Miniwhip parts list Ver. **20171218**
pa0nhc PCB **V13-**20170730

		CONRAD OrderNr	
T1	BF998	153029	Dual gate MOSfet. S=21mS.
T2	BFU590G	**DARISUS GMBH**	4-pin SOT223-4 12V 2W Ft=8GHz
D1,2	1N4148	162280	
D3	**1N5929B**	**1305070**	**Zener diode 15V / 2W. Polarity and over voltage protection.**
ZD1	1N5244BTR	1262838	Zener diode 14V / 500mW. Over voltage protection. **Normally not active.**
1x	BNC bus.	730387	For antenna PCB. PCB type, 90 degr
2x	BNC bus	740632	For splitter. Standard chassis type BNC bus.
	2.1mm bus.	733946	"12V PWR" connector in splitter.
F1	Fuse holder	532908	This will fit into the spliitter PCB.
	Fuse 0,2A TT 5x20mm		If not avaialble : 0,63A TT 5x20mm. (524353).
	Cabinet	541621	Screening aluminum die cast box. **Hammond 1590a.**
L1	**4,7uH**	1405938	High Q. In-circuit resonance should be abt. 30MHz.
L2,3,4	100 uH RM5	433396	Low Ri (thick wire).
C1,8,9	100n RM5	531855	Ceramic (or film).
C2,3,4,7	100n RM5 **FILM**	455393	***Film*** capacitor (MKT). **NO CERAMICS HERE.**
C5,6	100uF 16V RM2.5	443906	
C11	10n	531889	Short wires.
C13	1n		Short wires
C10	-----	-----	**NOT USED. Leave this position empty.**
C12, 14	100pF	1420309	**Solder C14 on the bottom side of the PCB between R1 and R11.**

			All resistors : Metalfilm 0.25W, 2.3x6.5mm (bend their wires to RM10). >>>>> Low noise is importatnt <<<<<
R1	4M7		
R2,12	1M5		
R10	1k		
R4	180 Ohm		
R5	82 Ohm		
R6,7	2k2		
R3,8	100 Ohm		In stead of these resistors, VHF ferrite beads could give lower self noise at high amateur bands.
R9	50 1W		2x220 + 2x180 Ohm 1/4W in parallel. Low self inductance.
R11	2M2		
R13	0 Ohm		**Wire bridge.** If T2 oscillates due to severely mismatched coax cable, replace this wire bridge by a 47 Ohms resistor.
	Ferriet-rings	534480	Or ferrite clamps Ui = 3000 – 10000. For de-noising coax and power cables.

When measuring at the Miniwhip antenna PCB:
To prevent oscillation due to capacitive coupling between the meter cable and the Hi-Z antenna, pse. measure **voltages** with a 100k probe, and a 10 Mohm digital meter. **Power 14V.**

C5 = 12,4V	R4 = 2,9V	g1 theoretical 3,0V
C6 = 13,7V	R9 = 4,9V	g2 theoretical 5,0V

For VLF reception : **C4,7=0.47uF MKT, L2,3=1mH (low Ri)**.
For best reception below 30kHz : enlarge the antenna source capacitnace with a whip.