



**DL705**  
***ACTIVE VIDEO DELAYS***

**broadcast video systems corp.**

10 Woltner Way, Markham, Ontario L3R 4R4  
Phone (905)305-0565 Fax (416)946-1964  
E-mail: [bvs@bvs.ca](mailto:bvs@bvs.ca) Website: [www.bvs.ca](http://www.bvs.ca)

## 1. INTRODUCTION

The new generation of BVS active video delay cards offer the customer many new features. They include a high impedance input giving an excellent return loss figure and allowing looping-through inputs. The buffered output stage has two 75 ohm outputs as well as adjustable video gain, DC offset and frequency response. Gold jumpers combined with a fine trim section give continuous delay adjustment up to 1945ns on a single card. The output amplifier compensates for the gain loss of any combination of delay.

Up to 12 cards may be housed in the FR705 frame which has a plug-in power supply, PS705. A redundant power supply may be added.

An optional power supply failure indicator may be ordered. This consists of relay dry contacts brought out on a connector mounted on the rear panel.

A single DL705 can be housed in an FR700 frame which has a built in power supply.

The DL705 is also available in configurations to fit most popular brand video DA frames.

## 2. SPECIFICATIONS

Electrical .....	110-125 or 220-240VAC, 50 / 60 Hz, 0.8VA per card
Mechanical - FR705.....	Standard rack mount, c/w power supply, 2RU high (3.5" X 19" X 11") Accepts 12 delay cards. Optional redundant power supply.
FR700.....	(1.5" X 6" X 12") Accepts 1 delay card, c/w power supply
Video Input.....	1Vp-p, looping, BNC
Video Output.....	1Vp-p, 75 ohm, BNC, 2 per card.
Input Return Loss Loss.....	44dB to 4.2MHz
Output Return Loss Loss.....	43dB to 4.2MHz
Gain Range.....	-.5 to 10dB adjustable.
D.C. on Output.....	Adjustable for OVDC.
50Hz. Square Wave Tilt.....	<0.5%
Freq. Response.....	+/- 0.2dB to 5.5MHz
Lum-Chroma Gain Inequality.....	+/- 1%
Lum-Chroma Delay Inequality.....	+/- 5ns
Diff Phase.....	<0.15 Degrees
Diff Gain.....	<0.15%
RMS Noise.....	>66dB
Hum.....	>66dB
Crosstalk between Channels.....	>70dB

## **CARD TYPE AND DELAY RANGE**

<b><u>CARD TYPE</u></b>	<b><u>DELAY RANGE</u></b>	<b><u>DELAY LINE COMPLEMENT</u></b>
DL705 -1	10 - 165ns	155
DL705 - 2	10 - 245ns	235
DL705 - 3	10 - 455ns	235, 200
DL705 - 4	10 - 745ns	235, 200, 300
DL705 - 5	10 - 845ns	235, 200, 400
DL705 - 6	10 - 945ns	235, 200, 500
DL705 - 7	10 - 1045ns	235, 200, 300, 300
DL705 - 8	10 - 1145ns	235, 200, 300, 400
DL705 - 9	10 - 1245ns	235, 200, 300, 500
DL705 - 10	10 - 1345ns	235, 200, 400, 500
DL705 - 11	10 - 1445ns	235, 200, 500, 500
DL705 - 12	10 - 1545ns	235, 200, 200, 400, 500
DL705 - 13	10 - 1645ns	235, 200, 300, 400, 500
DL705 - 14	10 - 1745ns	235, 200, 400, 400, 500
DL705 - 15	10 - 1845ns	235, 200, 400, 500, 500
DL705 - 16	10 - 1945ns	235, 200, 500, 500, 500

### **3. DESCRIPTION AND OPERATION**

#### **3.1 POWER SUPPLY**

Designed for safety, the power supply consists of a totally enclosed unit that installs into the main frame on card guides. The AC cord plugs into a receptacle on the rear where the combination ON/OFF switch and breaker is located. Jumpers to change from 110/125 to 220/240VAC are mounted on an internal PCB. Fingers on the PCB pick up a card edge connector on the internal mother board and distribute the +/- 20VDC and common to the DL705 cards.

The power supply contains a toroidal power transformer with split primary and two secondaries. The toroidal configuration gives low mechanical hum and high efficiency. Each secondary feeds a full-wave bridge rectifier and large value capacitors for minimum ripple.

#### **3.2 DELAY CARDS**

From the loop-through BNC's on the rear mother board the video signal enters the DL705 via the card-edge connector on an internal mother board. The signal is then buffered by a high impedance input on I.C. 2 and amplified. After passing through the delay fine trim section and appropriate delay lines, the signal is fed to I.C.1 which has adjustable video gain, DC offset and frequency response. I.C. 1 provides two 75 ohm outputs.

The total delay of the DL705 consists of the 10ns fine delay trimmer plus any other delay line on the card. Any combination can be selected by gold plated jumpers. The DL705 has on-card +/- 12VDC regulators for maximum DC isolation between individual cards. The built-in over-current shut down feature of the regulators alleviates the necessity for individual card fuses.

After any delay changes on a card, a 1Vp-p signal should be applied to the card and the gain control adjusted for a 1Vp-p terminated signal out.

The DC offset can be adjusted by the DC multi-turn pot for OVDC at blanking level.

All delay lines on the DL705 are phase equalized and have flat frequency response to 5.5MHz. A response trimmer on the card front edge allows equalization for interconnecting video cable.

Convenient card front edge input and output test points are provided.

## DL705 PARTS LIST

ITEM	DESCRIPTION	SOURCE	PART NUMBER
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### CAPACITORS

C2, C4, C10, C11	4.7 uf/16v	ITT	TAP 4.7 M 16
C3, C5, C9, 12	.1 uf/50v	Centralab	CK05BX104M
C6, C7, C14, 15	10 uf/25v	ITT	TAP 10M 25
CV1, CV2	10-180 pf	Sprague/ Goodman	GZD-18100

### DELAY LINES

DL1 through DL5 as required	155 ns programmable	BVS	37280155
	235 ns programmable	BVS	37360235
	200 ns fixed	"	36280200
	300 ns "	"	36360300
	400 ns "	"	36360400
	500 ns "	"	36360500

### DIODES

D1, D2, D3, D4	1N4001	GE, GI, IR Varo, Mot.	IN4001
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### EJECTOR HANDLE

	Vero	41-1274L
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### HEADERS

	3 X 20 pin Headers	BERG	68001-520
	10 X 4 pin Mini-Jumps	"	69145-204

### INTEGRATED CIRCUITS

IC1, IC2	EL2020CN	Elantec	EL2020CN
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<b>ITEM</b>	<b>DESCRIPTION</b>	<b>SOURCE</b>	<b>PART NUMBER</b>
<u>PRINTED</u> <u>CIRCUIT BOARD</u>			
PCB	DL705	BVS	101-002
<u>RESISTORS</u>			
R1	1K ohms 1/4w 5%	Phillips	CR25T0L5% 1K ohms
R2	220 ohms 1/4w 5%	"	CR25T0L5% 220 ohms
R3	3.3K ohms 1/4w 5%	"	CR25T0L5% 3.3K ohms
R4	100 ohms 1/4w 5%	"	CR25T0L5% 100 ohms
R5, R6, R11	2.2K ohms 1/4w 5%	"	CR25T0L5% 2.2K ohms
R7	1.5K ohms 1/4w 5%	"	CR25T0L5% 1.5K ohms
R8, R9, R14, R15	75 ohms 1/4w 5%	"	MR16F 1% 75 ohms
R10	750 ohms 1/4w 5%	"	CR25T0L5% 750 ohms
R12	68k ohms 1/4w 5%	"	CR25T0L5% 68K ohms
RV1, RV2	1K ohms 1/2w 10%	Bourns	3006p-1-102
<u>TEST POINTS</u>			
TP1, TP2, TP3		Keystone	6050
<u>TOROIDS</u>			
T1		BVS	T2
<u>VOLTAGE</u> <u>REGULATORS</u>			
VR1	7812	National, Motorola	LM7812CT, MC7812CT
VR2	7912	National, Motorola	LM7912CT, MC7912CT