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LANT-3 VLF loop preamplifier

developed by
BL-Electronics

LANT VLF loop preamplifier

(LANT3)

The LANT preamplifier was designed for a 100m^2 area one turn loop antenna made of RG213U coaxial cable. It has two channels one for N-S loop and one for E-W loop.

Technical parameters:

Transfer function:	see figure 1.
Input impedance:	see figure 2.
Gain:	40 / 60 / 80dB
Max. input signal:	25mV_{pp}
Max. output signal:	5V_{pp}
Output impedance:	100Ω
Load impedance:	>1kΩ
Size (mm):	200(W)*100(D)*60(H)

Gain setting:

Connection	Labels	Nominal Gain	Calibrated Gain
1 - 2	+40dB	61dB	+60dB
3 - 4	+60dB	76dB	+74dB
1 - 3	+80dB	95dB	+95dB

SIGNAL connector: (DB15-female)

pin	**signal name**	
1	NS-	
2	NS+	
3	GND	
4	EW-	
5	EW+	
6	GND	
7	CAL	
8	12V	
9	12V	
10	GND	
11	GND	
12	GND	
13	NC	
14	NC	
15	NC	

Input connectors are BNC connectors. Two for N-S and two for E-W input.

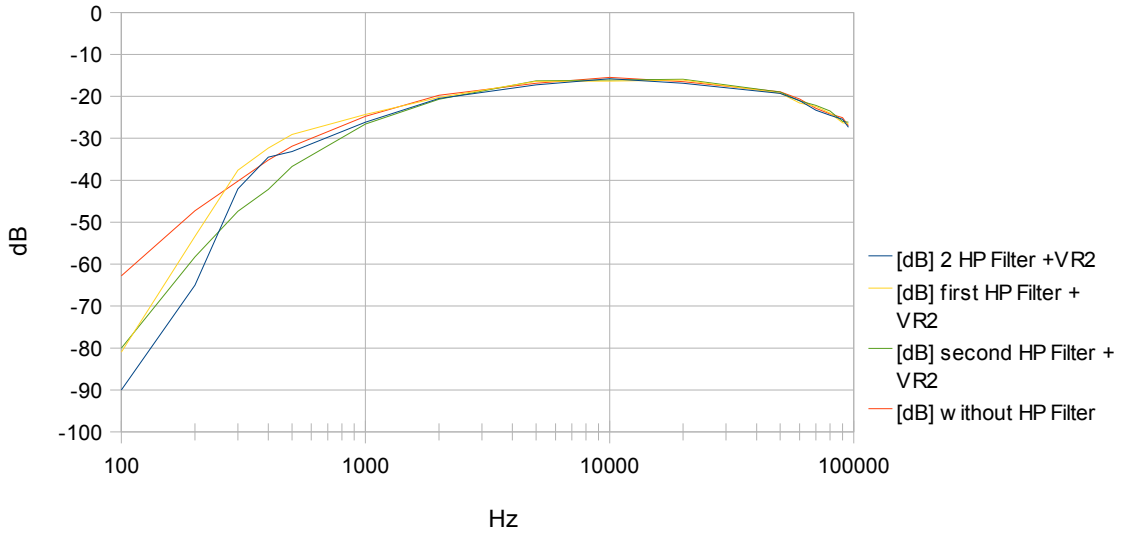


figure 1: Transfer function of VR2 with LANT. Different HP filter settings shown. Nominal value -16.2dBV@10kHz (measured on VR2 ADC input, VR2 gain setting:0dB, LANT3 gain setting +40dB, LANT input voltage 1mV)

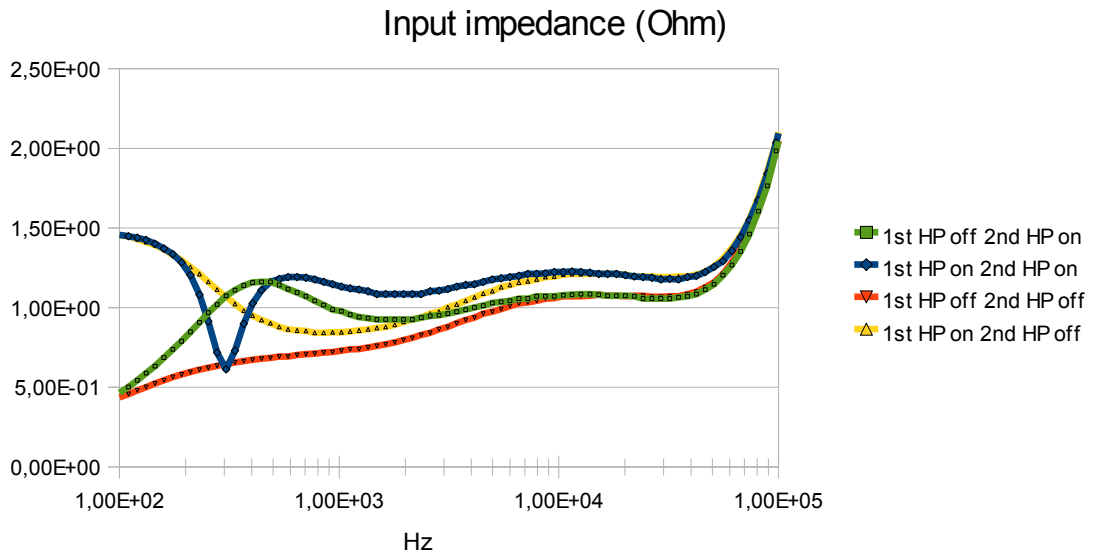
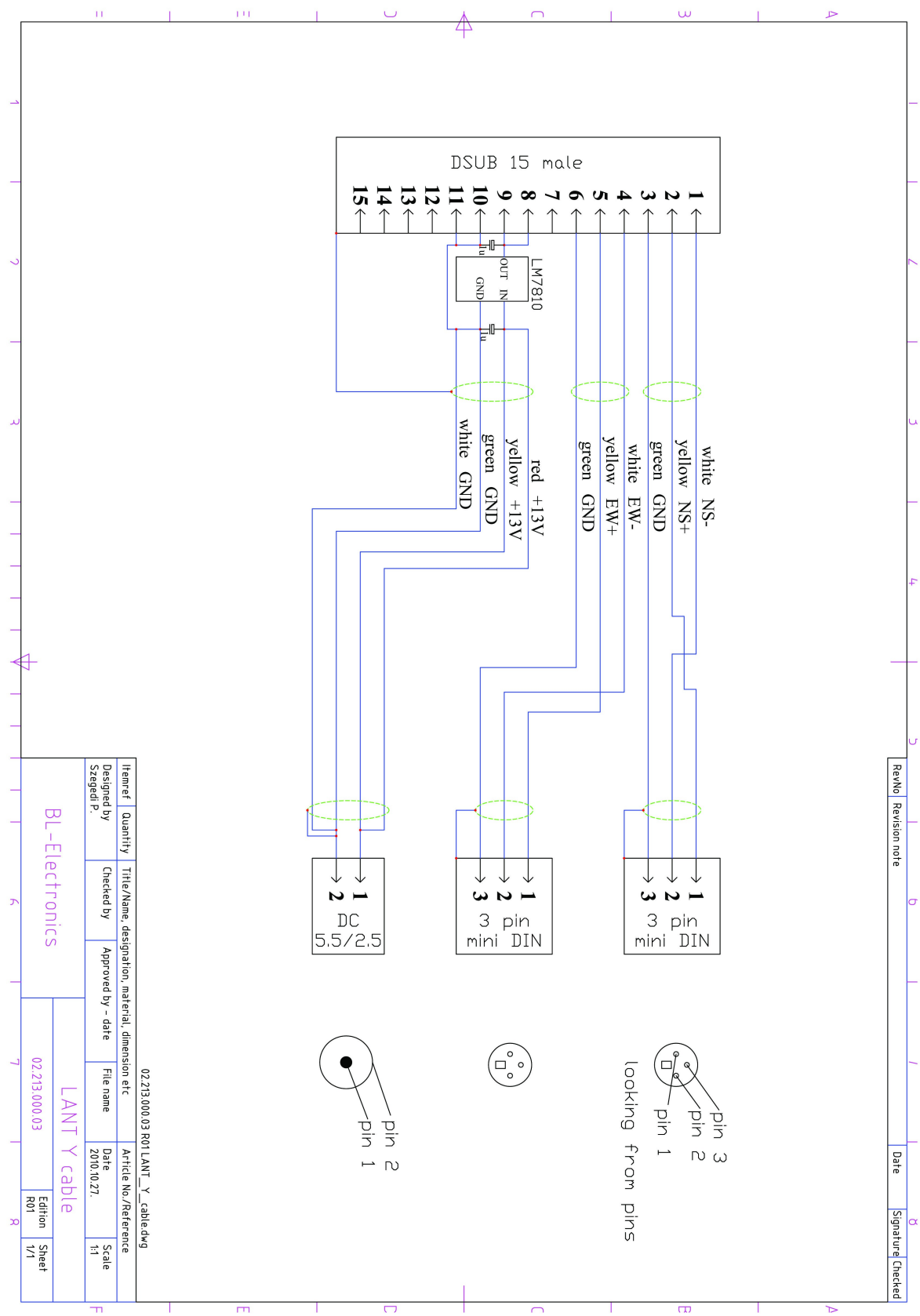


figure 2: LANT input impedance

Cable connections between VR2 and LANT and power supply are shown on the following page.
Because of the linear regulator in the cable a +12 - +13V input voltage is required.


DSUB 15 male
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
LM7810
IN
OUT
GND
1u
1u
white NS-
yellow NS+
green GND
white EW-
yellow EW+
green GND
red +13V
yellow +13V
green GND
white GND
1 2 3
3 pin mini DIN
1 2 3
3 pin mini DIN
1 2
DC 5.5/2.5
pin 1
pin 2
pin 1
pin 2
pin 3
looking from pins
RevNo
Revision note
Date
Signature
Checked
Itemref
Quantity
Title/Name, designation, material, dimension etc
Article No./Reference
Designed by
Szegedi P.
Checked by
Approved by - date
File name
02.213.000.03 R01 LANT_Y_cable.dwg
Date
2010.10.27.
Scale
1:1
BL-Electronics
LANT Y cable
02.213.000.03
Edition
R01
Sheet
1/1