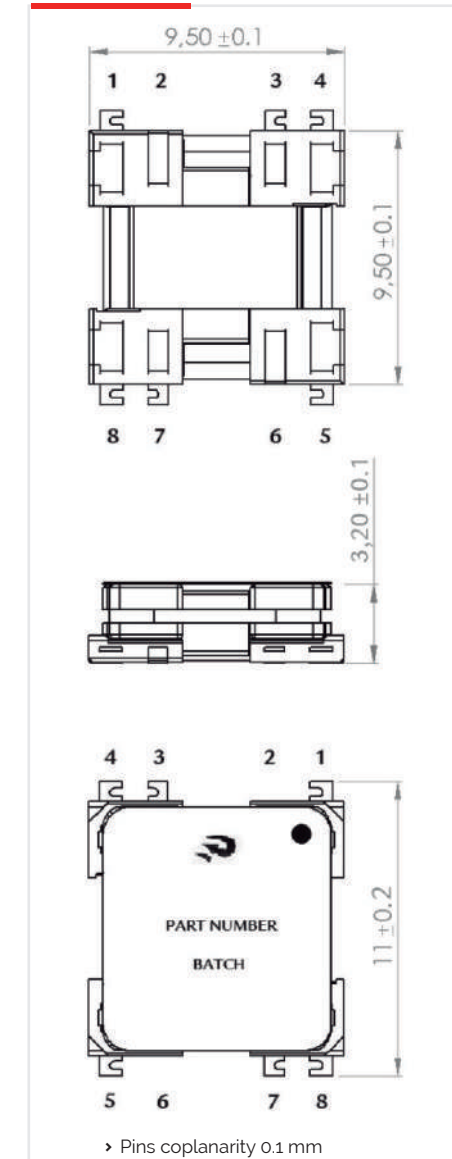
Electromagnetic motion tracking system Works by using one low frequency isotropic magnetic field generator and one or several isotropic 3D magnetic sensors. 3D coils have huge flexibility in terms of customization and setup to fulfill the application needs or environment changes. Size of this coil makes it suitable in several applications where reduced size is a must.

## 01 CHARACTERISTICS

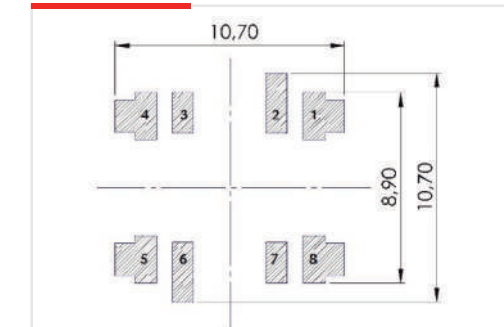
- › Size 9.5x9.5x3.2 mm
- › SMD solution
- › Suitable for AOI
- › Inductance range: 2-20 mH
- › Labelled to allow P&P operations
- › Sensitivity over 20 mV/A/m.

## 02 DIMENSIONS

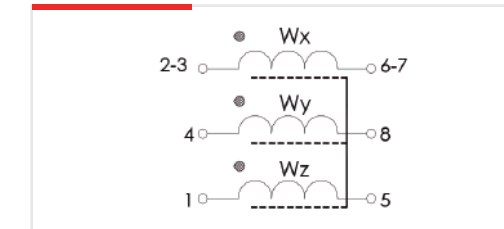
### DIMENSIONS (mm)



### RECOMMENDED PAD-LAYOUT



### ELECTRICAL DIAGRAM



### ELECTRICAL SPECIFICATIONS | 3DCVg-A-2000J

L x,y,z (mH)	18(xy)/30(z)
Qx,y nom	4.5(x) /4(y)
4.5(x) /4(y)	5.5
f(kHz)	20
SRFx,y (kHz) Min	150
SRFz (kHz) Min	450
DCRx (Ohm) Max	520
DCRy (Ohm) Max	570
DCRz (Ohm) Max	715
Sensitivity x,y (mV/A/m) Min (*)	20
Sensitivity z (mV/A/m) Min (*)	15

(\*) Ask for sensitivity test set up and recommendations

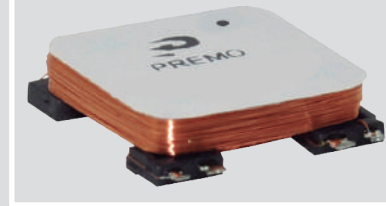
New

## 3DV11AOI

### SMD 3D Coil

11.6x11.6x3.2mm

Rx EM MOTION TRACKING SENSORS



### FEATURES

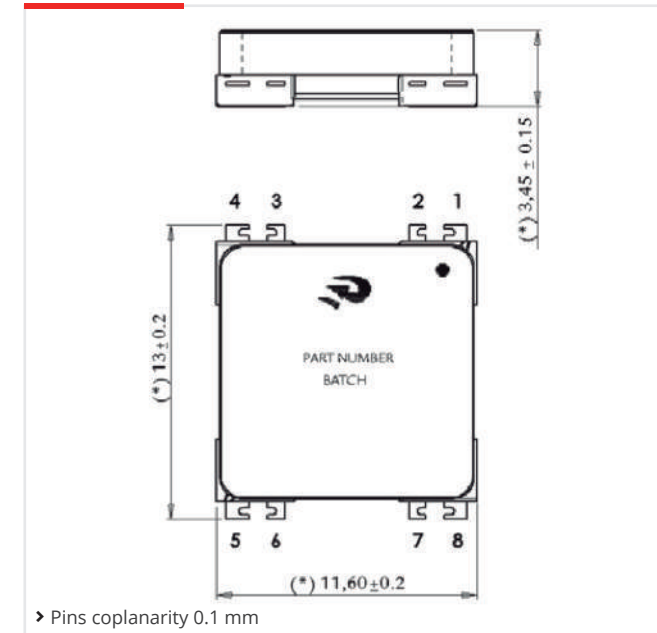
Electromagnetic motion tracking system Works by using one low frequency isotropic magnetic field generator and one or several isotropic 3D magnetic sensors. 3D coils have huge flexibility in terms of customization and setup to fulfill the application needs or environment changes. Performance of this coil makes it suitable in several applications where low profile is a must.

## 01 CHARACTERISTICS

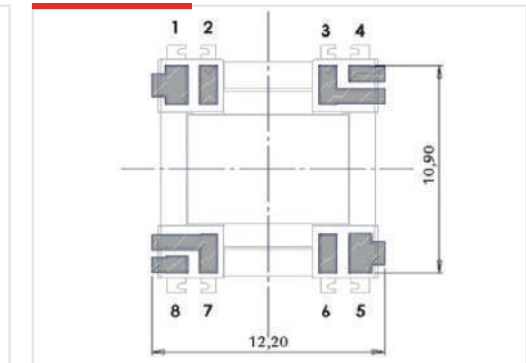
- › Size 11.6x11.6x3.2 mm
- › SMD solution
- › Suitable for AOI
- › Inductance range: 2-20 mH
- › Labelled to allow P&P operations
- › Best size/sensitivity ratio. Sensitivity over 20 mV/A/m @20 kHz.

## 02 DIMENSIONS

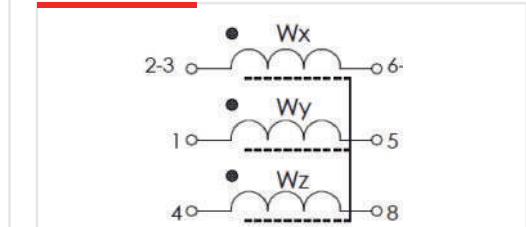
### DIMENSIONS (mm)



### RECOMMENDED PAD-LAYOUT



### ELECTRICAL DIAGRAM



### ELECTRICAL SPECIFICATIONS

Code	L <sub>x,y,z</sub> nom <sup>(1)</sup> mH	Q <sub>x,y,z</sub> Min <sup>(1)</sup>	f (kHz)	SRF <sub>x,y</sub> (kHz) Min	SRF <sub>z</sub> (kHz) Min	DCR <sub>x</sub> (Ohm) Max	DCR <sub>y</sub> (Ohm) Max	DCR <sub>z</sub> (Ohm) Max	Sensit. x,y,z (mV/A/m) Min <sup>(*)</sup>
3DV11AOI-A-S0600J	6 / 6 / 6.9	5.0/5.0/4.0	20	300	500	113	130	180	11
3DV11AOI-A-2000J	20 / 22 / 15	5.0/5.0/5.0	20	120	350	500	550	400	20XY / 15Z
3DV11AOI-A-3000J	30 / 30 / 25	6.0/5.5/5.0	20	100	200	600	700	680	27XY / 23Z

› (1) Measured at 20kHz, 1Vac

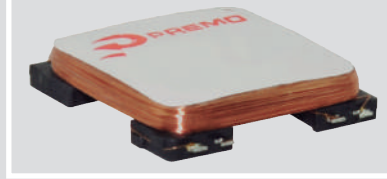
› (\*) Ask for sensitivity test set up and recommendations

New

# 3DV15

**SMD 3D Coil**  
**15.6x15.6x3.8mm**

Rx EM MOTION TRACKING SENSORS



## FEATURES

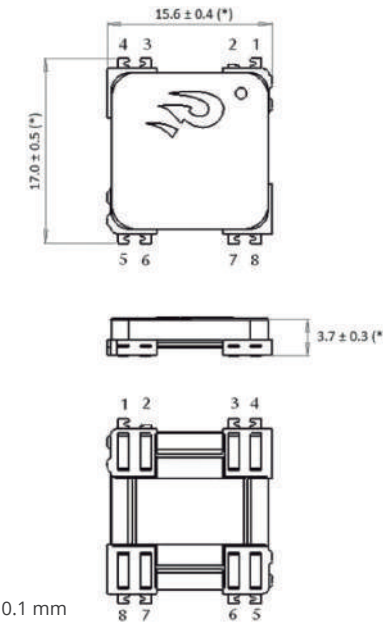
Electromagnetic motion tracking system Works by using one low frequency isotropic magnetic field generator and one or several isotropic 3D magnetic sensors. 3D coils have huge flexibility in terms of customization and setup to fulfill the application needs or environment changes. Higher electrical performance in the 3DC low profile rage.

## 01 CHARACTERISTICS

- › Size 15.6x15.6x3.8 mm
- › SMD solution
- › Highly customizable solution
- › Inductance range: 2-50 mH
- › Labelled to allow P&P operations
- › Best size/sensitivity ratio. Sensitivity over 45 mV/A/m @20 kHz.

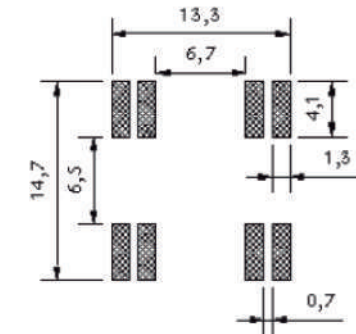
## 02 DIMENSIONS

### DIMENSIONS (mm)

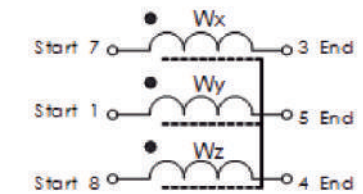


› Pins coplanarity 0.1 mm

### RECOMMENDED PAD-LAYOUT



### ELECTRICAL DIAGRAM



### ELECTRICAL SPECIFICATIONS

Code	L <sub>x,y,z</sub> nom <sup>(1)</sup> mH	Q <sub>x,y,z</sub> nom <sup>(1)</sup>	f (kHz)	SRF <sub>x,y</sub> (kHz) Min	SRFz (kHz) Min	DCRx (Ohm) Max	DCRy (Ohm) Max	DCRz (Ohm) Max	Sensit. x,y,z (mV/A/m) Min <sup>(*)</sup>
3DV15-A-S0600J	6.0 / 6.0 / 7.1	5.5/5.5/4.0	20	225	550	143	143	220	15
3DV15-A-S0900J	9.0 / 9.0 / 10.6	6.0/6.0/4.5	20	200	300	176	176	275	19
3DV15-A-S2000J	20/20/20	8.0/8.0/5.5	20	120	250	330	330	500	30
3DV15-A-5350J	53.5/53.5/34	7.5/7.5/5.2	20	120	150	925	950	875	43 XY/33Z

› (1) Measured at 20kHz, 1Vac

› (\*) Ask for sensitivity test set up and recommendations

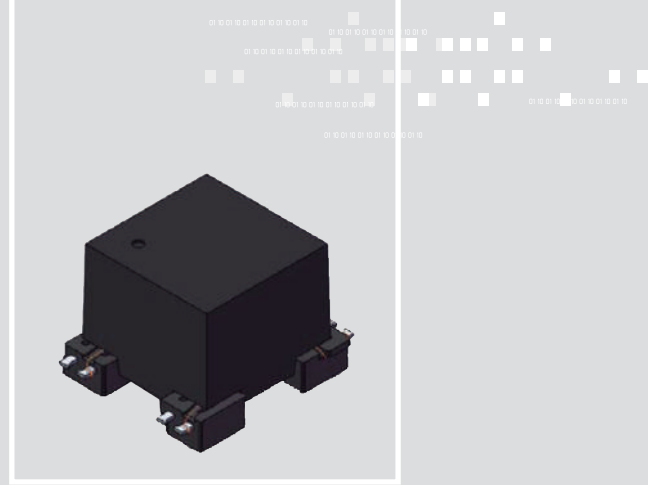
New

## 3DCC08

3D Coil Cube receiver sensor for VR magnetic tracking system

16.5x14.8x11.8mm (300-600uH/2-10mH)

Rx EM MOTION TRACKING SENSORS



### FEATURES

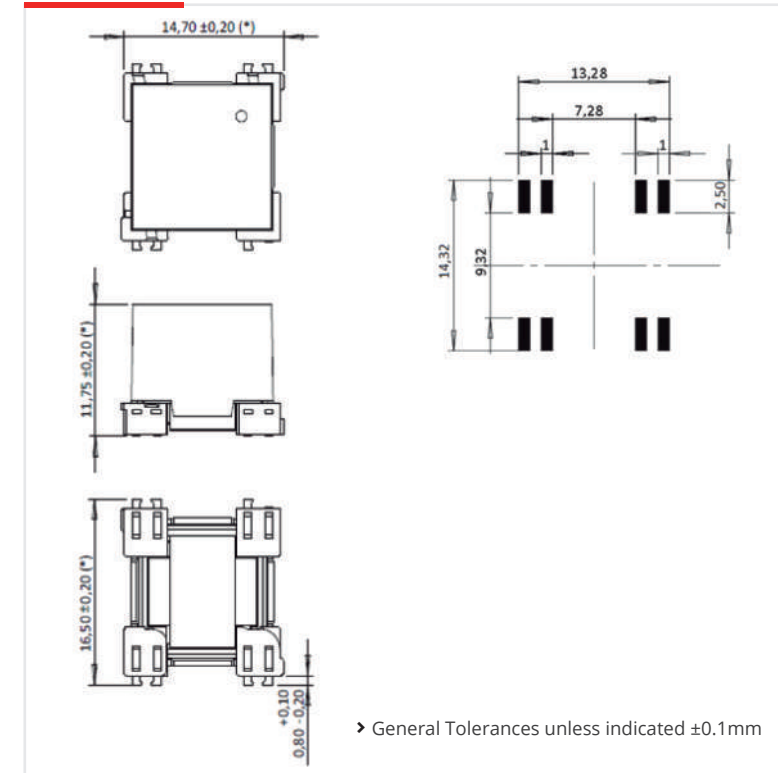
Three axis magnetic sensor for magnetic tracking sensor systems. Very good performance/size ratio, with isotropic response. Used as receiver in VR/AR applications (gaming, etc.) and motion capture applications. Very low latency compared with other motion tracking technologies.

## 01 CHARACTERISTICS

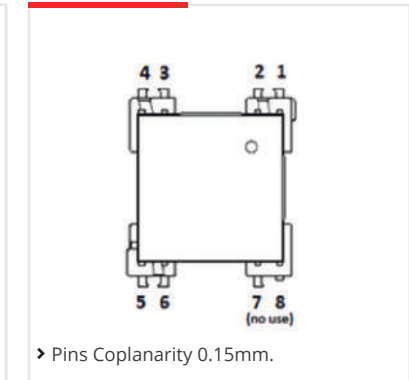
- › High axis symmetry (X,Y,Z), repeatability (very good isotropy) and accuracy (up to 1% tolerances)
- › Magnetic Sensitivity: 18 mVpp / App / m @20kHz.(high inductance)
- › Magnetic Sensitivity: 4.5 mVpp / App / m @20kHz (low inductance)
- › Mechanical Drop & Vibration compliant.
- › Mounting method: SMT (Taped & Reeled).
- › -20°C to 85°C Temperature Performance.
- › Multiple frequencies available (typ 60kHz, 125kHz, 134kHz)
- › According industry and safety standards: UL94-V0
- › High X/Y/Z symmetry and repeatability.

## 02 DIMENSIONS

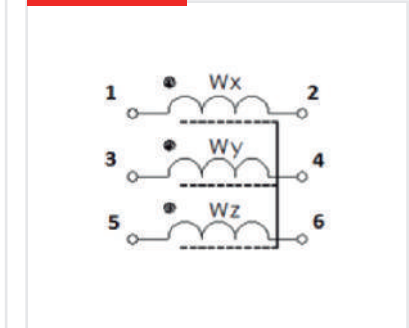
### DIMENSIONS AND RECOMMENDED PAD-LAYOUT (mm)



### PINOUT



### ELECTRICAL DIAGRAM



### ELECTRICAL SPECIFICATIONS | 20kHz

Code	Lx,y,z nom	Qx,y,z nom <sup>(1)</sup>	f(kHz)	SRF <sub>x,y</sub> (kHz) Min	SRF <sub>z</sub> (kHz) Min	DCRx (Ohm) Max	DCRy (Ohm) Max	DCRz (Ohm) Max	Sensit. <sub>x,y,z</sub> (mV/A/m) Min (*)
3DCC08-A-0038J	343 / 313 / 327 μH	4.3/4.7/3.5	20	500	500	10.8	9.5	11.9	4
3DCC08-A-0550J	5.4 / 5.5 / 5.1 mH	4.1/4.4/3.4	20	200	150	178	176	198	17.5

This chart is a reference guide for the most common required values at working frequency of 20kHz. Any other inductance value at LF or tighter tolerances can be provided. Please contact our sales department for any inquiry. Sensitivity measured with Helmholtz coils H=11.37 App/m @20kHz. Contact us for measurement specification.

SRF: Self-resonant frequency of the coil

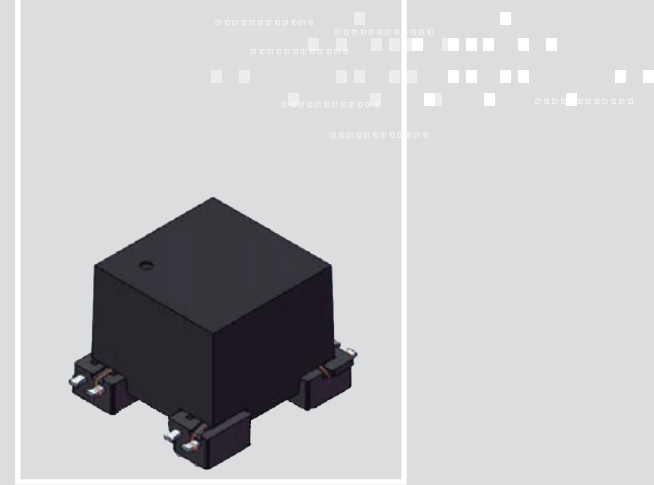
New

## 3DCC10

3D Coil Cube receiver sensor for VR magnetic tracking system

17.4x15.2x13.9mm (600-800uH/2-10mH)

Rx EM MOTION TRACKING SENSORS



### FEATURES

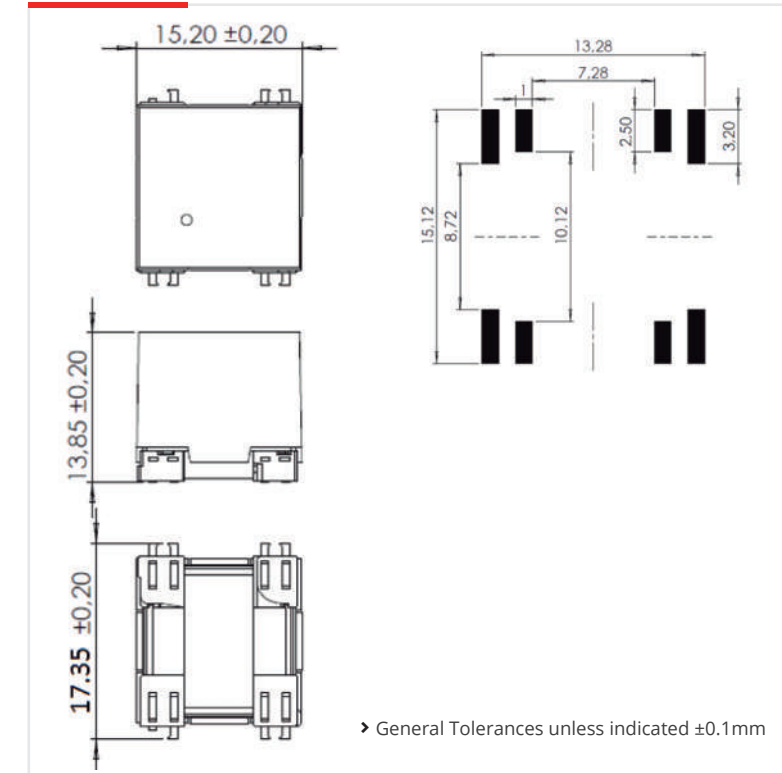
Three axis magnetic sensor for magnetic tracking systems. Very good performance/size ratio, with isotropic response. Used as receiver in VR/AR applications (gaming, etc.) and motion capture applications. Very low latency compared with other motion tracking technologies.

## 01 CHARACTERISTICS

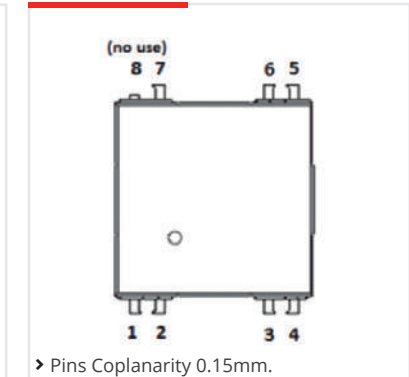
- › High axis symmetry (X,Y,Z), repeatability (very good isotropy) and accuracy (up to 1% tolerances)
- › Magnetic Sensitivity: 25 mVpp / App / m @20kHz. (High inductance)
- › Magnetic Sensitivity: 8.5 mVpp / App / m @20kHz. (Low inductance)
- › Mechanical Drop & Vibration compliant.
- › Mounting method: SMT (Taped & Reeled).
- › -20°C to 85°C Temperature Performance.
- › Multiple frequencies available (typ 60kHz, 125kHz, 134kHz).
- › According industry and safety standards: UL94-Vo.

## 02 DIMENSIONS

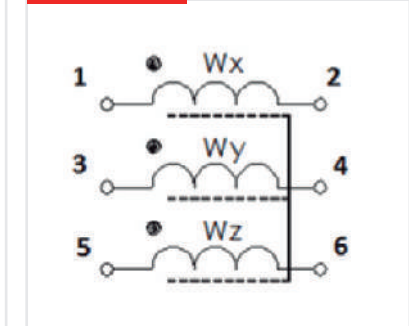
DIMENSIONS AND RECOMMENDED PAD-LAYOUT (mm)



PINOUT



ELECTRICAL DIAGRAM



ELECTRICAL SPECIFICATIONS | 20kHz

Code	L <sub>x,y,z</sub> nom	Q <sub>x,y,z</sub> nom	f(kHz)	SRF <sub>x,y</sub> (kHz) Min	SRF <sub>z</sub> (kHz) Min	DCR <sub>x</sub> (Ohm) Max	DCR <sub>y</sub> (Ohm) Max	DCR <sub>z</sub> (Ohm) Max	Sensit. <sub>x,y,z</sub> (mV/A/m) Min (*)
3DCC10-A-0066J	645 / 664 / 610 μH	4.1/4.3/3.4	20	500	500	21.2	20.5	23.7	7.0
3DCC10-A-0600J	8.0 / 8.0 / 7.3 mH	4.4/4.4/4.0	20	150	120	240	240	240	27.0

This chart is a reference guide for the most common required values at working frequency of 20kHz. Any other inductance value at LF or tighter tolerances can be provided. Please contact our sales department for any inquiry. Sensitivity measured with Helmholtz coils H=11.37 App/m @20kHz. Contact us for measurement specification.

SRF: Self-resonant frequency of the coil

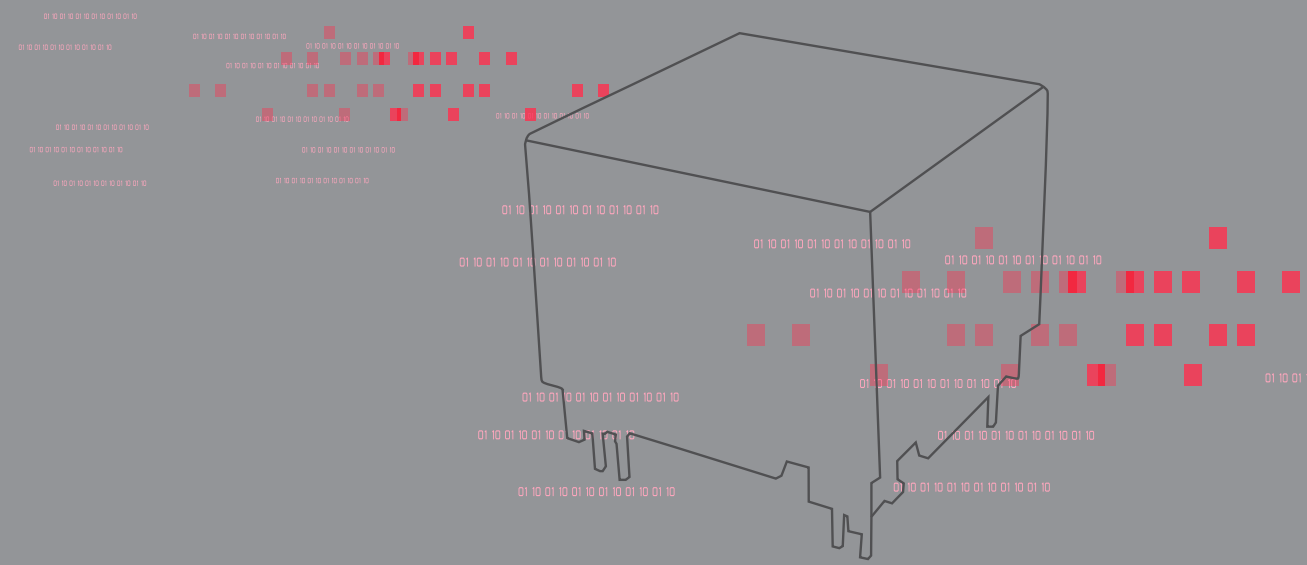




# 2.2

## AR VR EM TRACKING SENSORS

### Tx EM MOTION TRACKING ANTENNAS

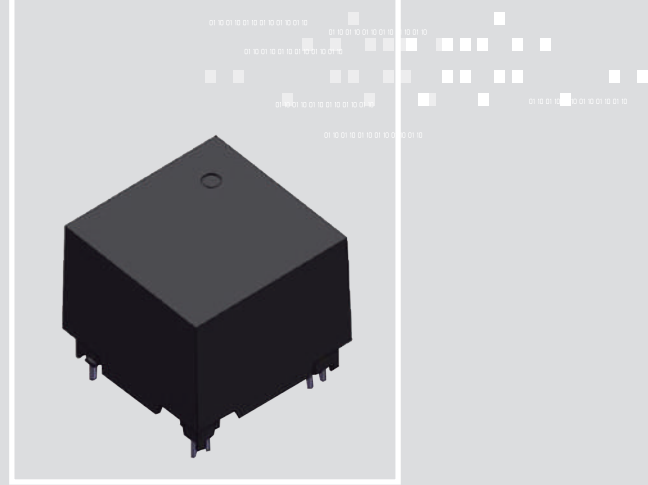


New

# 3DCC20

3D Coil Cube emitter for VR magnetic tracking system  
30.7x30.75x30.7mm (300-600uH/1.0-1.5mH)

Tx EM MOTION TRACKING ANTENNAS



## FEATURES

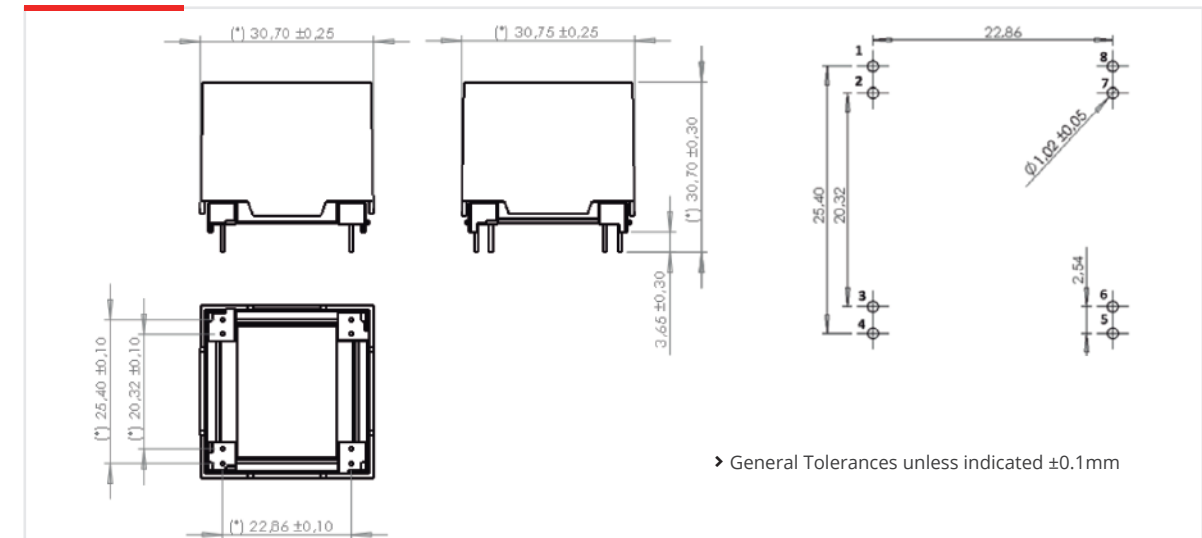
Emitter 3D cubic magnetic antenna for magnetic tracking sensor systems. For VR/AR applications (gaming, etc.) and motion capture applications. Very low latency compared with other motion tracking technologies.

## 01 CHARACTERISTICS

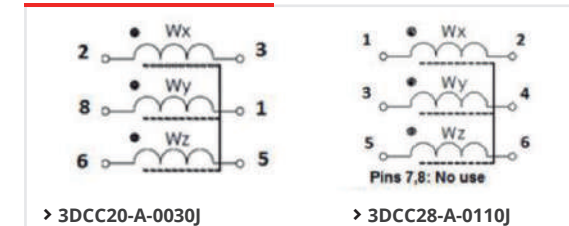
- › Medium size Emitter 3DCoilCube for Magnetic tracking systems for Virtual Reality Systems
- › High axis symmetry (X,Y,Z), repeatability (very good isotropy) and accuracy (up to 1% tolerances)
- › Magnetic Sensitivity: 32 mVpp / App / m @20kHz. (High inductance)
- › Magnetic Sensitivity: 18 mVpp / App / m @20kHz. (Low inductance)
- › Mechanical Drop and Vibration compliant.
- › Mounting method: PTH.
- › -20°C to 85°C Temperature Performance.
- › According industry and safety standards: UL94-V0
- › Dimensions: 30.7x30.75x30.7 mm

## 02 DIMENSIONS

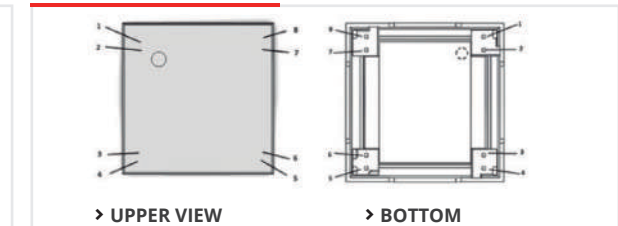
DIMENSIONS AND RECOMMENDED PAD-LAYOUT (mm)



### ELECTRICAL DIAGRAM



### PINS MARKING



### ELECTRICAL SPECIFICATIONS | 20kHz

Code	L <sub>x,y,z</sub> nom	Q <sub>x,y,z</sub> nom	f (kHz)	SRF <sub>x,y,z</sub> (kHz) Min	DCRx (Ohm) Max	DCRy (Ohm) Max	DCRz (Ohm) Max	Magnetic Field <sub>x,y,z</sub> (@1m, 20kHz, 0.25Arms) nom
3DCC20-A-0030J	300 / 295 / 300 μH	15.1/14.3/13.1	20	500	2.6	2.8	2.8	4.4 nT
3DCC20-A-0110J	1.16 / 1.14 / 1.11 mH	26.3/27.8/25.1	20	250	5.1	4.9	5.4	7.0 nT

This chart is a reference guide for the most common required values at working frequency of 20kHz. Any other inductance value at LF or tighter tolerances can be provided. Please contact our sales department for any inquiry. Sensitivity measured with Helmholtz coils H-11.37 App/m @20kHz. Contact us for measurement specification.

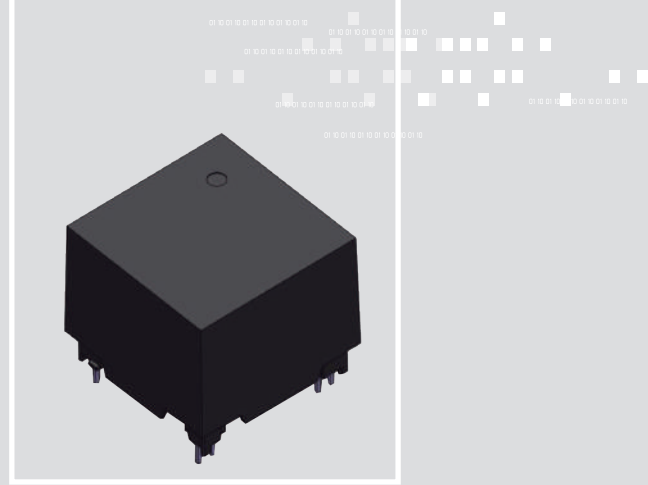
SRF: Self-resonant frequency of the coil

New

## 3D20LW

3D Coil Cube emitter for VR magnetic tracking system  
30.7×30.7×30.2mm (1.0-1.5mH)

Tx EM MOTION TRACKING ANTENNAS



### FEATURES

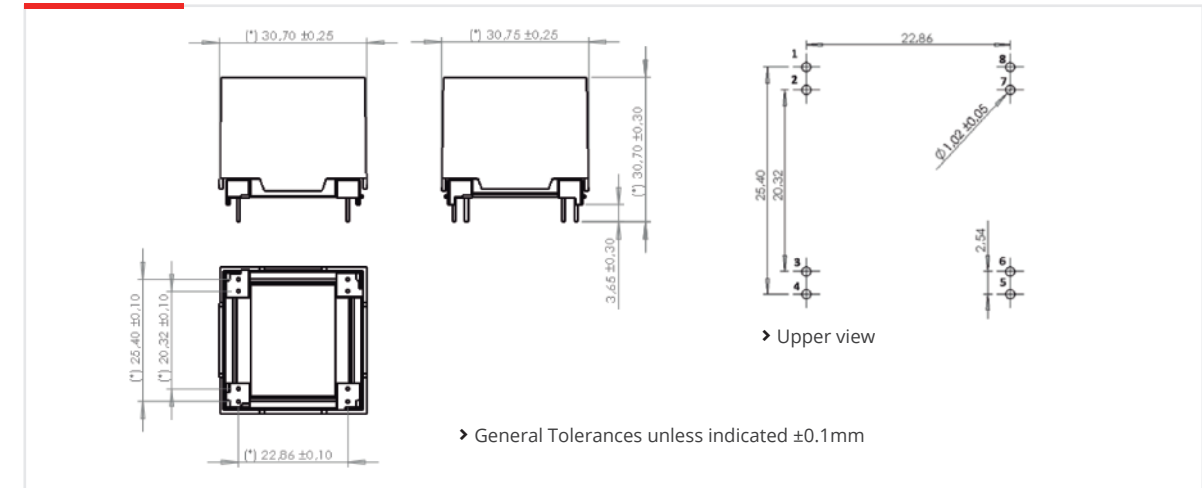
Emitter 3D cubic magnetic antenna for magnetic tracking sensor systems. Light weight version that allow best performance/weight ratios. For VR/AR applications (gaming, etc.) and motion capture applications. Very low latency compared with other motion tracking technologies.

### 01 CHARACTERISTICS

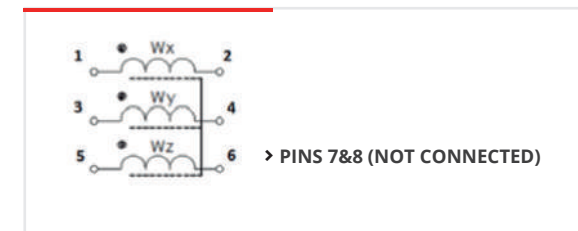
- › Medium size Isotropic 3D Cubic magnetic tracking sensor (20 × 20 mm internal core)
- › Medium range and high sensitivity solution
- › Light Weight (30gr)
- › THT technology
- › Inductance range: 1-1.5mH (high inductance)
- › Dimensions: 30.7 × 30.7 × 30.2 mm
- › Sensitivity (mV/A/m): 30 (min)

### 02 DIMENSIONS

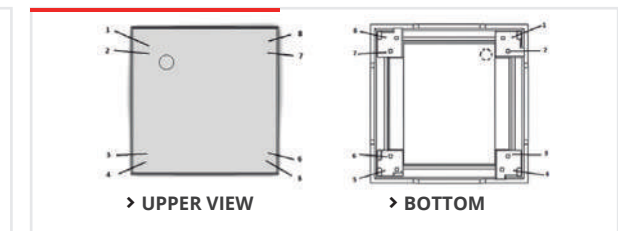
DIMENSIONS AND RECOMMENDED PAD-LAYOUT (mm)



### ELECTRICAL DIAGRAM



### PINS MARKING



### ELECTRICAL SPECIFICATIONS | 20kHz

Code	L <sub>x,y,z</sub> nom	Q <sub>x,y,z</sub> nom	f (kHz)	SRF <sub>x,y,z</sub> (kHz) Min	DCR <sub>x</sub> (Ohm) Max	DCR <sub>y</sub> (Ohm) Max	DCR <sub>z</sub> (Ohm) Max	Magnetic Field x,y,z@1m, 20kHz, 0.25Arms nom
3DLW20-A-0145J	1.45 / 1.45 / 1.45 mH	22.0/21.0/20.0	20	250	8.5	8.8	9.4	TBD

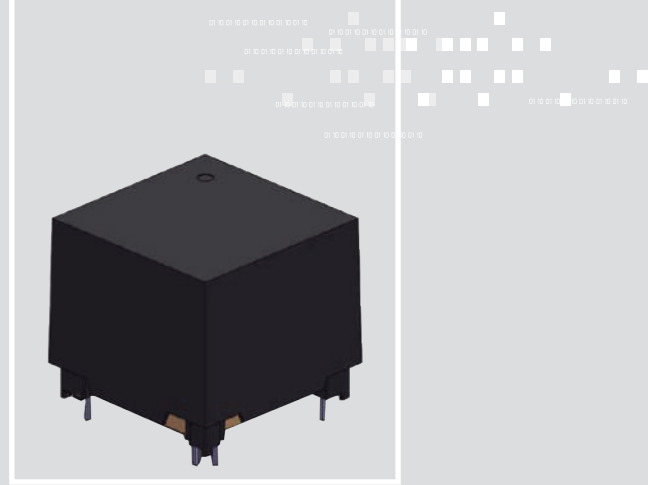
This chart is a reference guide for the most common required values at working frequency of 20kHz. Any other inductance value at LF or tighter tolerances can be provided. Please contact our sales department for any inquiry. Sensitivity measured with Helmholtz coils H=11.37 App/m @20kHz. Contact us for measurement specification.  
SRF: Self-resonant frequency of the coil

New

## 3DCC28

**3D Coil Cube emitter for VR magnetic tracking system**  
**39.5x39.5x38.6mm (350-600uH/1.0-3.0mH)**

Tx EM MOTION TRACKING ANTENNAS



### FEATURES

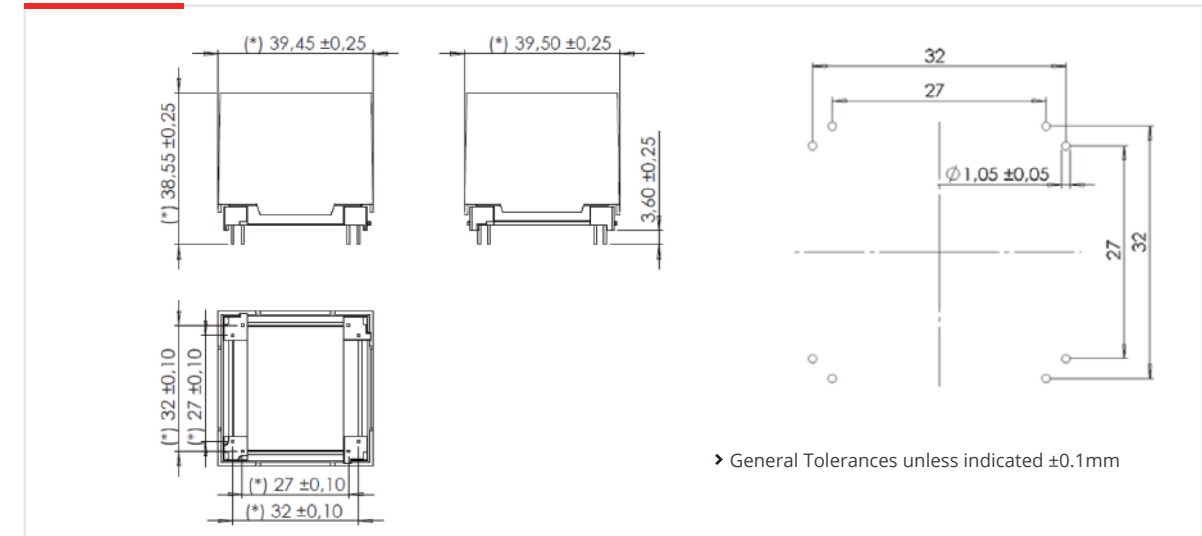
Emitter 3D cubic magnetic antenna for magnetic tracking sensor systems. For VR/AR applications (gaming, etc.) and motion capture applications. Very low latency compared with other motion tracking technologies.

## 01 CHARACTERISTICS

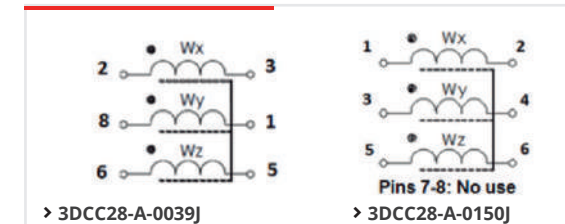
- › High axis symmetry (X,Y,Z), repeatability (very good isotropy) and accuracy (up to 1% tolerances)
- › Magnetic Sensitivity: 60 mVpp / App / m @20kHz. (High inductance)
- › Magnetic Sensitivity: 30 mVpp / App / m @20kHz. (Low inductance)
- › Mechanical Drop and Vibration compliant.
- › -20°C to 85°C Temperature Performance.
- › Mounting method: PTH.
- › Multiple frequencies available (typ 60kHz, 125kHz, 134kHz)
- › According industry and safety standards: UL94-Vo
- › Dimensions: 39.5x39.5x38.6 mm

## 02 DIMENSIONS

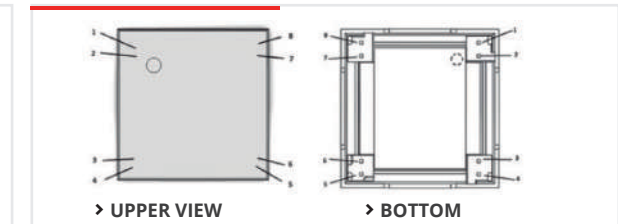
DIMENSIONS AND RECOMMENDED PAD-LAYOUT (mm)



### ELECTRICAL DIAGRAM



### PINS MARKING



### ELECTRICAL SPECIFICATIONS

Code	L <sub>x,y,z</sub> nom	Q <sub>x,y,z</sub> nom	f (kHz)	SRF <sub>x,y</sub> (kHz) Min	SRF <sub>z</sub> (kHz) Min	DCR <sub>x</sub> (Ohm) Max	DCR <sub>y</sub> (Ohm) Max	DCR <sub>z</sub> (Ohm) Max	Magnetic Field <sub>x,y,z</sub> (@1m, 20kHz, 0.25Arms) nom
<b>3DCC28-A-0039J</b>	380 / 375 / 365 μH	31/30/28	20	1500	1500	1.4	1.4	1.4	6.9 nT
<b>3DCC28-A-0150J</b>	1.49 / 1.46 / 1.39 mH	46/46/46	20	200	200	3.0	2.9	3.2	8.9 nT

This chart is a reference guide for the most common required values at working frequency of 20kHz. Any other inductance value at LF or tighter tolerances can be provided. Please contact our sales department for any inquiry. Sensitivity measured with Helmholtz coils H-11.37 App/m @20kHz. Contact us for measurement specification.

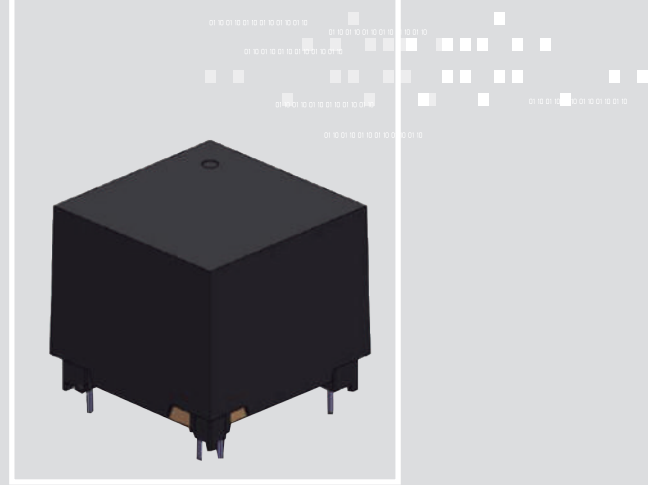
SRF: Self-resonant frequency of the coil

New

## 3D28LW

3D Coil Cube emitter for VR magnetic tracking system  
39.5×39.5×38.6mm (350-600uH/1.0-3.0mH)

Tx EM MOTION TRACKING ANTENNAS



### FEATURES

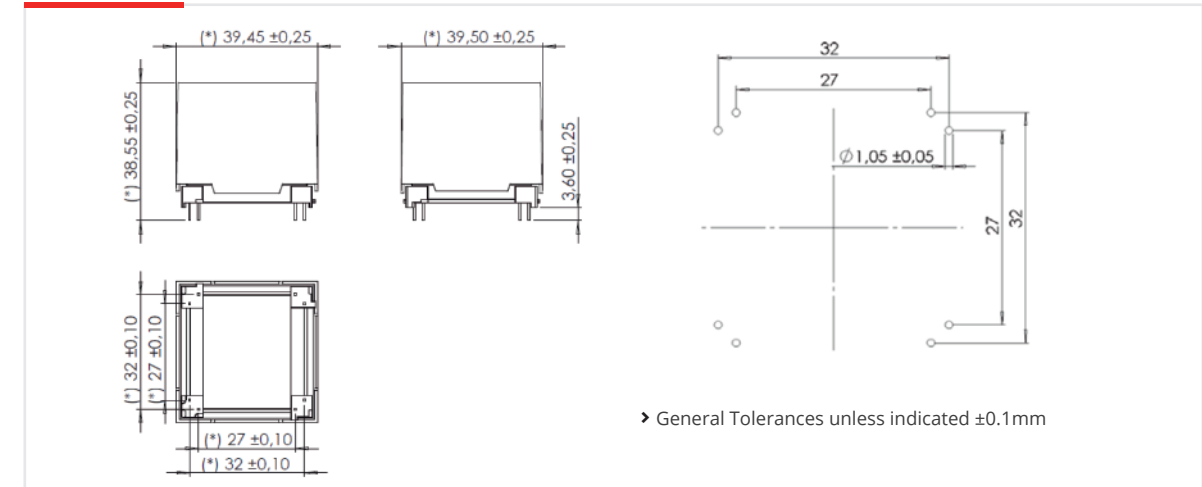
Emitter 3D cubic magnetic antenna for magnetic tracking sensor systems. Light weight version that allow best performance/weight ratios. For VR/AR applications (gaming, etc.) and motion capture applications. Very low latency compared with other motion tracking technologies.

## 01 CHARACTERISTICS

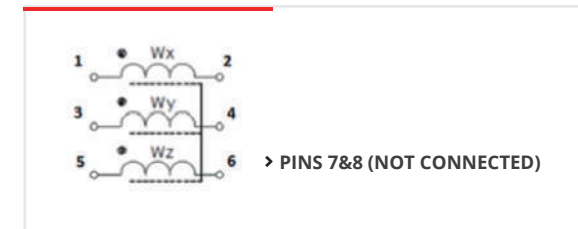
- › Big size Isotropic 3D Cubicmagnetic tracking sensor (28 × 28 mm internal core)
- › Long range and high sensitivity solution
- › THT technology
- › Light Weight (65gr)
- › Inductance range: 1.5-3mH (high inductance)
- › Dimensions: 39.5 × 39.5 × 38.6 mm
- › Sensitivity (mV/A/m): 54 (min)

## 02 DIMENSIONS

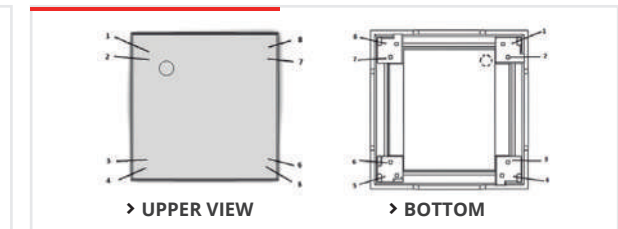
DIMENSIONS AND RECOMMENDED PAD-LAYOUT (mm)



### ELECTRICAL DIAGRAM



### PINS MARKING



### ELECTRICAL SPECIFICATIONS | 20kHz

Code	L <sub>x,y,z</sub> nom	Q <sub>x,y,z</sub> nom	f (kHz)	SRF <sub>x,y,z</sub> (kHz) Min	DCR <sub>x</sub> (Ohm) Max	DCR <sub>y</sub> (Ohm) Max	DCR <sub>z</sub> (Ohm) Max	Magnetic Field <sub>x,y,z</sub> (@1m, 20kHz, 0.25Arms) nom
3D28LW-A-0200J	2.0 / 2.0 / 2.0 mH	38/36/36	20	200	5.8	6.1	6.4	TBD

This chart is a reference guide for the most common required values at working frequency of 20kHz. Any other inductance value at LF or tighter tolerances can be provided. Please contact our sales department for any inquiry. Sensitivity measured with Helmholtz coils H=11.37 App/m @20kHz. Contact us for measurement specification.

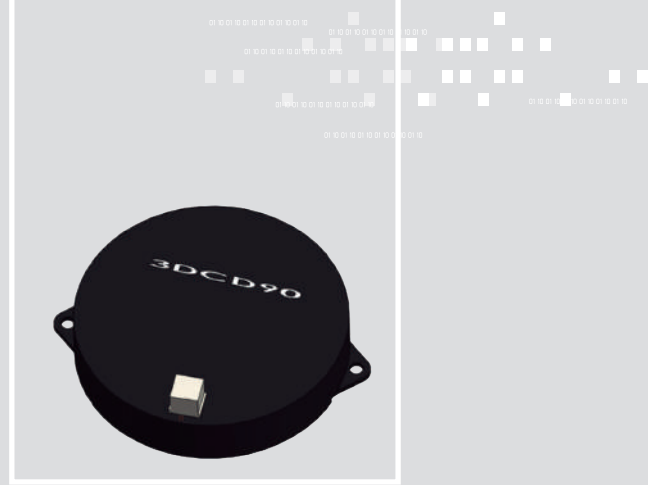
SRF: Self-resonant frequency of the coil

New

# 3DCD90

## 3D Electromagnetic Tracking Disc 105x20mm

Tx EM MOTION TRACKING ANTENNAS



### APPLICATIONS

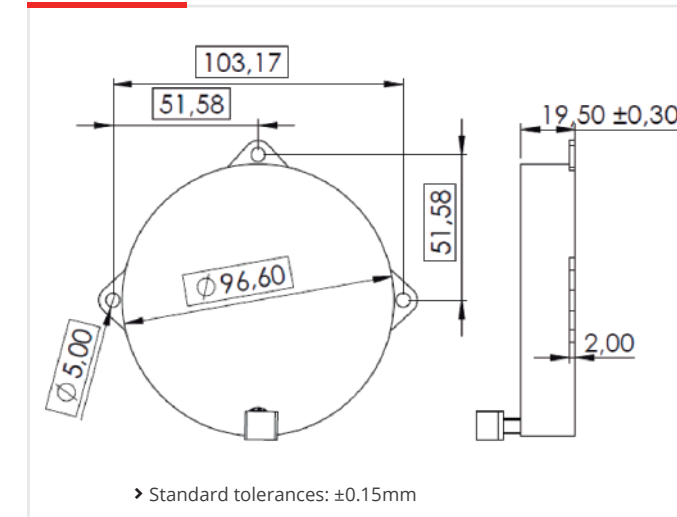
- › Virtual Reality / Augmented reality / Mixed Reality
- › Gaming Consoles
- › Set top boxes

## 01 CHARACTERISTICS

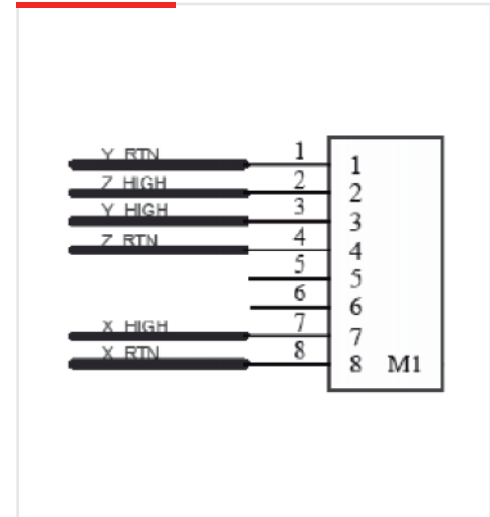
- › 3 orthogonal coils in one component, oriented in the 3 space axes with full functionality
- › 3D Emitter antenna for VR/AR Application
- › Low profile emitter antenna. (H20mm)
- › Highest H-field@ 6m, 1App (90> dBµV/m)
- › Available with different inductance values
- › Very stable electrical properties in full operational operative range (-20°C +65°C)
- › Solution for extra long-range requirements
- › PNDP-o8V-Z connector 2.0mm Pitch 8POS DUAL

## 02 DIMENSIONS

### DIMENSIONS AND RECOMMENDED PAD-LAYOUT (mm)



### ELECTRICAL DIAGRAM



### ELECTRICAL SPECIFICATIONS | 20kHz

Code	L@20kHz (mH)	Q min@20kHz	Z@20kHz (Ω) Min/Max	θ@20kHz	H (dBµV/m) @1Ap-p, 20kHz, 6m Min	Dimensions (mm) Max
3DCD90-A-0100J	1.1 ± 5%	28	110/150	88	92	105 x 20
3DCD90-A-0039J	0.39 ± 5%	20	40/70	88	80	105 x 20

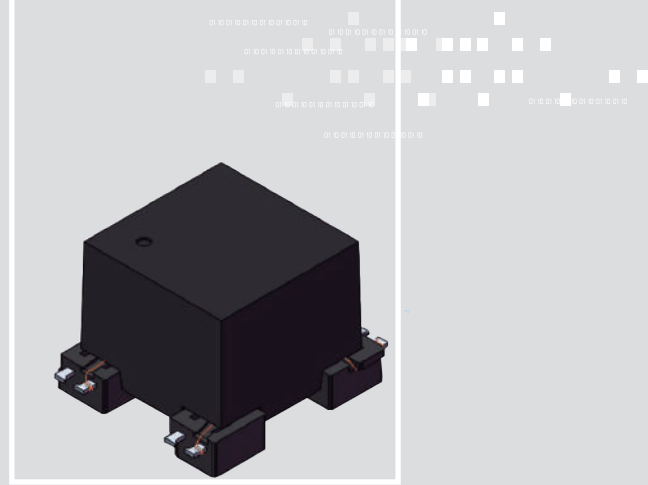
New

## 3DTX08

3D Coil Cube receiver sensor for VR magnetic tracking system

16.5x14.8x11.8 mm (50-200uH)

Tx EM MOTION TRACKING ANTENNAS



### FEATURES

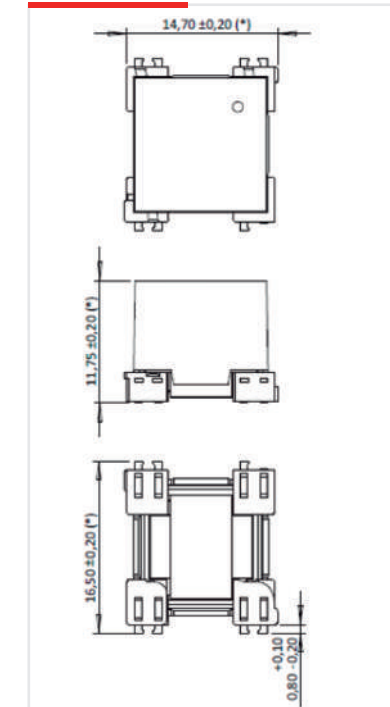
Three axis magnetic antenna for magnetic tracking sensor systems. Very good performance/size ratio, with isotropic response. Used as receiver in VR/AR applications (gaming, etc.) and motion capture applications. Very low latency compared with other motion tracking technologies.

## 01 CHARACTERISTICS

- › High axis symmetry (X,Y,Z), repeatability (very good isotropy) and accuracy (up to 5% tolerances)
- › Magnetic Sensitivity: 2.6 mVpp / App / m @20kHz.
- › Mechanical Drop & Vibration compliant.
- › Mounting method: SMT (Taped & Reeled).
- › -20°C to 85°C Temperature Performance.
- › Multiple frequencies available (typ 60kHz, 125kHz, 134kHz)
- › According industry and safety standards: UL94-V0
- › High X/Y/Z symmetry and repeatability.

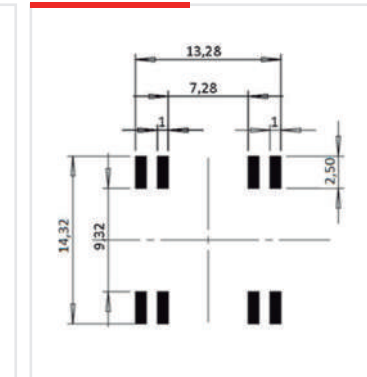
## 02 DIMENSIONS

### DIMENSIONS (mm)

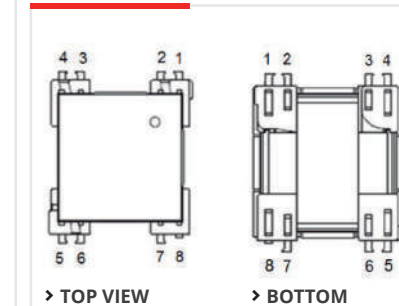


- › General Tolerances unless indicated  $\pm 0.1$ mm
- › Pins Coplanarity 0.15mm

### RECOMMENDED PAD LAYOUT



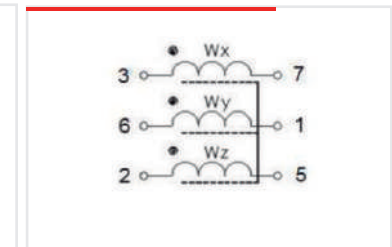
### PINS MARKING



› TOP VIEW

› BOTTOM

### ELECTRICAL DIAGRAM



### ELECTRICAL SPECIFICATIONS

Code	L <sub>x,y,z</sub> nom (μH)	Q <sub>x,y,z</sub> min	f (kHz)	SRF <sub>x,y,z</sub> (MHz) Min	DCR <sub>x</sub> (Ohm) Max	DCR <sub>y</sub> (Ohm) Max	DCR <sub>z</sub> (Ohm) Max	Sensitivity <sub>x,y,z</sub> (mV/A/m) Min (*)
3DTX08-A-0060J	100 / 100 / 78	2.2/2.2/1.5	20	1	5.4	5.6	5.6	2.2

This chart is a reference guide for the most common required values at working frequency of 20kHz. Any other inductance value at LF or tighter tolerances can be provided. Please contact our sales department for any inquiry. Sensitivity measured with Helmholtz coils H=11.37 App/m @20kHz. Contact us for measurement specification.

SRF: Self-resonant frequency of the coil

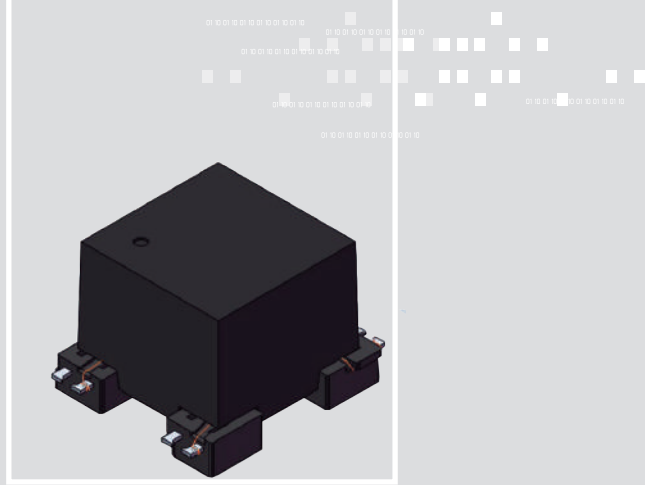
New

# 3DTX10

3D Coil Cube receiver sensor for VR magnetic tracking system

17.4x15.2x13.9 mm (100-200uH)

Tx EM MOTION TRACKING ANTENNAS



## FEATURES

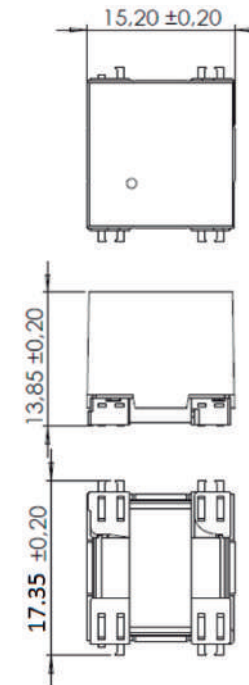
Three axis magnetic antenna for magnetic tracking sensor systems. Very good performance/size ratio, with isotropic response. Used as receiver in VR/AR applications (gaming, etc.) and motion capture applications. Very low latency compared with other motion tracking technologies.

## 01 CHARACTERISTICS

- › High axis symmetry (X,Y,Z), repeatability (very good isotropy) and accuracy (up to 5% tolerances)
- › Magnetic Sensitivity: 3.8 mVpp / App / m @20kHz.
- › Mechanical Drop & Vibration compliant.
- › Mounting method: SMT (Taped & Reeled).
- › -20°C to 85°C Temperature Performance.
- › Multiple frequencies available (typ 60kHz, 125kHz, 134kHz).
- › According industry and safety standards: UL94-V0.

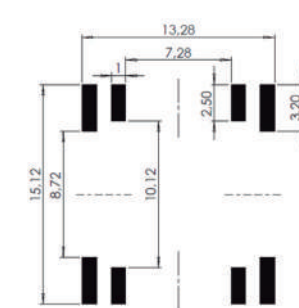
## 02 DIMENSIONS

### DIMENSIONS (mm)

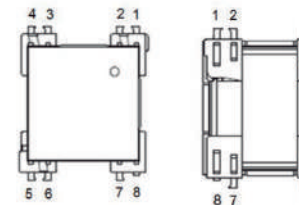


- › General Tolerances unless indicated ±0.1mm
- › Pins Coplanarity 0.15mm

### RECOMMENDED PAD LAYOUT



### PINS MARKING



### ELECTRICAL DIAGRAM



### ELECTRICAL SPECIFICATIONS

Code	Lx,y,z nom (µH)	Qx,y,z min	f (kHz)	SRF x,y,z (MHz) Min	DCRx (Ohm) Max	DCRy (Ohm) Max	DCRz (Ohm) Max	Sensitivity x,y,z (mV/A/m) Min (*)
3DTX10-A-0100J	140 / 140 / 104	2.6/2.6/2.0	20	1	6.7	6.9	6.5	3.5

This chart is a reference guide for the most common required values at working frequency of 20kHz. Any other inductance value at LF or tighter tolerances can be provided. Please contact our sales department for any inquiry. Sensitivity measured with Helmholtz coils H=11.37 App/m @20kHz. Contact us for measurement specification.

SRF: Self-resonant frequency of the coil





## PREMO HEADQUARTERS

### SPAIN

Severo Ochoa 47  
Parque Tecnológico de Andalucía  
29590 Campanillas - Málaga - Spain



T. +34 951 231 320



www.grupopremo.com  
<https://3dcoil.grupopremo.com>



info@grupopremo.com



## PREMO WORLDWIDE

Find your local partner within PREMO's global sales network at: <https://www.grupopremo.com/tiendas>

## MANUFACTURING PLANTS

### CHINA

PREMO Electronic Wuxi  
Building No.22, No.15, Hanjiang Road  
Xinwu District, Wuxi  
214028, Jiangsu, China  
Tel.: +86 510 687 51 888

### MOROCCO

PREMO MEDITERRANEE S.A.R.L.  
Ilot 11 lot n 4  
90000 - ZONE FRANCHE D'EXPORTATION  
TANGER (Morocco)  
Tel. +212 5 39 39 45 41/42

### VIETNAM

PREMO Vietnam Co. Ltd  
Lot 21 Dien Nam-Dien Ngoc IZ  
Dien Ngoc Ward, Dien Ban Town,  
Quang Nam Province (Vietnam)  
Tel: 084 510 394 9567

## R&D CENTERS

### SPAIN

#### MALAGA

PREMO S.A.  
C / Severo Ochoa 47 PTA  
29590 Campanillas, Málaga - España  
Teléfono: +34 951 23 13 20

#### BARCELONA

PREMO S.A.  
C/ PEDRO i PONS, 9-11, Floor12, Doors 1-2  
08034 Barcelona, Spain  
Teléfono: +34 934 098 980

### FRANCE

PREMO France S.A.R.L.  
Centre d'Affaires LE CONCORDE 24, rue Lamartine  
38320 EYBENS (Grenoble) - Francia  
Tel.: +33 (0) 4.56.38.13.37 GSM: +33 (0) 6 37 28 62 46

### KOREA

PREMO Korea Co., Ltd.  
Room 313, 3rd Floor, ACE Chyeonggye Tower  
Poil dong 657-2, Uiwang-si  
16006, Gyeonggi-do, South Korea  
M.: +82 10 3489 7222

### GERMANY

PREMO Germany  
Schwabacher Strasse 512  
ME2.21 2nd floor  
Fuerth D-90763  
Germany

### VIETNAM

PREMO Vietnam Co. Ltd  
Lot 21 Dien Nam-Dien Ngoc IZ  
Dien Ngoc Ward, Dien Ban Town,  
Quang Nam Province (Vietnam)  
Tel: 084 510 394 9567

### USA

PREMO USA, Inc.  
17451 Bastanchury Rd, Suite 100B  
Yorba Linda, CA 92886



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## CONTACT US

If you have **any questions on our products**, need technical support or have any suggestions or criticism on this book please contact us:



### PREMO SPAIN

Severo Ochoa 47  
Parque Tecnológico de Andalucía  
29590 Campanillas - Málaga - Spain



T. +34 951 231 320



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[info@grupopremo.com](mailto:info@grupopremo.com)