

TECHNICAL DATA NATIONAL

NUMERALS 0 thru 9	NL-4998	NL-7977/4032	NL-4021, NL-4021AL • NL-7009	NL-5961 • NL-8422/5991																																																																																																																																																																												
SYMBOLS + and -		NL-4031	NL-4026	NL-5992																																																																																																																																																																												
LT HAND DECIMAL																																																																																																																																																																																
SPECIAL CHARACTER			NL-4038	NL-806																																																																																																																																																																												
CHARACTER SIZE (INCHES)	.310	.310	.310	.610																																																																																																																																																																												
VIEWING DISTANCE (FEET)	14	14	14	30																																																																																																																																																																												
ELECTRICAL RATINGS AND CHARACTERISTICS																																																																																																																																																																																
Ionization Voltage (Maximum)	170 Vdc	170 Vdc	NL-4038 170 Vdc NL-7009 120Vdc††	NL5961 ONLY 170 Vdc																																																																																																																																																																												
Supply Voltage (Minimum)	170 Vdc	170 Vdc	NL-4026 120 Vdc	170 Vdc																																																																																																																																																																												
Cathode Current — Peak (Max.)	2.5 mA	2.0 mA	170 Vdc 2.0 mA	3.5 mA																																																																																																																																																																												
Average (Max.)	2.0 mA	1.4 mA	1.2 mA 1.4 mA	3.0 mA																																																																																																																																																																												
Average (Min.)	1.2 mA	0.7 mA	0.7 mA 0.7 mA	1.5 mA																																																																																																																																																																												
dc Prebias Voltage Limits...	65 Vdc to 120 Vdc	50 Vdc to 120 Vdc	50 Vdc to 75 Vdc	50 Vdc to 120 Vdc																																																																																																																																																																												
**Recommended Operating Conditions dc Supply Voltage (Ebb)	170Vdc 250Vdc 300Vdc	170Vdc 250Vdc 300Vdc	170Vdc 250Vdc 300Vdc	170Vdc 250Vdc 300Vdc																																																																																																																																																																												
Corresponding Anode Resistor (Rp)	15K 75K 110K	15K 91K 150K	68K 150K 200K	8.2K 39K 56K																																																																																																																																																																												
Temperature Limits (Reduced Life)	-20 °C to +55 °C -40 °C to +70 °C	-20 °C to +55 °C -40 °C to +70 °C	-20 °C to +55 °C -40 °C to +70 °C	-20 °C to +55 °C -40 °C to +70 °C																																																																																																																																																																												
Weight	0.14 oz.	0.14 oz.	0.14 oz.	0.3 oz.																																																																																																																																																																												
OUTLINE DRAWINGS																																																																																																																																																																																
Socket (See Page 12)	C.F.	RTS-3	RTS-3	RTS-4, RTS-10																																																																																																																																																																												
Mounting Position	PINS 6 & 12 VERTICALLY ALIGNED WITH PIN 6 ON TOP	PINS 1 & 7 VERTICALLY ALIGNED WITH PIN 7 ON TOP	PINS 1 & 7 VERTICALLY ALIGNED WITH PIN 7 ON TOP	PINS 6 & 12 VERTICALLY ALIGNED WITH PIN 6 ON TOP																																																																																																																																																																												
PIN CONNECTIONS	<table><tr><th>PIN NUMBER</th><th>CHARACTER</th></tr><tr><td>1</td><td>2</td></tr><tr><td>2</td><td>3</td></tr><tr><td>3</td><td>4</td></tr><tr><td>4</td><td>5</td></tr><tr><td>5</td><td>6</td></tr><tr><td>6</td><td>Internal Conn.</td></tr><tr><td>7</td><td>7</td></tr><tr><td>8</td><td>8</td></tr><tr><td>9</td><td>9</td></tr><tr><td>10</td><td>0</td></tr><tr><td>11</td><td>Anode</td></tr><tr><td>12</td><td></td></tr><tr><td>13</td><td>Internal Conn.</td></tr></table>	PIN NUMBER	CHARACTER	1	2	2	3	3	4	4	5	5	6	6	Internal Conn.	7	7	8	8	9	9	10	0	11	Anode	12		13	Internal Conn.	<table><tr><th>PIN NUMBER</th><th>CHARACTER</th></tr><tr><td>1</td><td>1</td></tr><tr><td>2</td><td>2</td></tr><tr><td>3</td><td>3</td></tr><tr><td>4</td><td>4</td></tr><tr><td>5</td><td>5</td></tr><tr><td>6</td><td>6</td></tr><tr><td>7</td><td>7</td></tr><tr><td>8</td><td>8</td></tr><tr><td>9</td><td>9</td></tr><tr><td>10</td><td>0</td></tr><tr><td>11</td><td>Anode</td></tr></table>	PIN NUMBER	CHARACTER	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	0	11	Anode	<table><tr><th>PIN NUMBER</th><th>CHARACTER</th><th>4031 ONLY I.C.</th><th>4038 ONLY I.C.</th></tr><tr><td>1</td><td>0</td><td>—</td><td>—</td></tr><tr><td>2</td><td>1</td><td>—</td><td>—</td></tr><tr><td>3</td><td>2</td><td>—</td><td>—</td></tr><tr><td>4</td><td>3</td><td>—</td><td>—</td></tr><tr><td>5</td><td>4</td><td>—</td><td>—</td></tr><tr><td>6</td><td>5</td><td>—</td><td>—</td></tr><tr><td>7</td><td>6</td><td>—</td><td>—</td></tr><tr><td>8</td><td>7</td><td>—</td><td>—</td></tr><tr><td>9</td><td>8</td><td>—</td><td>—</td></tr><tr><td>10</td><td>9</td><td>—</td><td>—</td></tr><tr><td>11</td><td>0</td><td>—</td><td>—</td></tr><tr><td>12</td><td>Anode</td><td>—</td><td>—</td></tr><tr><td>13</td><td></td><td>—</td><td>—</td></tr><tr><td>14</td><td></td><td>—</td><td>—</td></tr></table>	PIN NUMBER	CHARACTER	4031 ONLY I.C.	4038 ONLY I.C.	1	0	—	—	2	1	—	—	3	2	—	—	4	3	—	—	5	4	—	—	6	5	—	—	7	6	—	—	8	7	—	—	9	8	—	—	10	9	—	—	11	0	—	—	12	Anode	—	—	13		—	—	14		—	—	<table><tr><th>PIN NUMBER</th><th>CHARACTER</th><th>NL-5992 ONLY Anode</th><th>806 ONLY Anode</th></tr><tr><td>1</td><td>0</td><td>—</td><td>—</td></tr><tr><td>2</td><td>1</td><td>—</td><td>—</td></tr><tr><td>3</td><td>2</td><td>—</td><td>—</td></tr><tr><td>4</td><td>3</td><td>—</td><td>—</td></tr><tr><td>5</td><td>4</td><td>—</td><td>—</td></tr><tr><td>6</td><td>5</td><td>—</td><td>—</td></tr><tr><td>7</td><td>6</td><td>—</td><td>—</td></tr><tr><td>8</td><td>7</td><td>—</td><td>—</td></tr><tr><td>9</td><td>8</td><td>—</td><td>—</td></tr><tr><td>10</td><td>9</td><td>—</td><td>—</td></tr><tr><td>11</td><td>0</td><td>—</td><td>—</td></tr><tr><td>12</td><td>Anode</td><td>—</td><td>—</td></tr><tr><td>13</td><td></td><td>—</td><td>—</td></tr><tr><td>14</td><td></td><td>—</td><td>—</td></tr></table>	PIN NUMBER	CHARACTER	NL-5992 ONLY Anode	806 ONLY Anode	1	0	—	—	2	1	—	—	3	2	—	—	4	3	—	—	5	4	—	—	6	5	—	—	7	6	—	—	8	7	—	—	9	8	—	—	10	9	—	—	11	0	—	—	12	Anode	—	—	13		—	—	14		—	—
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*Other characters available by special order.

**See Fig. 1 & 3, Page 9. Use of the highest voltage available with the appropriate resistor is recommended.

††Corresponding anode resistor (R_p) is 20K.

ELECTRONICS READOUT TUBES

	NL-6844A•• NL-8037/5031	NL-8421/5092	NL-8423/6091 NL-7153••	NL-8091	NL-7094																																																																																																																																				
	NL-5016•• NL-5032	NL-50911	NL-6034	NL-887	NL-825																																																																																																																																				
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170 Vdc 170 Vdc 3.5 mA †3.0 mA †1.5 mA	NL-6844A NL-8037 NL-5016 NL-5032 170 Vdc 170 Vdc 170 Vdc 170 Vdc 4.0 mA 3.5 mA 3.0 mA 3.0 mA 1.5 mA 1.5 mA	170 Vdc 170 Vdc 3.5 mA 3.0 mA 1.5 mA	170 Vdc 170 Vdc 4.5 mA 4.0 mA 1.5 mA	170 Vdc 170 Vdc 6.5 mA 6.0 mA 3.0 mA	170 Vdc 170 Vdc 7.5 mA 7.0 mA 4.0 mA																																																																																																																																				
50 Vdc to 120 Vdc	50 Vdc to 120 Vdc	50 Vdc to 120 Vdc	65 Vdc to 120 Vdc	65 Vdc to 120 Vdc	65 Vdc to 120 Vdc																																																																																																																																				
70Vdc 250Vdc 300Vdc 8.2K 39K 56K	170Vdc 250Vdc 300Vdc 15K 51K 75K	170Vdc 250Vdc 300Vdc 10K 47K 68K	170Vdc 250Vdc 300Vdc 6.8K 27K 43K	170Vdc 250Vdc 300Vdc 5.6K 22K 33K	200Vdc 250Vdc 300Vdc 9.1K 16K 24K																																																																																																																																				
-20°C to +55°C -40°C to +70°C 0.3 oz.	-65°C to +85°C 0.4 oz.	-20°C to +55°C -40°C to +70°C 0.4 oz.	-20°C to +55°C -40°C to +70°C 0.6 oz.	-20°C to +55°C -40°C to +70°C 1.7 oz.	-20°C to +55°C -40°C to +70°C 4 oz.																																																																																																																																				
RTS-4, RTS-10	RTS-1, RTS-2 RTS-6			RTS-5	RTS-5																																																																																																																																				
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•Krypton gas filled tube with long leads (1.8" nominal).

••Non mercury version

†Decimal point cathode current, max.-0.7 mA & min.-0.2 mA.