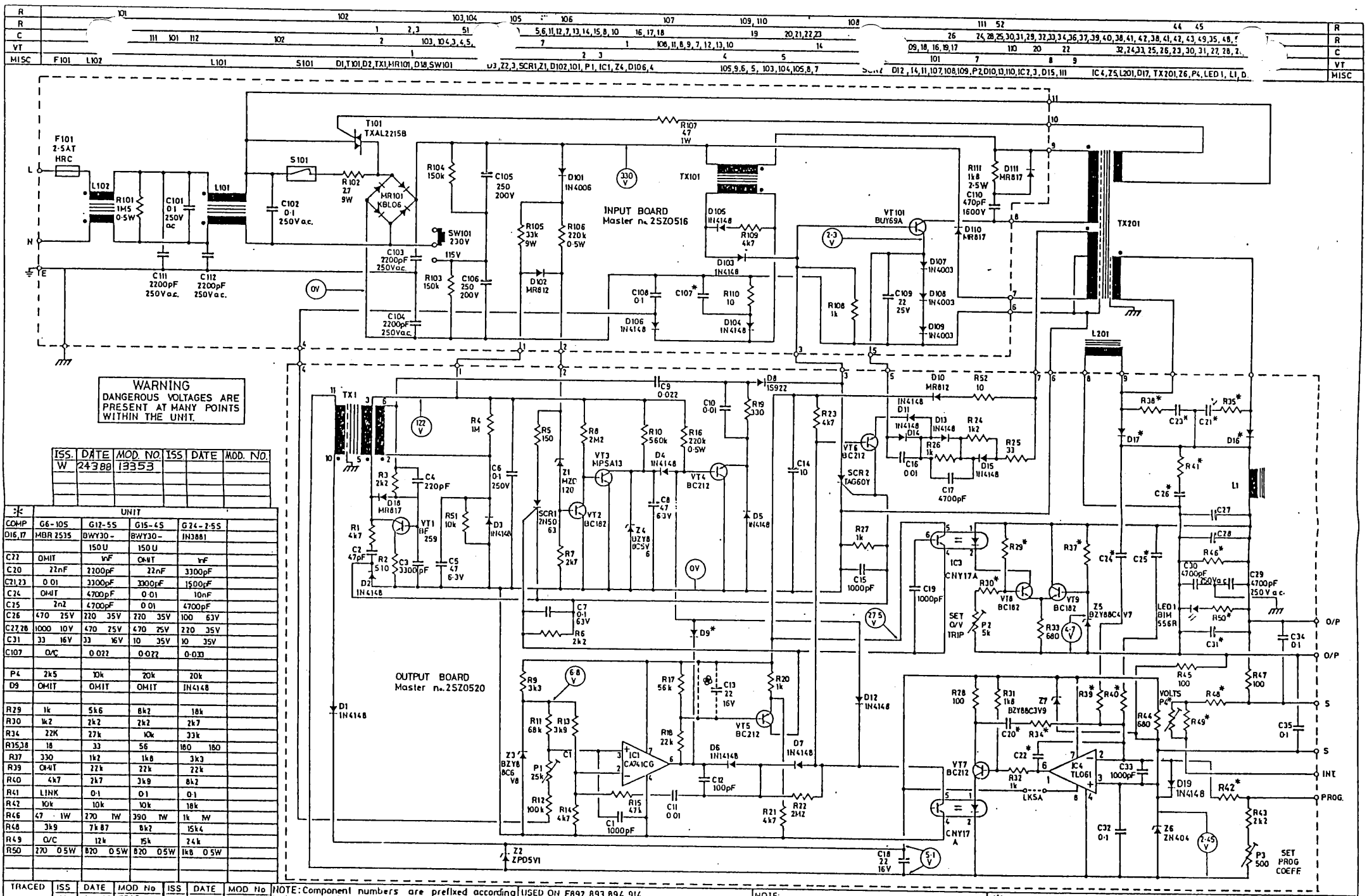

ISS.	DATE	MOD. NO.	ISS	DATE	MOD. NO.
W	24388	13353			

COMP	UNIT G6-10S	G12-5S	G15-4S	G24-2·5S
D16,17	MBR 2535	BWY30- 150U	BWY30- 150U	IN3881
C22	OMIT	WF	OMIT	WF
C20	22nF	2200pF	22nF	3300pF
C21,23	0·01	3300pF	3300pF	15000pF
C24	OMIT	4700pF	0·01	10nF
C25	2n2	4700pF	0·01	4700pF
C26	470 25V	220 35V	220 35V	100 63V
C27,28	1000 10V	470 25V	470 25V	220 35V
C31	33 16V	33 16V	10 35V	10 35V
C107	O/C	0·022	0·022	0·033
P4	2k5	10k	20k	20k
D9	OMIT	OMIT	OMIT	IN4148
R29	1k	5k6	8k2	18k
R30	1k2	2k2	2k2	2k7
R34	22K	27k	10k	33k
R35,38	18	33	56	180 180
R37	330	1k2	1k8	3k3
R39	OMIT	22k	22k	22k
R40	4k7	2k7	3k9	8k2
R41	LINK	0·1	0·1	0·1
R42	10k	10k	10k	18k
R46	47 1W	270 1W	390 1W	1k 1W
R48	3k9	7k87	8k2	15k4
R49	O/C	12k	15k	24k
R50	270 0·5W	820 0·5W	820 0·5W	1k8 0·5W

TRACED	ISS	DATE	MOD No
	M	14-4-82	7749
CHECKED	N	26-8-82	8028
	O	14-6-83	8618
DRAWN	P	9-2-84	9870
	Q	3 1 85	10637

ISS	DATE	MOD No
R	8-5-85	11088
S	17-9-85	11410
T	4-2-86	11774
U	16-3-87	12577
V	25-8-87	12904 12844

NOTE: Component numbers are prefixed according to location 1-99 on output board, 101-199 on input board, 201-299 on chassis.
Voltages indicated are measured at 240V input and full output current with respect to the negative end of C106 unless otherwise indicated.

USED ON F892, 893, 894, 914.

WARNING: This common measuring point is at mains input potential!

NOTE:
CAPACITOR VALUES GIVEN IN µF.
RESISTOR VALUES IN Ω
UNLESS OTHERWISE STATED.
* C13 fitted on C option units only otherwise a link.

FARNELL INSTRUMENTS LTD. WETHERBY, YORKS.

TITLE: CIRCUIT DIAGRAM 60W 'G' SERIES

DRAWING No 2SZX0119

SHEET 1 OF 1 SHEETS

COMPONENT REFERENCE NUMBER	G240W						G360W						GT120W
	G6-40A	G12-20A	G15-16A	G24-10A	G30-8A	G48-5A	G6-60A	G12-30A	G15-24A	G24-15A	G30-12A	G48-7.5A	GT6-20A
	F817	F819	F856	F821	F861	F986	F823	F825	F857	F827	F875	F961	F828
R1	220	1k2	1k8	3k9	4k7	22k	220	1k2	1k8	3k9	4k7	9k1	220
R2	7k5	7k5	7k5	7k5	7k5	7k5	SOT	SOT	SOT	SOT	SOT	SOT	10k
R3	4k7	4k7	4k7	4k7	4k7	4k7	SOT	SOT	SOT	SOT	SOT	SOT	4k7
R5	390	680	1k	1k5	1k	3k9	390	680	1k	1k5	1k	1k	390
R6	220	1k8	3k3	8k2	8k2	47k	220	1k8	3k3	8k2	8k2	13k	220
R8	LINK	LINK	LINK	LINK	LINK	LINK	LINK	LINK	LINK	LINK	LINK	LINK	LINK
R9	820	820	820	820	820	820	820	820	820	820	820	820	820
R18	680	680	680	3k9	OMIT	OMIT	10k	8k2	10k	10k	OMIT	4k7	4k7
R21	39k	39k	39k	18k	220K	220k	39k	39k	68k	100k	100k	120k	39k
R22	680	680	2k2	3k9	15K	12k	4k7	1k2	10k	5k6	1k8	20k	680
R24	22k	56k	56k	82k	82k	82k	22k	22k	22k	22k	22k	22k	22k
R31	3k9	3k9	3k9	3k9	3k9	3k9	3k9	3k9	3k9	3k9	3k9	3k9	3k9
R38	SOT	SOT	SOT	SOT	SOT	SOT	SOT	SOT	SOT	SOT	SOT	SOT	-
R46	1M	1M	220k	1M	1M	1M	1M	1M	1M	1M	1M	1M	1M
R47	270	270	270	270	270	270	560	560	560	560	560	560	270
R49	39	39	39	39	39	39	56	56	56	56	56	56	39
R50	120	120	150	120	150	150	82	82	82	100	82	100	68
R51	270	270	270	270	270	270	560	560	560	560	560	560	-
R53	10k	10k	10k	10k	10k	10k	10k	10k	10k	10k	10k	10k	-
R54	1k	1k	1k	1k	1k	1k	1k	1k	1k	1k	1k	1k	-
R55	3k3	3k3	3k3	3k3	3k3	3k3	3k3	3k3	3k3	3k3	3k3	3k3	-
R56	470	470	470	470	470	470	470	470	470	470	470	470	-
R57	-	-	-	-	-	-	56	56	56	56	56	56	-
C7	0u01	0u01	0u01	0u01	0u01	0u01	0u022	0u022	0u022	0u022	0u022	0u022	-
C8	4700p	4700p	4700p	4700p	4700p	4700p	4700p	4700p	4700p	4700p	4700p	4700p	4700p
C10	0u01	0u01	0u01	0u01	OMIT	OMIT	0u022	4700p	2200p	3300p	OMIT	4700p	0u01
C11	0u022	0u01	0u01	0u01	1n0	0u001	4700p	0u01	2200p	3300p	0u01	4700p	0u01
C12	-	-	-	-	-	-	-	-	-	-	-	-	-
C13	1000p	1000p	1000p	1000p	4n7	1000p	2200p	4700p	3300p	2200p	4700p	2200p	2200p
C14	22u	22u	22u	22u	22u	22u	22u	22u	22u	22u	22u	22u	22u
C19	2200p	3300p	2200p	3300p	3300p	3300p	0u01	0u01	0u01	0u01	0u01	0u01	2200p
C23	-	-	-	-	-	-	0u047	0u047	0u047	0u047	0u047	0u047	-
D7	1N4148	1N4148	1N4148	1N4148	1N4148	1N4148	1N4148	1N4148	1N4148	1N4148	1N4148	1N4148	1N4148
Z2	-	-	-	-	-	-	-	-	-	-	-	-	-
P4	1k	1k	1k	1k	1k	1k	1k	1k	1k	1k	1k	1k	-
VT7	-	-	-	-	-	-	-	-	-	-	-	-	-
VT15	VT212PL	VT212PL	VT212PL	VT212PL	VT212PL	VT212PL	BC212PL	BC212PL	BC212PL	BC212PL	BC212PL	BC212PL	-
VT16	VT182PL	VT182PL	VT182PL	VT182PL	VT182PL	VT182PL	BC182PL	BC182PL	BC182PL	BC182PL	BC182PL	BC182PL	-
VT17	VT212PL	VT212PL	VT212PL	VT212PL	VT212PL	VT212PL	BC212PL	BC212PL	BC212PL	BC212PL	BC212PL	BC212PL	-

ISS	AE	AF	AG	AH	AI					
DATE	1.5.87	4.1.88	4.2.88	28.3.88	19.9.88					
MOD. NO.	A01714	12781	13215	13404	13464					
CH'D	CJ	CJ	CJ							

LEAD DIA.

NOTES:
ALL CAPACITOR VALUES IN F.
ALL RESISTOR VALUES IN OHMS.
UNLESS OTHERWISE STATED

FARNELL INSTRUMENTS LTD., SANDBECK WAY, WETHERBY, YORKS. LS22 4DH

TITLE: G SERIES DUAL INPUT CONTROL BOARD NON STANDARD PARTS

DRAWING NO. 2SZX0088

SHEET 2 OF 2 SHEETS

INTRODUCTION

The Farnell G range power supplies use a switched-mode technique to provide stabilised d.c. from a.c. inputs. The techniques employed permit reduced dimensions, weight and internal power dissipation in comparison with conventional series regulator units.

This instruction book covers twelve models in two package sizes of 240 and 360 watts rating. For each package size six nominal output voltages are available (6, 12, 24, 30 and 48 volts) with maximum output currents compatible with the particular package power. Each unit may be operated from either 220-240V input or 115-120V input, selected by a front panel link.

The output voltage may be set within the range shown in the table below by screwdriver adjustment of the front panel potentiometer. Alternatively the output voltage may be programmed from 1 volt up to the maximum figure shown in the adjustment range. Full output current is available at any voltage setting within this range for ambient temperatures from 0 to 55°C

Provision is made for remote sensing of voltage at the load to correct for voltage drop in the load connecting leads.

The output may be switched on or off by remote control and units may be connected in series or parallel. Presence of output is indicated by a front panel L.E.D.

Current limiting and overvoltage protection are provided and an optional overcurrent trip is available which disables the output after approximately 200mS of current overload.

A 'soft-start' circuit is employed which limits the peak value of input current at switch-on.

Careful consideration has been given in the design of the G range to the problems of radio frequency interference (r.f.i.) and, in this respect, sample units have met the conducted interference requirements of VDE 0875 curve N, CISPR (publication 2) curve N and BS 800.

Models available

Unit type	Nominal output volts d.c.	Output voltage adjust. range d.c.	Output current	Package	Dimensions (mm) excluding terminals Height	Width	Depth	Weight
G6 - 40A	6	4 - 6	40A	240W	88	160	175	3 kg
G6 - 60A	6	4 - 6	60A	360W	88	210	175	3.75 kg
G12 - 20A	12	8 - 12.6	20A	240W	"	"	"	"
G12 - 30A	12	8 - 12.6	30A	360W				
G15 - 16A	15	10 - 15.75	16A	240W	"	"	"	"
G15 - 24A	15	10 - 15.75	24A	360W				
G24 - 10A	24	16 - 25.2	10A	240W	"	"	"	"
G24 - 15A	24	16 - 25.2	15A	360W				
G30 - 8A	30	20 - 31.5	8A	240W	"	"	"	"
G30 - 12A	30	20 - 31.5	12A	360W				
G48-5A	48	32-50.4V	5A	240W	"	"	"	"
G48-7.5A	48	32-50.4V	7.5A	360W				

Option C. Units with optional overcurrent trip can be identified by the presence of a suffix 'C' in the model number.

Note: The specification of triple output models is described in a separate leaflet and instruction book

SPECIFICATION

(measured at 25°C unless otherwise stated)

MAINS INPUT	220-240v or 115-120v with single front panel link 45-440Hz.
MAINS VARIATION TOLERATED	220V -20% to 240V +10% 115V -20% to 120V +10%
OUTPUT	See 'Models available' on page 2
OUTPUT REGULATION	0.1% maximum variation for worst case combination of 0-100% load change and 220V-10% to 240V +10% or 115V -10% to 120V +10% line change
RIPPLE AND NOISE at full load (30MHz bandwidth)	Less than 10mV r.m.s.; 50mV pk-pk (75mV on 48V models)
TEMPERATURE COEFFICIENT	±0.01% per °C typical
OUTPUT IMPEDANCE	100mΩ at 100kHz and 25°C typical
TRANSIENT RECOVERY TIME	Typically 1mS for output to recover within 50mV following a 10–100% or 100–10% load change of 5μS risetime. Typical instantaneous output deviation 350mV
OPERATING AMBIENT TEMPERATURE RANGE	0°C to 55°C for full output current
MAXIMUM OPERATING AMBIENT TEMPERATURE	70°C. Output current derates linearly from full load at 55°C to half load at 70°C
STORAGE TEMPERATURE RANGE	–40°C to +85°C
HOLD-UP TIME	Output will be maintained for the duration of a missing mains cycle (28mS) at maximum output current and 220V - 10% or 115V - 10% mains input, when the output is at 6V for 6V nominal units and nominal +5% for other units. *See graph on page 5.*
SWITCH-ON SURGE	Limited by 'soft-start' facility Max. peak current 32A
SWITCH-ON TIME	Output established within 400mS
INSULATION	Tested at 2.2kV peak for 1 minute between a.c. input and d.c. output, with output terminals and earth connected together. ±250V d.c. continuous rating between output and earth. Tested to 500V d.c. for 1 minute.
REMOTE VOLTAGE CONTROL	Programming resistance 1000Ω/V±0.5% Range: 1V to unit max. output voltage
EXTERNAL SENSING LIMITATION	Up to 5V max. drop in each output lead, also unit output terminal voltage must not exceed 6V for nominal 6V units, or nominal plus 5% for other units, i.e. load voltage + total lead voltage < max. range voltage.
EFFICIENCY	Better than 70%. Typically 77% at full load
PROTECTION	*Overload* Constant current limiting set at 110%±5% of full load. Option C. As above but after approx. 200mS of overload the output is disabled. *Overvoltage* Set at nominal output voltage +20%. Disables control circuit and output falls to zero *Fuse* The a.c. input circuit is fused
SERIES AND PARALLEL OPERATION	Any number of units with the same output voltage can be connected in parallel. Series operation to a max. total output voltage of 250V
REMOTE ON/OFF	Output is reduced to zero by short-circuiting the 'PROG' and '+S' terminals