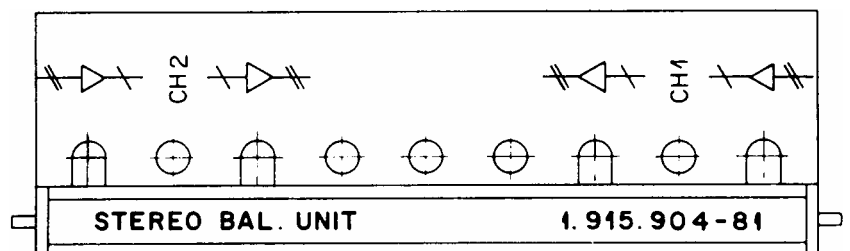
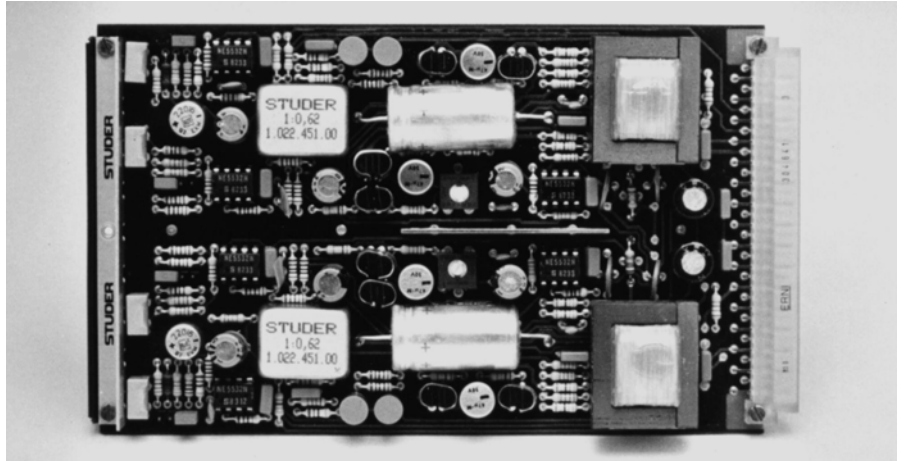


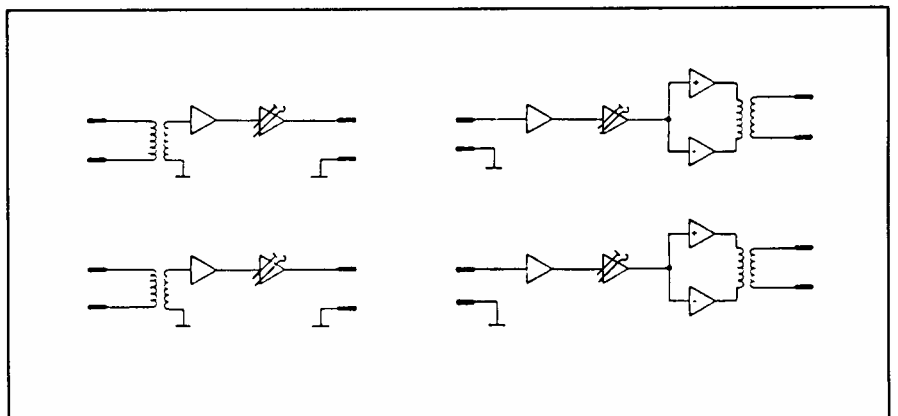
Dual Balancing Unit/Dual Line Amplifier

1.915.904

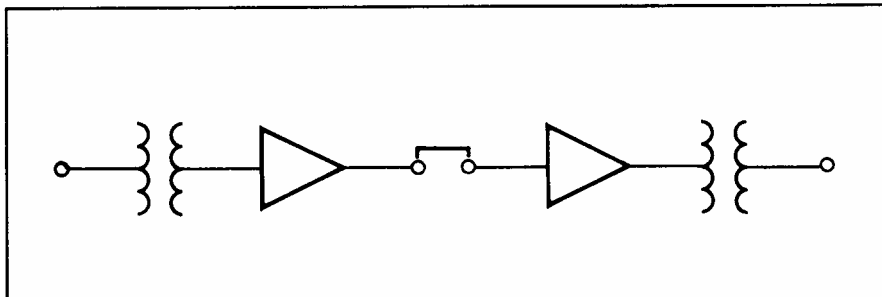
In professional audio work it is not uncommon that equipment with unbalanced input or output configuration must be connected to a system that is based on a strictly balanced design. The Dual Balancing Unit is the ideal component if the requirement of matching unbalanced to balanced equipment or vice versa has to be satisfied.



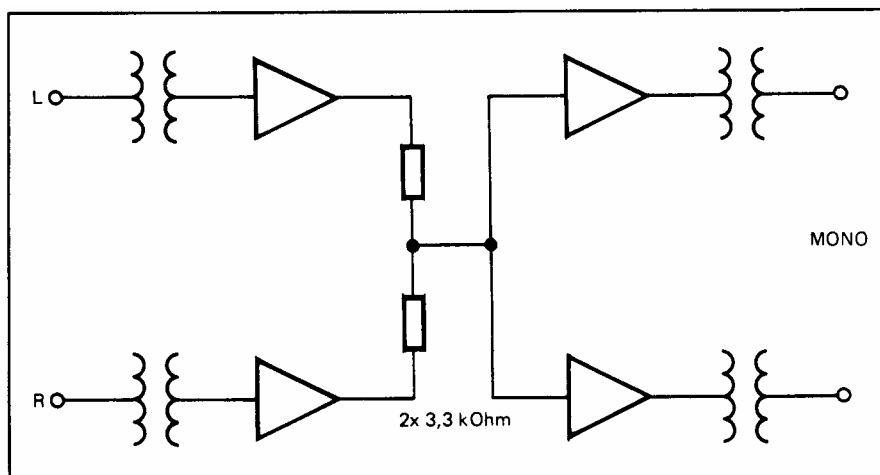
The Dual Balancing Unit consists of one Euro-card which contains four separate circuits to accommodate unbalanced-to-balanced or balanced-to-unbalanced matching in a stereo system. It is the ideal choice for applications in which consumer-type stereo equipment has to be integrated into a professional audio system, where balanced audio lines are a must. The Dual Balancing Unit will also be used in situations where balanced auxiliary units must be connected to unbalanced insert points on a mixing desk.



The use of the balancing unit is not restricted to matching of balanced and unbalanced audio system components, because it can also be utilized as a (line) booster amplifier or as a stereo-to-mono mixer. By simply connecting the unbalanced outputs and inputs together and by adjusting again within the available ranges, two booster amplifiers with a maximum gain of 30 dB and a maximum output capability of +24 dBu*) can be realized.



For stereo-to-mono mixing, the unbalanced sides of the amplifier sections simply are connected by means of combining (mixing) resistors, as shown in the diagram below.



- *) To avoid signal clipping, a system should always be designed in such a way that signal peaks stay well below an amplifier's maximum output capacity. Alignment procedures and level settings depend to a large degree on the type of metering used in an audio system. When making measurements with a steady-state signal, a margin of 6 dB below a system's clipping point and the PPM deflected to "zero volume", or a margin of 15 dB (for programs with extreme crest factors, even 20 dB) when utilizing a VU-meter, is considered good engineering practice.

Technical Specifications

Balanced to unbalanced (Section 1):

Input impedance	≥ 10 kΩ , balanced/floating
Maximum input level	+24 dBu
Output impedance	< 100 Ω , unbalanced
Maximum output level	+20 dBu
Minimum load	600 Ω
Frequency response	±0.2 dB , 30 Hz...16 kHz
Attenuation	0/15 dB ; two fixed steps 0...15 dB ; variable
S/N	> 100 dB ; attenuation set to 6 dB, line level +6 dBu

Unbalanced to balanced (Section 2):

Input impedance	5 kΩ , unbalanced
Maximum input level	+20 dBu
Output impedance	≤ 50 Ω , balanced/floating
Minimum load	200 Ω
Maximum output level	+24 dBu
Frequency response	±0.2 dB , 30 Hz...16 kHz
Gain	14/30 dB ; two fixed steps 0...17 dB ; variable
S/N	> 100 dB ; gain set to 6 dB, line level +6 dBu

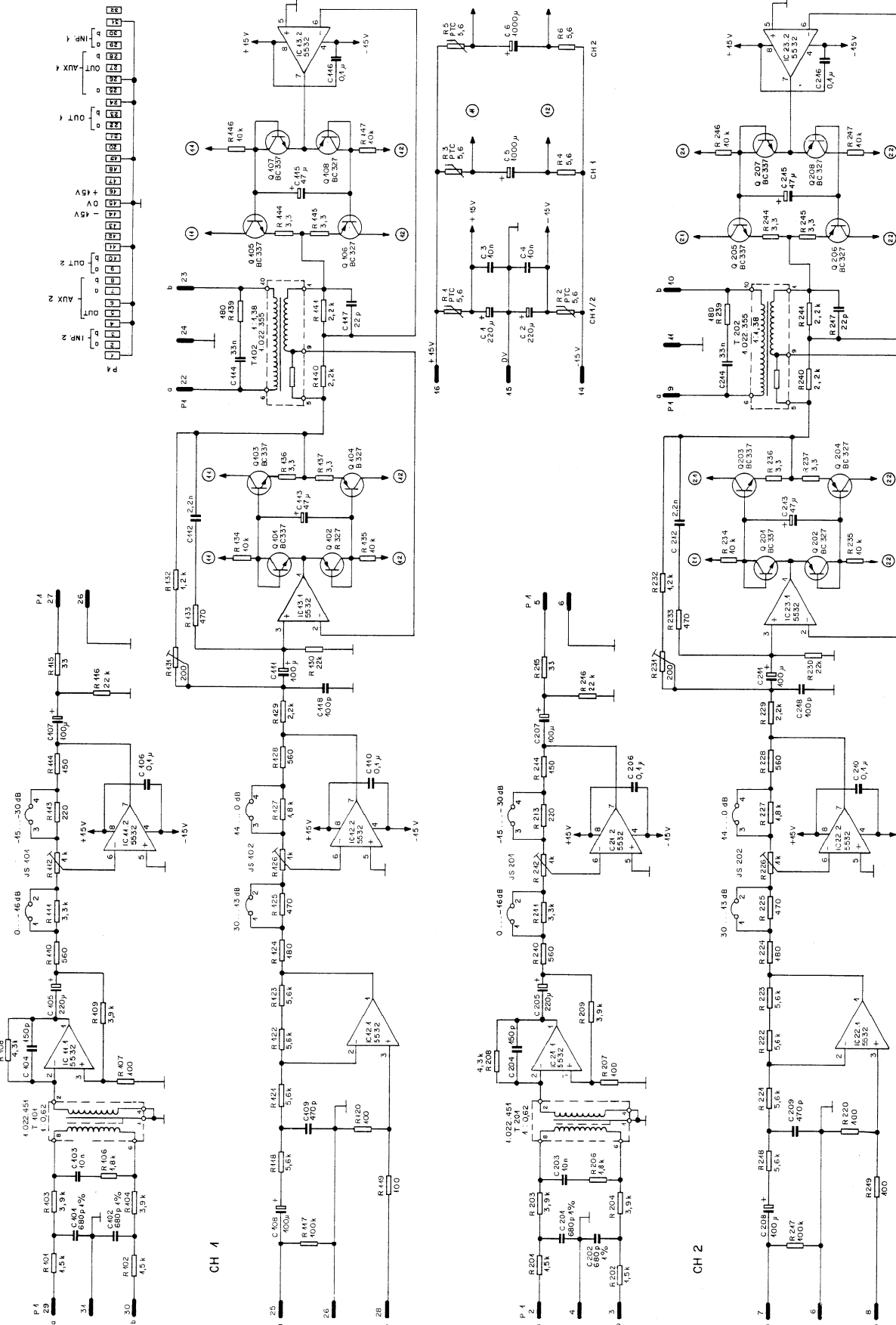
Supply: ±15 V (70 mA, idling; 170 mA, each channel +24 dBu into 200 Ω)

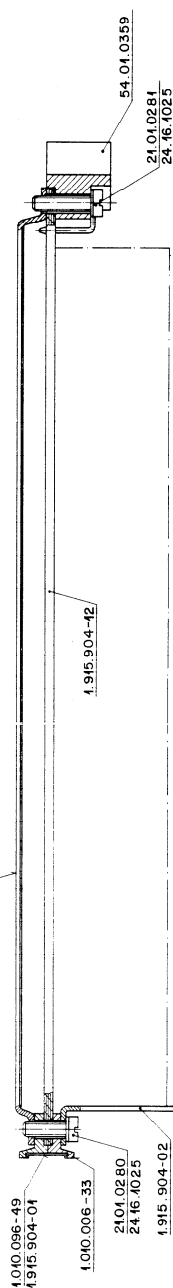
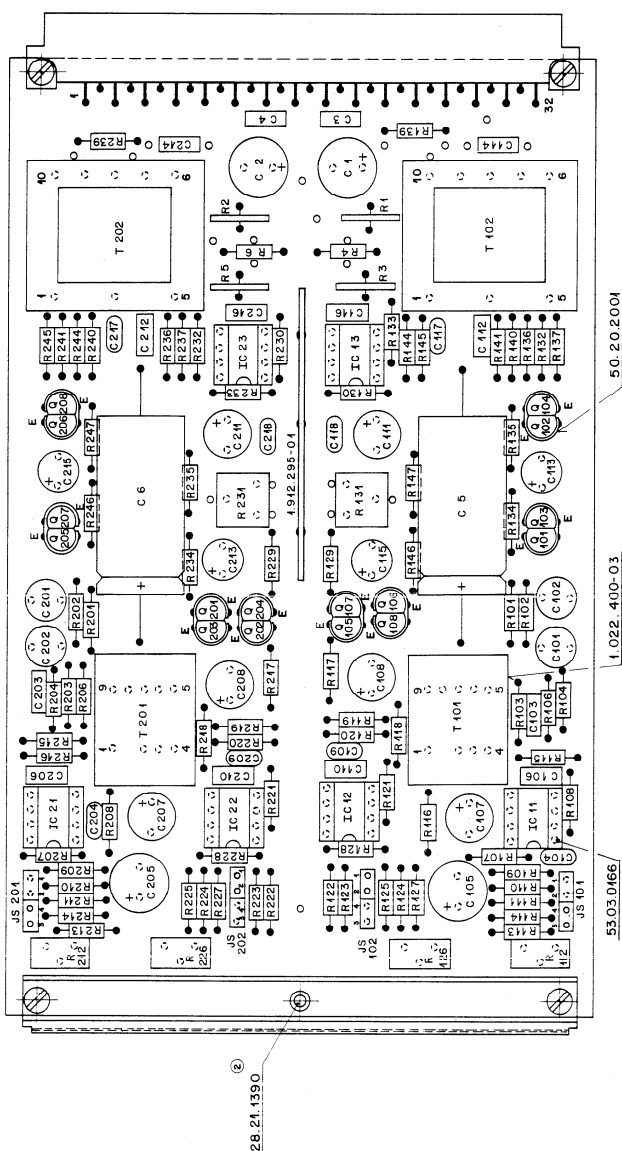
Dimensions: Euro-card **100 × 160 mm, 7 M units wide**

Ordering Information:

Euro-card:	• Dual balancing unit	1.915.904.xx
19"/1U standard products:	• 2CH balancing unit (1 × 1.915.904)	75.700.89212
	• 4CH balancing unit (2 × 1.915.904)	75.700.89422
	• 6CH balancing unit (3 × 1.915.904)	75.700.89632

DUAL BALANCING UNIT





Norm-Nr.:	Werkstoff:	Material:	Handlung	29.2.92	11	③
DN-Bz.:	Zeichn.:	Material:	Handlung	4.4.84	11	②
Abmessung:	Freimaschinen:	Material:	Handlung	24.4.82	11	①
Zugehörige Unterlagen:	±	Material:	Handlung	24.4.82	11	①
PL	±	Material:	Handlung	24.4.82	11	①
Erstellt für: 1.915.904-00	Erstellt durch:	Material:	Handlung	24.4.82	11	①
STÜCKER REGISCHOPF ZÜRICH	Stereo Balancing Unit	Material:	Handlung	24.4.82	11	①
1.915.904-81	Material:	Material:	Handlung	24.4.82	11	①

DUAL BALANCING UNIT

Ad POS. REF.No. DESCRIPTION MANUFACTURER

C....1 59.22.4221 220p 16V EL
 C....2 59.22.4221 220p 16V EL
 C....3 59.06.0103 10n 63V PE
 C....4 59.06.0103 10n 63V PE
 C....5 59.25.5102 1000p 40V EL
 C....6 59.25.5102 1000p 40V EL

C....1 59.05.1681 680p 1% 630V PP
 C....2 59.05.1681 680p 1% 630V PP
 C....3 59.06.0103 10n 63V PE
 C....4 59.34.4151 150p 63V CER
 C....5 59.22.2221 220p 6V EL
 C....6 59.06.0104 0,1p 63V PE
 C....7 59.22.5101 100p 25V EL
 C....8 59.22.5101 100p 25V EL
 C....9 59.34.5471 470p 63V CER
 C....10 59.06.0104 0,1p 63V PE

C....11 59.22.5101 100p 25V EL
 C....12 59.06.0222 2,2n 63V PE
 C....13 59.22.5470 47p 25V EL
 C....14 59.06.0333 33n 63V PE
 C....15 59.22.5470 47p 25V EL
 C....16 59.06.0104 0,1p 63V PE
 C....17 59.34.2220 22p 63V CER
 C....18 59.34.4101 100p 63V CER

IC....1 50.09.0105 NE5532 DUAL OP AMP XR5532 SIG, EX
 IC....2 50.09.0105 NE5532 DUAL OP AMP XR5532 SIG, EX
 IC....3 50.09.0105 NE5532 DUAL OP AMP XR5532 SIG, EX

JS....1 54.01.0020 4PIN
 54.01.0021 JUMPER
 JS....2 54.01.0021 4PIN
 54.01.0021 JUMPER

P....1 54.01.0359 2*16P

Q....1 1.010.037.50 BC337 NPN
 Q....2 1.010.036.50 BC327 PNP
 Q....3 1.010.037.50 BC337 NPN
 Q....4 1.010.036.50 BC327 PNP
 Q....5 1.010.037.50 BC337 NPN
 Q....6 1.010.036.50 BC327 PNP
 Q....7 1.010.037.50 BC337 NPN
 Q....8 1.010.036.50 BC327 PNP

MATCHED

R....1 57.99.0209 5,6 PTC PH
 R....2 57.99.0209 5,6 PTC PH
 R....3 57.99.0209 5,6 PTC PH
 R....4 57.11.4569 5,6
 R....5 57.99.0209 5,6 PTC PH
 R....6 57.11.4569 5,6

R....1 57.11.3152 1,5k 1%
 R....2 57.11.3152 1,5k 1%
 R....3 57.11.3392 3,9k 1%
 R....4 57.11.3392 3,9k 1%

R....5
 R....6 57.11.4182 1,8k
 R....7 57.11.3101 100
 R....8 57.11.3432 4,3k
 R....9 57.11.3392 3,9k
 R....10 57.11.4561 560

R....11 57.11.4332 3,3k
 R....12 58.01.9102 1k 10% TRIM
 R....13 57.11.4221 220 2%
 R....14 57.11.4151 150 2%
 R....15 57.11.4330 33
 R....16 57.11.4223 22k
 R....17 57.11.4104 100k
 R....18 57.11.3562 5,6k
 R....19 57.11.3101 100
 R....20 57.11.3101 100

R....21 57.11.3562 5,6k
 R....22 57.11.3562 5,6k
 R....23 57.11.3562 5,6k
 R....24 57.11.4181 180 2%
 R....25 57.11.4471 470 2%
 R....26 58.01.9102 1k 10% TRIM
 R....27 57.11.4182 1,8k 2%
 R....28 57.11.4561 560 2%
 R....29 57.11.4222 2,2k
 R....30 57.11.4223 22k

R....31 58.01.8201 200 TRIM
 R....32 57.11.4122 1,2k
 R....33 57.11.4471 470
 R....34 57.11.4103 10k
 R....35 57.11.4103 10k
 R....36 57.11.4339 3,3
 R....37 57.11.4339 3,3
 R....38
 R....39 57.11.4181 180
 R....40 57.11.4222 2,2k 2%

Ad POS. REF.No. DESCRIPTION MANUFACTURER

R....41 57.11.4222 2,2k 2%
 R....42
 R....43
 R....44 57.11.4339 3,3
 R....45 57.11.4339 3,3
 R....46 57.11.4103 10k
 R....47 57.11.4103 10k

T....1 1.022.451.00 1:0,62 INPUT TRAFO ST
 T....2 1.022.355.00 1:1,38 LINE OUTPUT TRAFO ST

XIC 53.03.0166 8P IC SOCKET

EL=Electrolytic, PE=Polyester, PP=Polypropylen, CER=Ceramic

MANUFACTURER: SIG=Signetics, PH=Philips, EX=Exar, ST=Studer

1.915.904.81 STEREO BAL. UNIT

BR 24/11/82

END

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