

INFRARAIL SPECIAL NUMBER R704

REVISION: A
DATE: 07-22-1996

M1 MODULE ASSEMBLY BILL OF MATERIAL

<u>SYMBOL</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>		
R1	103243011	RESISTOR	324K OHM	METAL FILM 1/4W 1%
R44	101872011	RESISTOR	18.7K OHM	METAL FILM 1/4W 1%
R54	101183011	RESISTOR	118K OHM	METAL FILM 1/4W 1%
R45	101402011	RESISTOR	14.0K OHM	METAL FILM 1/4W 1%
R55	105762011	RESISTOR	57.6K OHM	METAL FILM 1/4W 1%
R46	109531011	RESISTOR	9.53K OHM	METAL FILM 1/4W 1%
R56	109092011	RESISTOR	90.9K OHM	METAL FILM 1/4W 1%
R47	106341011	RESISTOR	6.34K OHM	METAL FILM 1/4W 1%
R57	101473011	RESISTOR	147K OHM	METAL FILM 1/4W 1%
R48	104021011	RESISTOR	4.02K OHM	METAL FILM 1/4W 1%
R58	102373011	RESISTOR	237K OHM	METAL FILM 1/4W 1%
R49	102491011	RESISTOR	2.49K OHM	METAL FILM 1/4W 1%
R59	103923011	RESISTOR	392K OHM	METAL FILM 1/4W 1%
R50	101471011	RESISTOR	1.47K OHM	METAL FILM 1/4W 1%
R60	106813011	RESISTOR	681K OHM	METAL FILM 1/4W 1%
R51	108660011	RESISTOR	866 OHM	METAL FILM 1/4W 1%
R61	101184011	RESISTOR	1.18M OHM	METAL FILM 1/4W 1%
R52	104870011	RESISTOR	487 OHM	METAL FILM 1/4W 1%
R53	105620011	RESISTOR	562 OHM	METAL FILM 1/4W 1%
R62	102104011	RESISTOR	2.10M OHM	METAL FILM 1/4W 1%

PAGE 1 OF 3
DATE: 07-22-1996
REVISION: A
W.O. NO: 61636
CUSTOMER: SENCON LTD
LOCATION: AUSTRALIA

INFRARAIL SPECIAL NUMBER R704


PURPOSE AND DESCRIPTION:

CUSTOMER REQUIRES A INFRARAIL TEMPERATURE SYSTEM WITH A SPECIAL TEMPERATURE RANGE AND A SPECIAL OPTICAL RESOLUTION OF D/50 AT 15 INCHES. DETAILS ARE AS FOLLOWS :

MODEL: DNE99-99C
RANGE: 800 - 1350 DEG. C
OPTICAL RESOLUTION: D/50 AT 15 INCHES

GENERALITY OF APPLICATION AND RESTRICTIONS:

UNRESTRICTED: SUITABLE FOR USE WITH ALL STANDARD OPTIONS.

WRITTEN BY: 

J. LAKNER

APPROVED BY:  DATE: 7/22/96

INFRARAIL SPECIAL NUMBER R704

REVISION: A
DATE: 07-22-1996

PRODUCTION INSTRUCTIONS:

START WITH A MODEL DNE31-30C ELECTRONICS MODULE, AND INSTALL M1 MODULE AS PER BILL OF MATERIAL ON PAGE 3.

START WITH A MODEL DNE31-30C SENSOR AND MAKE THE FOLLOWING CHANGES:

1. USE DETECTOR FIELD STOP 45132-3(0.044 " I.D.).
2. REPLACE LENS 610402 (30" FOCAL DISTANCE) WITH LENS P.N. 610422 (15 " FOCAL DISTANCE).

CALIBRATION INSTRUCTIONS:

CALIBRATE AS PER STANDARD.

Isc @ Tbb 1350° C = 10.0 uA.

Isc @ Tbb 800° C = 0.0656 uA

NOTE: FOCAL DISTANCE FOR SENSING HEAD IS 15 INCHES.

MANUAL INSTRUCTIONS:

GENERIC INFRARAIL SERIES MANUAL.

TEMPERATURE RANGE: 800 TO 1350 DEGREES C
SPECTRUM: 0.70 TO 1.000 MICRONS

TEMP. IN DEG. C

Vout IN VOLTS

800.0	0.000656
810.0	0.000750
820.0	0.000856
830.0	0.000975
840.0	0.001108
850.0	0.001257
860.0	0.001422
870.0	0.001606
880.0	0.001810
890.0	0.002035
900.0	0.002285
910.0	0.002560
920.0	0.002863
930.0	0.003196
940.0	0.003562
950.0	0.003963
960.0	0.004402
970.0	0.004882
980.0	0.005405
990.0	0.005975
1000.0	0.006596
1010.0	0.007270
1020.0	0.008001
1030.0	0.008794
1040.0	0.009651
1050.0	0.010579
1060.0	0.011580
1070.0	0.012659
1080.0	0.013822
1090.0	0.015072
1100.0	0.016417
1110.0	0.017859
1120.0	0.019407
1130.0	0.021064
1140.0	0.022838
1150.0	0.024734
1160.0	0.026759
1170.0	0.028919
1180.0	0.031223
1190.0	0.033675
1200.0	0.036285
1210.0	0.039060
1220.0	0.042006
1230.0	0.045134
1240.0	0.048450
1250.0	0.051964
1260.0	0.055683
1270.0	0.059618
1280.0	0.063777
1290.0	0.068170
1300.0	0.072807
1310.0	0.077697
1320.0	0.082851
1330.0	0.088279

TEMPERATURE RANGE: 800 TO 1350 DEGREES C
SPECTRUM: 0.70 TO 1.000 MICRONS

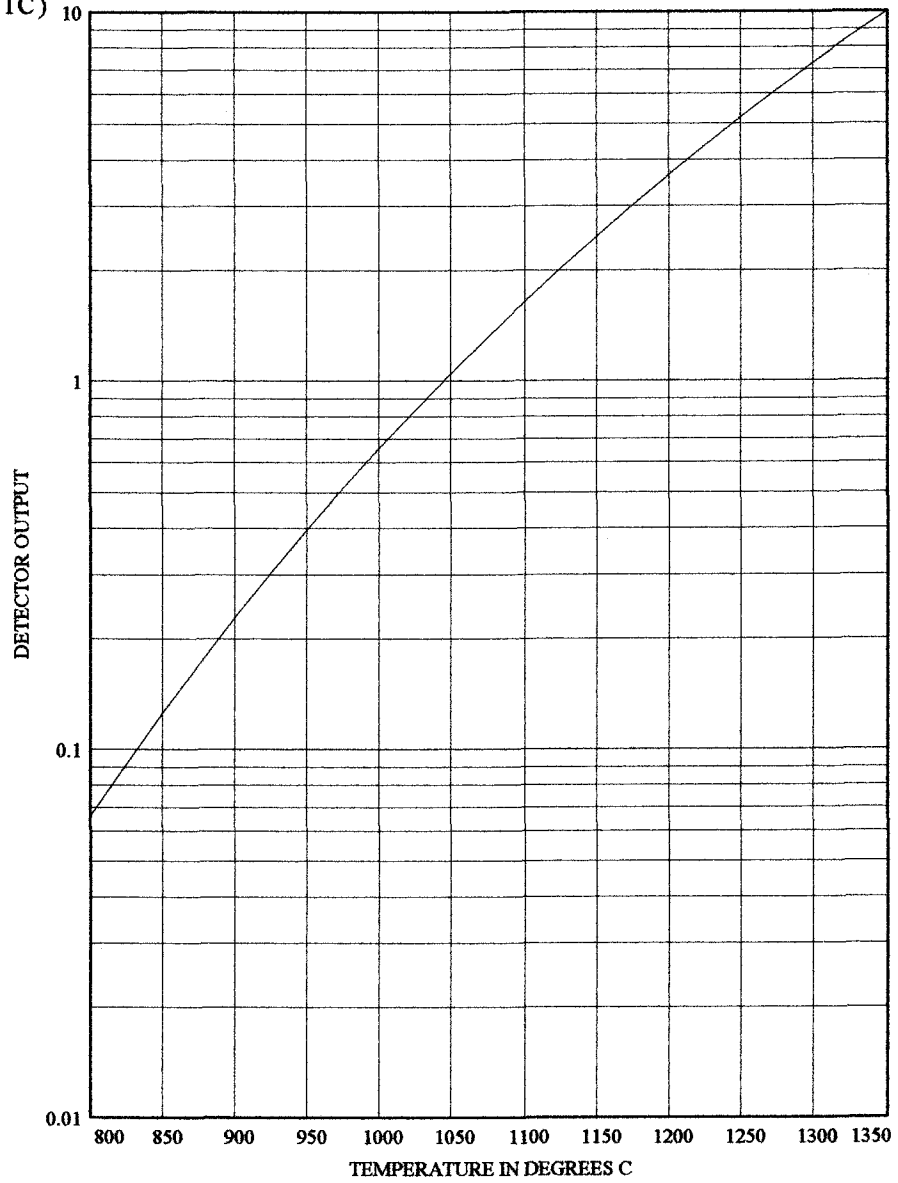
TEMP. IN DEG. C
1340.0
1350.0

Vout IN VOLTS
0.093992
0.100000

Temp
degrees C millamp

TC OUTPUT(TC) 10

1350	10
1325	8.5531
1300	7.2808
1275	6.167
1250	5.1965
1225	4.3549
1200	3.6287
1175	3.0054
1150	2.4735
1125	2.0222
1100	1.6417
1075	1.323
1050	1.0579
1025	0.839
1000	0.6596
975	0.5138
950	0.3964
925	0.3026
900	0.2285
875	0.1705
850	0.1257
825	0.0914
800	0.0656



TEMPERATURE RANGE: 800 TO 1350 DEGREES C
SPECTRUM: 0.70 TO 1.00 MICRONS
(current output is nonlinear with Planck)

TEMP. IN DEG. C	% SIGNAL	Iout IN uAMPS
800.0	0.656	0.0656
825.0	0.914	0.0914
850.0	1.257	0.1257
875.0	1.705	0.1705
900.0	2.285	0.2285
925.0	3.026	0.3026
950.0	3.963	0.3963
975.0	5.138	0.5138
1000.0	6.596	0.6596
1025.0	8.389	0.8389
1050.0	10.579	1.0579
1075.0	13.230	1.3230
1100.0	16.417	1.6417
1125.0	20.221	2.0221
1150.0	24.734	2.4734
1175.0	30.053	3.0053
1200.0	36.285	3.6285
1225.0	43.547	4.3547
1250.0	51.964	5.1964
1275.0	61.669	6.1669
1300.0	72.807	7.2807
1325.0	85.530	8.5530
1350.0	100.000	10.0000

MILLIVOLT OUTPUT TABLE FOR SPECIAL R704
 VOLTAGE ACROSS 2.00 K OHM RESISTOR
 TEMPERATURE RANGE: 800 TO 1350 DEGREES C
 SPECTRUM: 0.70 TO 1.00 MICRONS

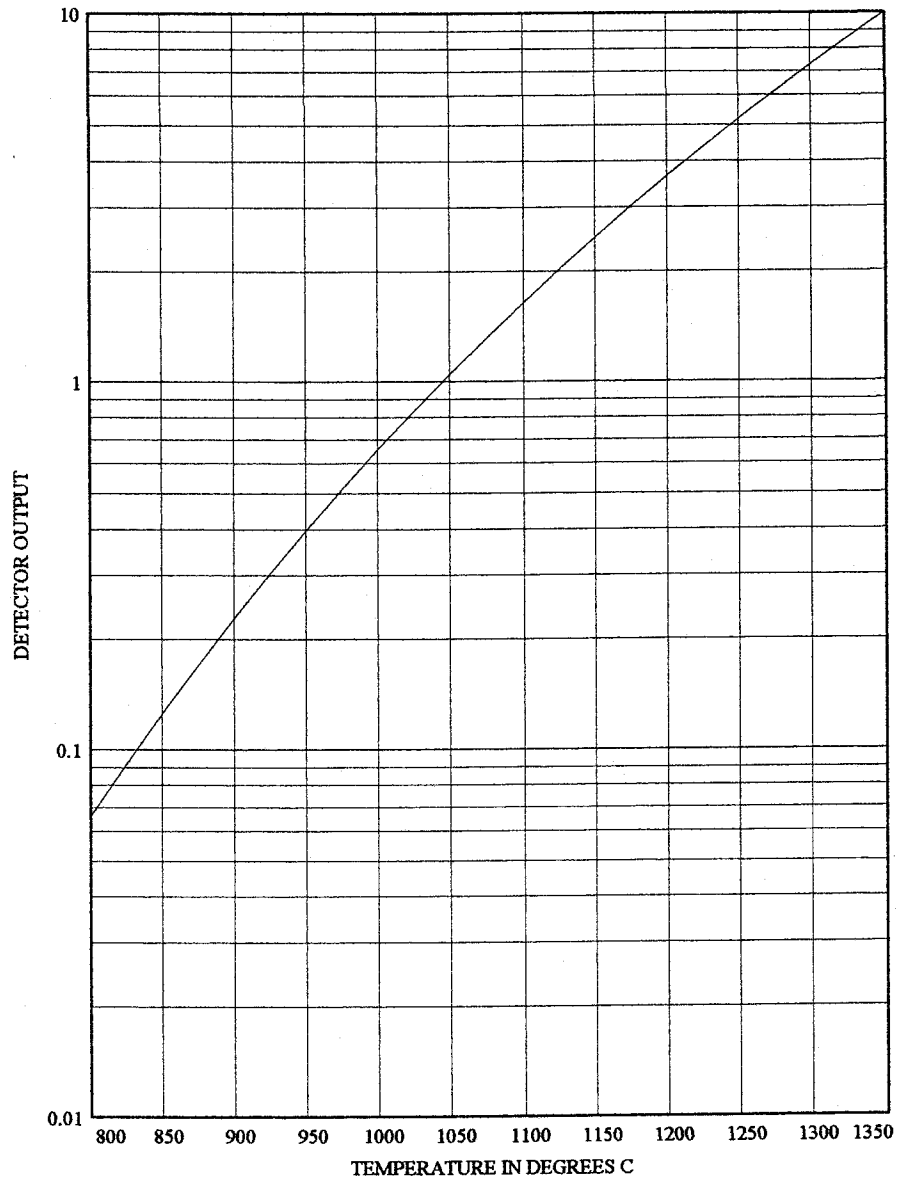
DEG. C	[0]	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]
VOLTAGE OUTPUT IN MILLIVOLTS										
[800]	0.131	0.133	0.135	0.137	0.138	0.140	0.142	0.144	0.146	0.148
[810]	0.150	0.152	0.154	0.156	0.158	0.160	0.162	0.165	0.167	0.169
[820]	0.171	0.174	0.176	0.178	0.180	0.183	0.185	0.188	0.190	0.193
[830]	0.195	0.198	0.200	0.203	0.205	0.208	0.211	0.213	0.216	0.219
[840]	0.222	0.225	0.227	0.230	0.233	0.236	0.239	0.242	0.245	0.248
[850]	0.251	0.255	0.258	0.261	0.264	0.267	0.271	0.274	0.278	0.281
[860]	0.284	0.288	0.291	0.295	0.299	0.302	0.306	0.310	0.314	0.317
[870]	0.321	0.325	0.329	0.333	0.337	0.341	0.345	0.349	0.353	0.358
[880]	0.362	0.366	0.371	0.375	0.379	0.384	0.388	0.393	0.398	0.402
[890]	0.407	0.412	0.417	0.422	0.426	0.431	0.436	0.442	0.447	0.452
[900]	0.457	0.462	0.468	0.473	0.478	0.484	0.489	0.495	0.501	0.506
[910]	0.512	0.518	0.524	0.530	0.536	0.542	0.548	0.554	0.560	0.566
[920]	0.573	0.579	0.585	0.592	0.599	0.605	0.612	0.619	0.625	0.632
[930]	0.639	0.646	0.653	0.661	0.668	0.675	0.682	0.690	0.697	0.705
[940]	0.712	0.720	0.728	0.736	0.744	0.752	0.760	0.768	0.776	0.784
[950]	0.793	0.801	0.810	0.818	0.827	0.836	0.844	0.853	0.862	0.871
[960]	0.880	0.890	0.899	0.908	0.918	0.927	0.937	0.947	0.957	0.966
[970]	0.976	0.986	0.997	1.007	1.017	1.028	1.038	1.049	1.059	1.070
[980]	1.081	1.092	1.103	1.114	1.126	1.137	1.148	1.160	1.172	1.183
[990]	1.195	1.207	1.219	1.231	1.244	1.256	1.268	1.281	1.294	1.306
[1000]	1.319	1.332	1.345	1.358	1.372	1.385	1.399	1.412	1.426	1.440
[1010]	1.454	1.468	1.482	1.497	1.511	1.526	1.540	1.555	1.570	1.585
[1020]	1.600	1.616	1.631	1.647	1.662	1.678	1.694	1.710	1.726	1.742
[1030]	1.759	1.775	1.792	1.809	1.826	1.843	1.860	1.877	1.895	1.913
[1040]	1.930	1.948	1.966	1.985	2.003	2.021	2.040	2.059	2.078	2.097
[1050]	2.116	2.135	2.155	2.174	2.194	2.214	2.234	2.254	2.275	2.295
[1060]	2.316	2.337	2.358	2.379	2.400	2.422	2.444	2.465	2.487	2.510
[1070]	2.532	2.554	2.577	2.600	2.623	2.646	2.669	2.693	2.717	2.740
[1080]	2.764	2.789	2.813	2.838	2.862	2.887	2.912	2.938	2.963	2.989
[1090]	3.015	3.041	3.067	3.093	3.120	3.147	3.174	3.201	3.228	3.256
[1100]	3.284	3.311	3.340	3.368	3.397	3.425	3.454	3.483	3.513	3.542
[1110]	3.572	3.602	3.632	3.663	3.693	3.724	3.755	3.787	3.818	3.850
[1120]	3.882	3.914	3.946	3.979	4.012	4.045	4.078	4.111	4.145	4.179
[1130]	4.213	4.248	4.282	4.317	4.352	4.388	4.423	4.459	4.495	4.531
[1140]	4.568	4.605	4.642	4.679	4.717	4.754	4.792	4.831	4.869	4.908
[1150]	4.947	4.986	5.026	5.066	5.106	5.146	5.187	5.228	5.269	5.310
[1160]	5.352	5.394	5.436	5.479	5.522	5.565	5.608	5.652	5.696	5.740
[1170]	5.784	5.829	5.874	5.919	5.965	6.011	6.057	6.104	6.151	6.198
[1180]	6.245	6.293	6.341	6.389	6.438	6.486	6.536	6.585	6.635	6.685
[1190]	6.736	6.786	6.837	6.889	6.941	6.993	7.045	7.098	7.151	7.204

INFRARAIL SPECIAL R704
 DNE99-99C
 800 - 1350 C
 RESOLUTION: D/50 @ 15"
 SPECTRUM: 0.7 - 1.0u

Temp microamps
 degrees C uA

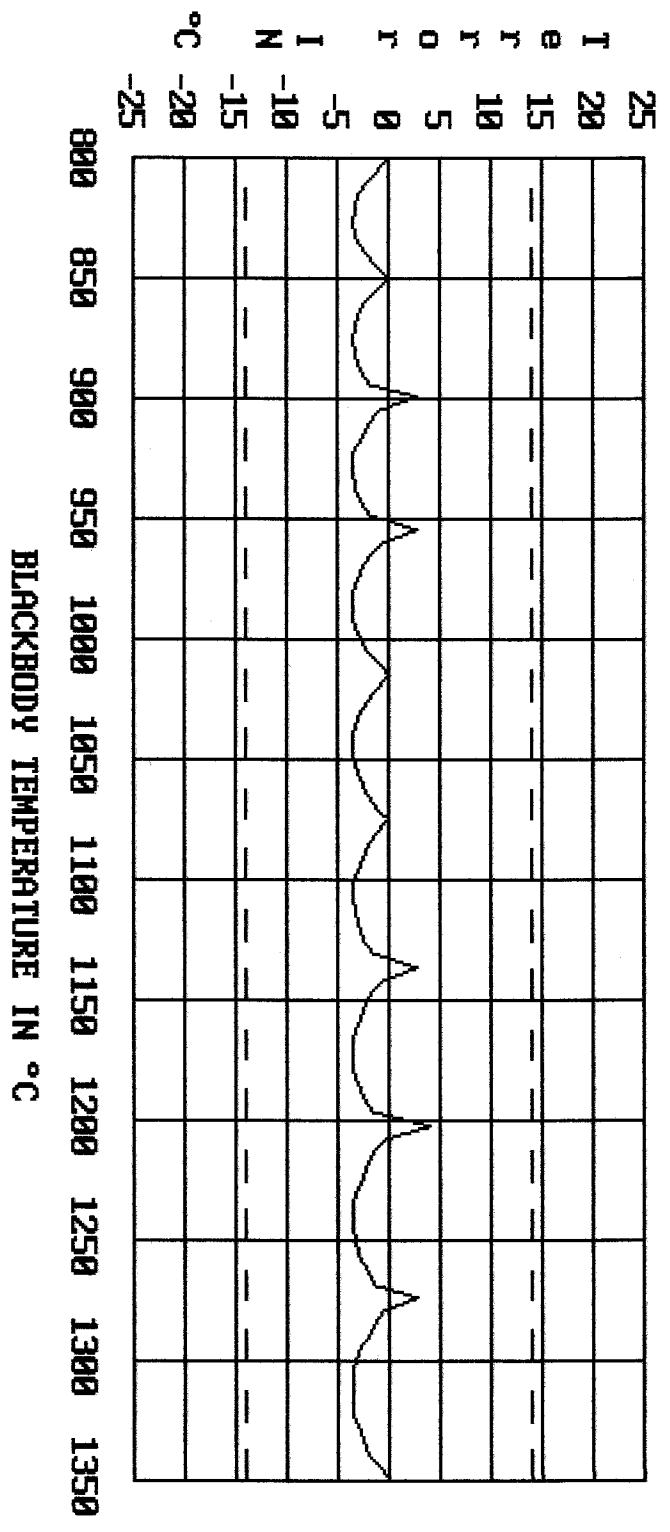
TC OUTPUT(TC)

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800	0.0656



MODLINE PLUS LINEARIZER ERROR CURVE

DATE : 07-22-1996
 REU.
 SPECIAL NO.
 MODEL NO:2-99C05
 TEMP.SPAN: 800 - 1350 DEG.C
 SPECTRUM : .7 - 1 MICRONS





Engineering Special or System Request

Page ___ of ___

From: V. LARPE

Date 6-10-96

To: J. LAKNER

Customer: SENCON/CAPRAL

Description of Request: "E" HEAD
Base standard model or series:

SEE ATTACHED NOTE AND DWG
QUAN 1-10-50.

Details of specific approval: _____

USE (22A15 optics) D/50 @ 15" for "E" ^{USE}
Head & modify thread design OF PWA-1
ASSEMBLY to fit into sight tube (provided by customer)
Need to know type of thread!!

Prices do not include sight tube we would have
to add price of tube if customer wants us to supply it.

Price 1 unit: ~~\$1200~~ \$1800
10 : \$425.00
50 : \$300.00

Specific Exceptions: _____
SPOT size \approx 8.1" (205.74mm)

Will it output? E=IR, HAVE customer supply their own
resistor. Output linear with 4-20mA dc

Price: SEE ABOVE
(adder to standard)

Delivery: 12 wks
(adder to standard)

Approved by: J. Vcl

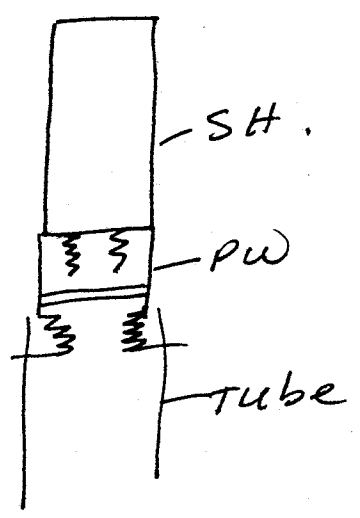
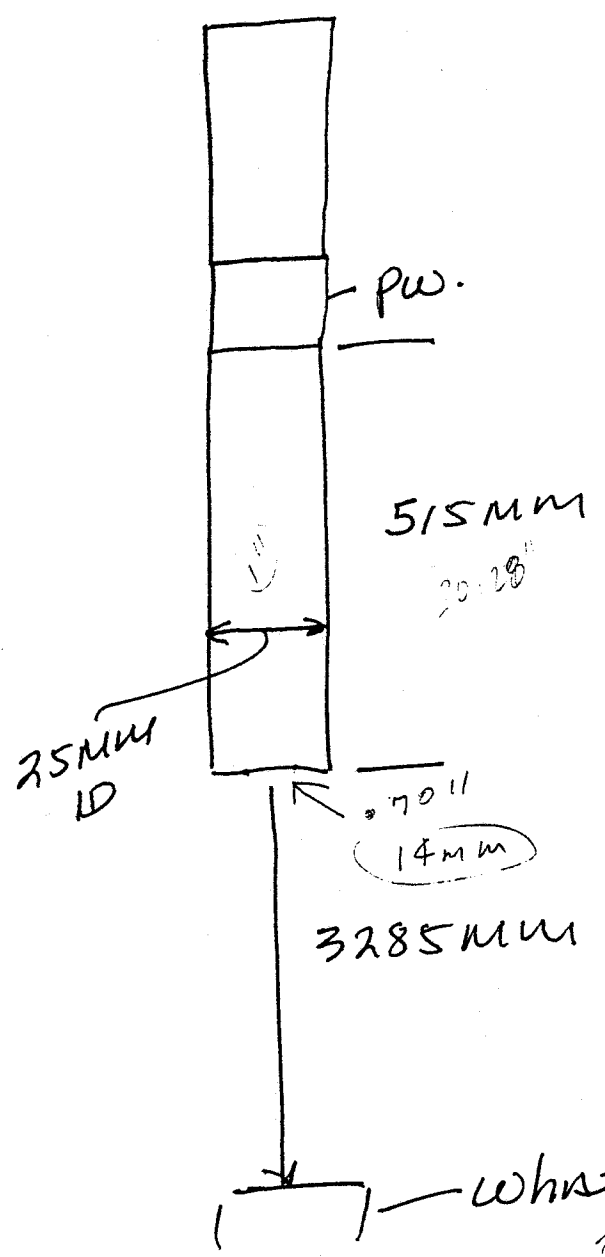
Date: 6/19/96

JOE.

THIS IS AN ALUMINUM RING OVEN.
WE HAVE TO SIGHT THRU A TUBE
AND THEN GET AS BIG A SPOT SIZE
AS POSSIBLE.

RANGE. 800-1300°C.
CUST WILL USE MV OUTPUT SO I NEED
MV CURVE AND RESISTOR VALUE.

PROTECTIVE WINDOW
HAS TO BE
THREADED ONTO THE
HEAD - THEN
THREADED INTO THE
PIPE



8.1 - 8.5"

WHAT IS SPOT SIZE
≈ 8.1" (205.74mm)

TEMPERATURE RANGE: 800 TO 1350 DEGREES C
 SPECTRUM: 0.70 TO 1.00 MICRONS

TEMP. IN DEG. C	% SIGNAL	Vout in VOLTS
800.0	0.656	0.007
825.0	0.914	0.009
850.0	1.257	0.013
875.0	1.705	0.017
900.0	2.285	0.023
925.0	3.026	0.030
950.0	3.963	0.040
975.0	5.138	0.051
1000.0	6.596	0.066
1025.0	8.389	0.084
1050.0	10.579	0.106
1075.0	13.230	0.132
1100.0	16.417	0.164
1125.0	20.221	0.202
1150.0	24.734	0.247
1175.0	30.053	0.301
1200.0	36.285	0.363
1225.0	43.547	0.435
1250.0	51.964	0.520
1275.0	61.669	0.617
1300.0	72.807	0.728
1325.0	85.530	0.855
1350.0	100.000	1.000

I_{sc} ¹³⁵⁰ set to 10 μA

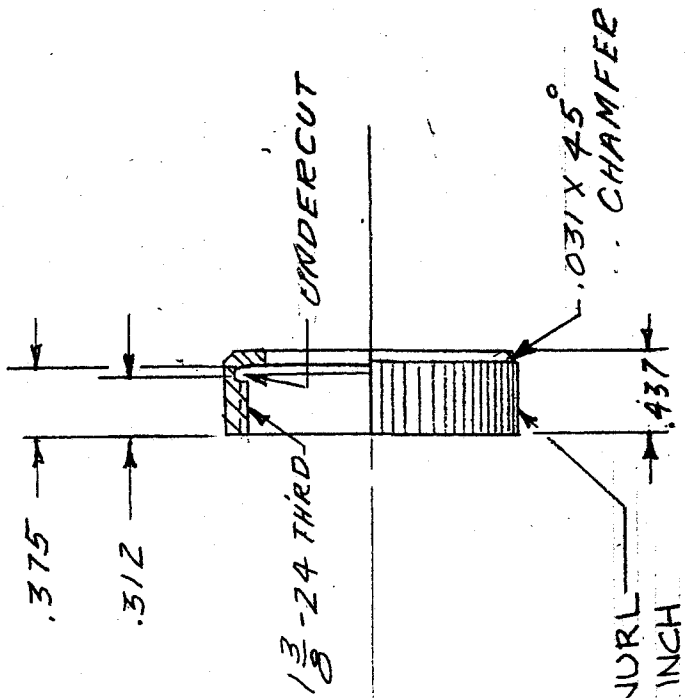
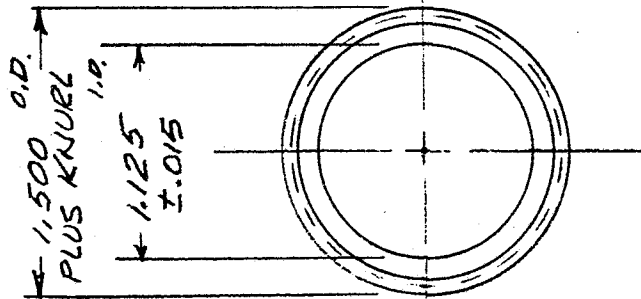
USE 100 K

THREAD DESIGN: How THICK is sight tube to BE?
 most likely we would use
 1/8" x 24 UN THREAD

Cost BREAKDOWN	HEAD	WINDOW	
ANDERS	\$ 750	\$ 750	1 unit
	\$ 325	\$ 100	10 units
	\$ 250	\$ 50	50 units

THIS PRINT SUPERSEDES ANY PRINT PRIOR TO

9-12-83



STRAIGHT KNURL
30 TEETH PER INCH

MAT. - 1.500 O.D., 1.000 I.D., .250 W.T.
ALUMINUM HOLLOW SCR. MACH STK
2011-T3 OR EQUIV.

FINISH - ETCH & CLEAR ANODIZE
PART TO BE FREE OF BURRS

REVISIONS

A	REDEAWN ECO NO 250 RELEASE DATE 3-5-76
B	RESPECIFIED KNURLING ECO #675 9-12-83 J.C.R.

NEXT HIGHER ASS'Y

NEXT LOWER ASS'Y

USED ON MODLINE

DO NOT SCALE PRINT

TOLERANCES (UNLESS OTHERWISE SPECIFIED)

- ± .010 ALL DIMENSIONS EXCEPT ROUND HOLES
- ± .002 ALL ROUND HOLES AND ROUND PARTS
- ± ½° ALL ANGLES
- ± .010 T.I.R. CONCENTRICITY
- ALL THREADS TO BE CLASS -2A EXTERNAL
CLASS -2B INTERNAL

DRAWN BY DATE

9-18-75

APPROVED BY

M.E. E.E.

SCALE FULL

IRCON, INC.
7555 N. LINDER AVENUE, SKOKIE, ILLINOIS 60076
(312) 967-5151



TITLE

WINDOW RETAINER

DRAWING NO.

44262-2

REV.

B

ASSEMBLY NBR L12085 2492

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442622	RETAINER FOR BOOT WINDOW	EA	1.00
620102	PROTECTION WINDOW BY LEAD	EA	2.00
432002	...	EA	...
443542	...	EA	...

PARTS COST

LABOR

L12085

442622

620122

432002

443542

1.

ATTN
1-10-S

0/50
Hesig
151
OF
Wants US

Acknowledgment

IRCON, INC.
7300 N. Natchez Ave.
Niles, IL 60714 USA

Phone 847-967-5151
Toll Free 800-323-7660
Fax 847-647-0948

SOLD TO CUSTOMER NO. 004668

SENCON PTY. LTD.
P O BOX 274
CAMBERWELL, VIC
3124 AUSTRALIA

SHIPPING ADDRESS TAX CODE NO TAX

SENCON PTY. LTD.
9 RUSSELL STREET
HAWTHORN, VIC
3122 AUSTRALIA

SCHEDULED SHIPPING WEEK ENDING MONTH/DAY/YEAR 09/14/96

OUR ORDER NO. SA 061636/00 ORDER DATE MONTH/DAY/YEAR 07/17/96

YOUR ORDER NO. 12593

TERMS X NET 30
OTHER

F.O.B. X NILES, ILLINOIS

CODE 749 .00

VIA THYSSEN HANIEL PPD. COLL. X

SPECIAL SHIPPING INSTRUCTIONS
ATTN: ALLAN BRUSH

7/17/96 PAGE 1

LINE NO.	PART NO.	QTY.	DESCRIPTION	UNIT MEAS	DISCOUNT %	PRICE EACH U.S. DOLLAR	AMOUNT U.S. DOLLAR
01		2	INFRARAIL SENSING HEAD MODEL DNE99-99C SERIAL NBR 001250 THRU 001251	EA		835.00	1670.00
			CABLE(S) 4 MET. EA (4 MET. EA INCLUDED IN ABOVE)				
			***** * SPECIAL Z999 *****				
			!!!!!!!!!!WARNING!!!!!!!!!! ** SPL # TO BE DETERMINED ** ** SEE ENGINEERING DEPT. **				
			SUB TOTALS				1670.00
			GRAND TOTAL				1670.00

Eng Dept \$400 ea

New Special lens with 15 inch focus, D/50 resolution like Z2A15 and Temp range 800 to 1350C

R. Brown 7/17/96

THIS ORDER IS ACCEPTED SUBJECT TO TERMS AND CONDITIONS SHOWN ON THIS AND THE REVERSE SIDE

IF TAX EXEMPT, PLEASE PROVIDE COPY OF EXEMPTION OR DIRECT PAYMENT CERTIFICATE.

Ship To: IRCON, INC.
7300 N. NATCHEZ AVE.
NILES, IL 60714 USA

ORIGINAL

Part No. 020172 Rev C 12/95

TEMPERATURE RANGE: 800 TO 1350 DEGREES C
SPECTRUM: 0.70 TO 1.000 MICRONS

TEMP. IN DEG. C	Vout IN VOLTS
800.0	0.000656
810.0	0.000750
820.0	0.000856
830.0	0.000975
840.0	0.001108
850.0	0.001257
860.0	0.001422
870.0	0.001606
880.0	0.001810
890.0	0.002035
900.0	0.002285
910.0	0.002560
920.0	0.002863
930.0	0.003196
940.0	0.003562
950.0	0.003963
960.0	0.004402
970.0	0.004882
980.0	0.005405
990.0	0.005975
1000.0	0.006596
1010.0	0.007270
1020.0	0.008001
1030.0	0.008794
1040.0	0.009651
1050.0	0.010579
1060.0	0.011580
1070.0	0.012659
1080.0	0.013822
1090.0	0.015072
1100.0	0.016417
1110.0	0.017859
1120.0	0.019407
1130.0	0.021064
1140.0	0.022838
1150.0	0.024734
1160.0	0.026759
1170.0	0.028919
1180.0	0.031223
1190.0	0.033675
1200.0	0.036285
1210.0	0.039060
1220.0	0.042006
1230.0	0.045134
1240.0	0.048450
1250.0	0.051964
1260.0	0.055683
1270.0	0.059618
1280.0	0.063777
1290.0	0.068170
1300.0	0.072807
1310.0	0.077697
1320.0	0.082851
1330.0	0.088279

06/636
Section 1 — GENERAL INFORMATION

1.5 SPECIAL MODIFICATIONS

IRCON InfraRail Model DNE99-99C, Serial Nos. 001250 and 001251 are modified for a special temperature range of 800 to 1350°C and a special optical resolution of D/50 with a 15 inch focal distance.

Special components are used in the Signal Processor Module, and the instrument has been factory calibrated for linear operation throughout the special temperature range.

The modified instrument may be used with all standard InfraRail options and accessories.

Details of this modification are retained in IRCON Engineering Files as InfraRail Special No. R704.

*Voltages
with 10 K load
Every 10°C*

TEMPERATURE RANGE: 800 TO 1350 DEGREES C
SPECTRUM: 0.70 TO 1.000 MICRONS

TEMP. IN DEG. C
1340.0
1350.0

Vout IN VOLTS
0.093992
0.100000

Section 1 — GENERAL INFORMATION

1.5 SPECIAL MODIFICATIONS

IRCON InfraRail Model DNE99-99C, Serial Nos. 001250 and 001251 are modified for a special temperature range of 800 to 1350°C and a special optical resolution of D/50 with a 15 inch focal distance.

Special components are used in the Signal Processor Module, and the instrument has been factory calibrated for linear operation throughout the special temperature range.

The modified instrument may be used with all standard InfraRail options and accessories.

Details of this modification are retained in IRCON Engineering Files as InfraRail Special No. R704.

'FILENAME IS PLGAUSS
'AMENDED TO INCLUDE CALCULATIONS FOR TEMP.IN DEG.C
'AMENDMENT DATE MARCH 31,1992
DEF FNP (X, T) = A * ((A * X + B) ^ (-5)) / (EXP(25899 / ((A * X + B) * (T + 459
DEF FNPLANK (T) = .1713245 * FNP(-.9324695, T) + .1713245 * FNP(.9324695, T) + .

TICK = 0
G = 0

STARTIT:
SCREEN 9
CLS : COLOR 10
IF PASS = 1 THEN GOTO NOSPEC
PRINT : INPUT "ENTER THE SPECTRUM YOU WISH TO USE "; X1, X2

NOSPEC:

PRINT : COLOR 11
INPUT "ENTER THE TEMPERATURE SPAN AS Tzs,Tfs,F OR C "; IT1, IT2, B\$
TZS = IT1: TFS = IT2

PRINT
INPUT "DO YOU WISH TO NORMALIZE TO A DETECTOR FULLSCALE CURRENT (Y/N) "; Q\$
IF Q\$ = "Y" THEN PFLAG = 1 ELSE PFLAG = 0
IF Q\$ = "N" THEN
IX = 0
GOTO VOLTS
END IF

PRINT : COLOR 14
PRINT : INPUT "ENTER THE FULLSCALE CURRENT AS 100 NA,UA,OR MA "; ISCF, I\$
PRINT : COLOR 7
PRINT "You may have the current ether linear with temperature or you can"
PRINT "have the current as a function of Planck."
INPUT "Enter a 1 for linear with temperature or a 2 for Planck response"; IX
PRINT : COLOR 6
INPUT "DO YOU WISH TO NORMALIZE TO A ZEROSCALE CURRENT ALSO (Y/N)"; Q\$
IF Q\$ = "Y" THEN ZFLAG = 1 ELSE ZFLAG = 0

IF Q\$ = "N" THEN GOTO STEPSIZE
PRINT : INPUT "ENTER THE ZEROSCALE CURRENT "; ISCZ
GOTO STEPSIZE

VOLTS:

PRINT : INPUT "DO YOU WISH TO NORMALIZE TO A FULLSCALE VOLTAGE (Y/N) "; Q\$
IF Q\$ = "Y" THEN PFLAG = 2
IF Q\$ = "N" THEN GOTO STEPSIZE
PRINT : INPUT "ENTER THE FULLSCALE VOLTAGE YOU WISH TO USE "; VHD
PRINT : INPUT "DO YOU WISH TO NORMALIZE TO A ZEROSCALE VOLTAGE ALSO (Y/N)"; Q\$
IF Q\$ = "Y" THEN ZFLAG = 2 ELSE ZFLAG = 0
IF Q\$ = "N" THEN GOTO STEPSIZE
PRINT : INPUT "ENTER THE ZEROSCALE VOLTAGE "; VZ

STEPSIZE:

PRINT : INPUT "ENTER THE STEP SIZE YOU WISH TO USE "; TSTEP
CLS : PRINT : PRINT
'GOSUB TZSPLNK
GOSUB TITLE

```

A = (X2 - X1) / 2: B = (X2 + X1) / 2
IF B$ = "F" THEN GOTO FTEMP
IT1 = ((9 / 5) * (IT1)) + 32
IT2 = ((9 / 5) * (IT2)) + 32
TSTEP = (9 / 5) * TSTEP

```

FTEMP:

```

Y1 = FNPLANK(IT1)
Y2 = FNPLANK(IT2)
IF ZFLAG <> 0 THEN GOSUB TZSPLNK

```

NOIOUT:

```

'G = 0
N = 0
U = 0
LPRINT
FOR T = IT1 TO IT2 STEP TSTEP
) 'FOR G = 0 TO 9

```

* T

```

G = G + 1
N = N + 1
U = U + 1
IF U > 100 THEN LPRINT
IF U = 101 THEN U = 1
IF N > 400 THEN
'TICK = TICK + 1
'IF TICK = 4 THEN LPRINT "[2400] 20.000"
LPRINT CHR$(12)
IF N = 401 THEN N = 1
'TICK = TICK + 1
GOSUB TITLE
END IF
IF B$ = "F" THEN GOTO FAHREN
TC = (5 / 9) * (T - 32)

```

FAHREN:

```

Y = FNPLANK(T)
IF B$ = "F" THEN TEMP = T ELSE TEMP = TC
'LPRINT TAB(24); USING "####.#"; TEMP;
'LPRINT TAB(25); USING "###.###"; 100 * (Y / Y2);
IF PFLAG = 0 THEN GOTO NEXTEMP
IF ZFLAG = 0 THEN GOTO IVAL
K = ((Y / Y2) - TZ) * KZ
IF ZFLAG = 1 THEN GOTO IDET
IF VZ = 0 THEN VHDP = VHD * K
IF VZ = 0 THEN GOTO VHEAD
DT = IT2 - IT1: DV = VHD - VZ: DVT = DV / DT
VHDP = (((T - IT1) * DVT) * K) + VZ
GOTO VHEAD

```

IDET:

```

'IF IX = 2 THEN GOTO NONLINEAR
IF IX = 2 THEN GOTO IVAL
IF IX = 3 THEN GOTO U200
LINEAR:

```

```

Iout = (((ISCF - ISCZ) / (IT2 - IT1)) * (T - IT1)) + ISCZ
ISCP = Iout
GOTO IHEAD

```

NONLINEAR:

```

DI = ISCF - ISCZ
DT = TFS - TZS
PX = Y / Y2
Iout = ((DI) * (PX - TZ) * KZ) + 4
ISCP = Iout
GOTO IHEAD

```

IVAL:

```

ISCP = ISCF * (Y / Y2)
VHDP = VHD * (Y / Y2)
IF PFLAG = 2 THEN GOTO VHEAD
U200:
IREF = 50
'K = 5.172931 / 50'3.76525 / 50 'ISCP / IREF (U619 =3.882063 Z.S 123810 nA F.S)
K = 3.882063 / 50
IN = (-1.766 * LOG(K)) / 10000
IOFF = IN
IFULL = ((-1.766 * LOG(ISCF / IREF))) / 10000
RFEED = (10 / (IFULL - IOFF))
INLOG = ((-1.766 * LOG(ISCP / IREF))) / 10000
'VOUT = 2 * (INLOG - IOFF) * RFEED'10000 ' FORMULA FOR 0 TO 20 MA OUTPUT
VOUT = 4 + ((2 * .8) * (INLOG - IOFF)) * RFEED'FORMULA FOR 4 TO 20 MA OUTPUT

```

OUTPUT

```

IHEAD:
IF G = 1 THEN LPRINT USING "[####]"; TEMP;
IF G = 10 THEN LPRINT USING "###.###"; VOUT ELSE LPRINT USING "###.###"; VOUT;
IF G = 10 THEN G = 0

```

GOTO NEXTEMP

VHEAD:

```

LPRINT TAB(48); USING "###.###"; VHDP

```

NEXTEMP:

```

'NEXT G
NEXT T

```

```

CLS : PRINT TAB(20); "YOUR CALCULATIONS ARE FINISHED !"

```

BEEP: BEEP

```

PRINT : PRINT "YOUR LAST SPECTRUM WAS:";
PRINT USING "##.##"; X1; : PRINT " -"; : PRINT USING "##.## MICRONS"; X2
PRINT

```

```

INPUT "DO YOU WISH FURTHER CALCULATIONS USING THIS SPECTRUM (Y/N) "; Q$

```

```

IF Q$ = "Y" THEN PASS = 1

```

G = 0

```

IF Q$ = "Y" THEN GOTO STARTIT

```

PRINT

LASTQST:

```

INPUT "DO YOU WISH ANY FURTHER CALCULATIONS USING A NEW SPECTRUM (Y/N)"; Q$
IF Q$ = "Y" THEN PASS = 0
IF Q$ = "Y" THEN GOTO STARTIT
920 CLS : GOTO LASTQST

```

TZSPLNK:

```

'START ZEROSCALE CALCULATIONS
FOR T = IT2 TO IT1 STEP -(IT2 - IT1)
Y = FNPLANK(T)
NEXT T
TZ = (Y / Y2)
ISCZS = ISCF(Y / Y2)
KZ = 1 / (1 - TZ)

```

RETURN

TITLE:

```

'N = 0
LPRINT TAB(22); "CURRENT OUTPUT TABLE FOR SPECIAL U619"
LPRINT TAB(22); "TEMPERATURE RANGE:"; TZS; "TO"; TFS; "DEGREES "; B$
LPRINT TAB(22); "SPECTRUM:"; : LPRINT USING "##.##"; X1;
LPRINT " TO "; : LPRINT USING "##.## MICRONS"; X2
'IF IX = 1 THEN
'LPRINT TAB(16); "(current output is linear with temperature)"
'END IF
'IF IX = 2 THEN
'END IF
'LPRINT TAB(18); "(current output is nonlinear with Planck)"
IF IX = 3 THEN
LPRINT TAB(22); "UNLINEARIZED 4 TO 20 mAMPS"
END IF
LPRINT
'LPRINT TAB(22); "CURRENT OUTPUT IN MILLIAMPS";
'LPRINT TAB(25); "% SIGNAL";
'LPRINT TAB(40); "CURRENT OUT"
'LPRINT TAB(22); " DEGREES "; B$;
'LPRINT TAB(40); "(milliamps)"
LPRINT "DEG. "; B$; TAB(10); "[0]"; TAB(17); "[1]"; TAB(24); "[2]"; TAB(31); "[3"
LPRINT
LPRINT TAB(25); "CURRENT OUTPUT IN MILLIAMPS"
LPRINT
RETURN

```

```

IF PFLAG = 0 THEN GOTO NOIOUT
IF PFLAG = 2 THEN GOTO VOUT
'IF I$ = "NA" THEN I$ = "Iout IN nAMPS"
'IF I$ = "UA" THEN I$ = "Iout IN uAMPS"
'IF I$ = "MA" THEN I$ = "Iout IN mAMPS"
'IF IX = 1 THEN
'I$ = I$ + " (linear with temp.)"
'END IF
IF IX = 2 THEN
I$ = I$ + " (nonlinear with Planck)"
END IF

```

GOTO Iout

VOUT:

I\$ = "Vout IN VOLTS"

Iout:

```
IF IX = 0 THEN
LPRINT TAB(45); I$
ELSE
LPRINT TAB(35); I$
END IF
```

RETURN

Acknowledgment



IRCON, INC.
7300 N. Natchez Ave.
Niles, IL 60714 USA

Phone 847-967-5151
Toll Free 800-323-7660
Fax 847-647-0948

SCHEDULED SHIPPING WEEK MONTH/DAY/YEAR
ENDING 08/22/98

OUR ORDER NO. ORDER DATE MONTH/DAY/YEAR
SA 066072/00 07/17/98

YOUR ORDER NO. 7439

TERMS NET 30
OTHER X NET 60

F.O.B. NILES, ILLINOIS
X

CODE 706 .00

VIA MSAS PPD. COLL. X

SPECIAL SHIPPING INSTRUCTIONS

TEST CERTIFICATE REQUIRED

SOLD TO CUSTOMER NO. 008243

IRCON LIMITED
FAIREY GROUP PLC
STATION ROAD, EGHAM
SURREY, ENGLAND TW20 9NF

SHIPPING ADDRESS TAX CODE
NO TAX

ALCAN SMELTING AND POWER UK
MAIN STORE, LYNE MOUTH SMELTER
ASHINGTON, NORTHUMBERLAND
ENGLAND NE63 9YH

7/20/98 PAGE 1

LINE NO.	PART NO.	QTY.	DESCRIPTION	UNIT MEAS	DISCOUNT %	PRICE EACH U.S. DOLLAR XXXXXXXXXX	AMOUNT U.S. DOLLAR XXXXXXXXXX
01		16	INFRARAIL SENSING HEAD W/O CBL MODEL DNE99-99C SERIAL NBR 002607 THRU 002622	EA		271.74	4347.84
			PRODUCT MODIFICATION CHARGES ***** * SPECIAL Z999 * *****			30.88	494.08
			!!!!!!!!!!WARNING!!!!!!!!!! ** SPL # TO BE DETERMINED ** ** SEE ENGINEERING DEPT. **				
			SUB TOTALS				4841.98
			GRAND TOTAL				4841.98

*Red Special No R704 - Temp range 800-1350C
1/50 resolution
RAB 7/20*

BILLINGS IN POUNDS STERLING

THIS ORDER IS ACCEPTED SUBJECT TO TERMS AND CONDITIONS SHOWN ON THIS AND THE REVERSE SIDE

IF TAX EXEMPT, PLEASE PROVIDE COPY OF EXEMPTION OR DIRECT PAYMENT CERTIFICATE.

Ship To: IRCON, INC.
7300 N. NATCHEZ AVE.
NILES, IL 60714 USA

ORIGINAL

Part No. 020172 Rev C 12/95

Section 1 — GENERAL INFORMATION

w/o 66072

1.5 SPECIAL MODIFICATIONS

IRCON InfraRail Model DNE99-99C, Serial No's. 002607 through 002622 are modified for a special temperature range of 800 to 1350°C and a special optical resolution of D/50 with a 15 inch focal distance.

Special components are used in the Signal Processor Module, and the instrument has been factory calibrated for linear operation throughout the special temperature range.

The modified instrument may be used with all standard InfraRail options and accessories.

Details of this modification are retained in IRCON Engineering Files as InfraRail Special No. R704.

Acknowledgment



IRCON, INC.
7300 N. Natchez Ave.
Niles, IL 60714 USA

Phone 847-967-5151
Toll Free 800-323-7660
Fax 847-647-0948

SOLD TO _____ CUSTOMER NO. 008243

IRCON LIMITED
FAIREY GROUP PLC
STATION ROAD, EGHAM
SURREY, ENGLAND TW20 9NP

SHIPPING ADDRESS _____ TAX CODE NO TAX

ALCAN SMELTR & POWER UK
MAIN STORES LYNEMOUTH SMELTER
ASHINGTON, NORTHUMBERLAND
NE63 9YH

SCHEDULED SHIPPING WEEK _____ MONTH/DAY/YEAR
ENDING 11/28/98

OUR ORDER NO. _____ ORDER DATE _____ MONTH/DAY/YEAR
SA 066635/00 10/30/98

YOUR ORDER NO. _____
7498

TERMS NET 30
X OTHER NET 60

F.O.B. X NILES, ILLINOIS

CODE _____
706 .00

VIA _____ PPD. _____ COLL. X
MSAS

SPECIAL SHIPPING INSTRUCTIONS

TEST CERTIFICATE REQUIRED

LINE NO.	PART NO.	QTY.	DESCRIPTION	UNIT MEAS	DISCOUNT %	PRICE EACH U.S. DOLLAR XXXXXXXXX	AMOUNT U.S. DOLLAR XXXXXXXXX
01		10	INFRARAIL SENSING HEAD W/O CBL MODEL DNE99-99C SERIAL NBR 002775 THRU 002784	EA		271.74	2717.40
			PRODUCT MODIFICATION CHARGES ***** * * SPECIAL Z999 * ***** !!!!!!!!!!WARNING!!!!!!!!!! ** SPL # TO BE DETERMINED ** ** SEE ENGINEERING DEPT. **			30.88	308.80
02	L11200	10	KIT CABLE S SER PVC/SIL INT	EA		.00	.00
			SUB TOTALS				3026.24
			GRAND TOTAL				3026.24

BILLINGS IN POUNDS STERLING

Redo Special No. R704 - Temp range 800-1350C + D/50 at 15"

RMH 11/3

THIS ORDER IS ACCEPTED SUBJECT TO TERMS AND CONDITIONS SHOWN ON THIS AND THE REVERSE SIDE

IF TAX EXEMPT, PLEASE PROVIDE COPY OF EXEMPTION OR DIRECT PAYMENT CERTIFICATE.

Ship To: IRCON, INC.
7300 N. NATCHEZ AVE.
NILES, IL 60714 USA

ORIGINAL

Part No. 020172 Rev C 12/95

Acknowledgment



IRCON, INC.
7300 N. Natchez Ave.
Niles, IL 60714 USA

Phone 847-967-5151
Toll Free 800-323-7660
Fax 847-647-0948

SCHEDULED SHIPPING WEEK MONTH/DAY/YEAR
ENDING 03/20/99

OUR ORDER NO. ORDER DATE MONTH/DAY/YEAR
SA 067172/00 02/15/99

YOUR ORDER NO. 7531

TERMS NET 30
X OTHER NET 60

F.O.B. X NILES, ILLINOIS

CODE 706 .00 03/15/99

VIA MSAS PPD. COLL X

SPECIAL SHIPPING INSTRUCTIONS

TEST CERTIFICATE REQUIRED

SOLD TO CUSTOMER NO. 008243-XX

IRCON LIMITED
FAIREY GROUP PLC
STATION ROAD, EGHAM
SURREY, ENGLAND TW20 9NF

SHIPPING ADDRESS TAX CODE NO TAX

ALCAN SMELTING & POWER UK
MAIN STORES LYNEMOUTH STORES
ASHINGTON
NORTHUMBERLAND NE63 9YH

LINE NO.	PART NO.	QTY.	DESCRIPTION	UNIT MEAS	DISCOUNT %	PRICE EACH U.S. DOLLAR XXXXXXXXX	AMOUNT U.S. DOLLAR XXXXXXXXX
01		8	INFRARAIL TEMPERATURE SYSTEM MODEL DNE99-99C SERIAL NBR 002915 THRU 002922	EA		271.74	2173.92
			CABLE(S) 4 MET. EA (4 MET. EA INCLUDED IN ABOVE)				
			PRODUCT MODIFICATION CHARGES ***** * SPECIAL Z999 ***** !!!!!!!!!!WARNING!!!!!!!!!! ** SPL # TO BE DETERMINED ** ** SEE ENGINEERING DEPT. **			30.88	247.04
			SUB TOTALS				2420.99
			GRAND TOTAL				2420.99

Reds Special No. R704-
Temp range 800-1350C
D/50 res at 15 inch.
WHP 2/16

BILLINGS IN POUNDS STERLING

THIS ORDER IS ACCEPTED SUBJECT TO TERMS AND CONDITIONS SHOWN ON THIS AND THE REVERSE SIDE

IF TAX EXEMPT, PLEASE PROVIDE COPY OF EXEMPTION OR DIRECT PAYMENT CERTIFICATE.

Ship To: IRCON, INC.
7300 N. NATCHEZ AVE.
NILES, IL 60714 USA

ORIGINAL

Part No. 020172 Rev C 12/95

Subject: Infrarail and Modline 2 output curves

Date: Sun, 16 Jan 2000 14:36:39 -0000

From: Steve Green <sgreen@ircon.nl>

Organization: Ircan

To: "Vern Lappe (E-mail)" <ircon@ircon.com>

Hi Vern,

Could you please send me the voltage output curves for the following sensors.?
Modline 2 22A35 and Infrarail DNE99-99C, special R704.. I need these for Alcan in No

Best Regards
Steve Green
UK Sales Manager
Ircan Limited
Email: sgreen@ircon.nl

what temp range?

800 - 1300°C?

See Ken C for Voltages

10 mV - or 50 mV?

FRANK

PLEASE HANDLE

Vee

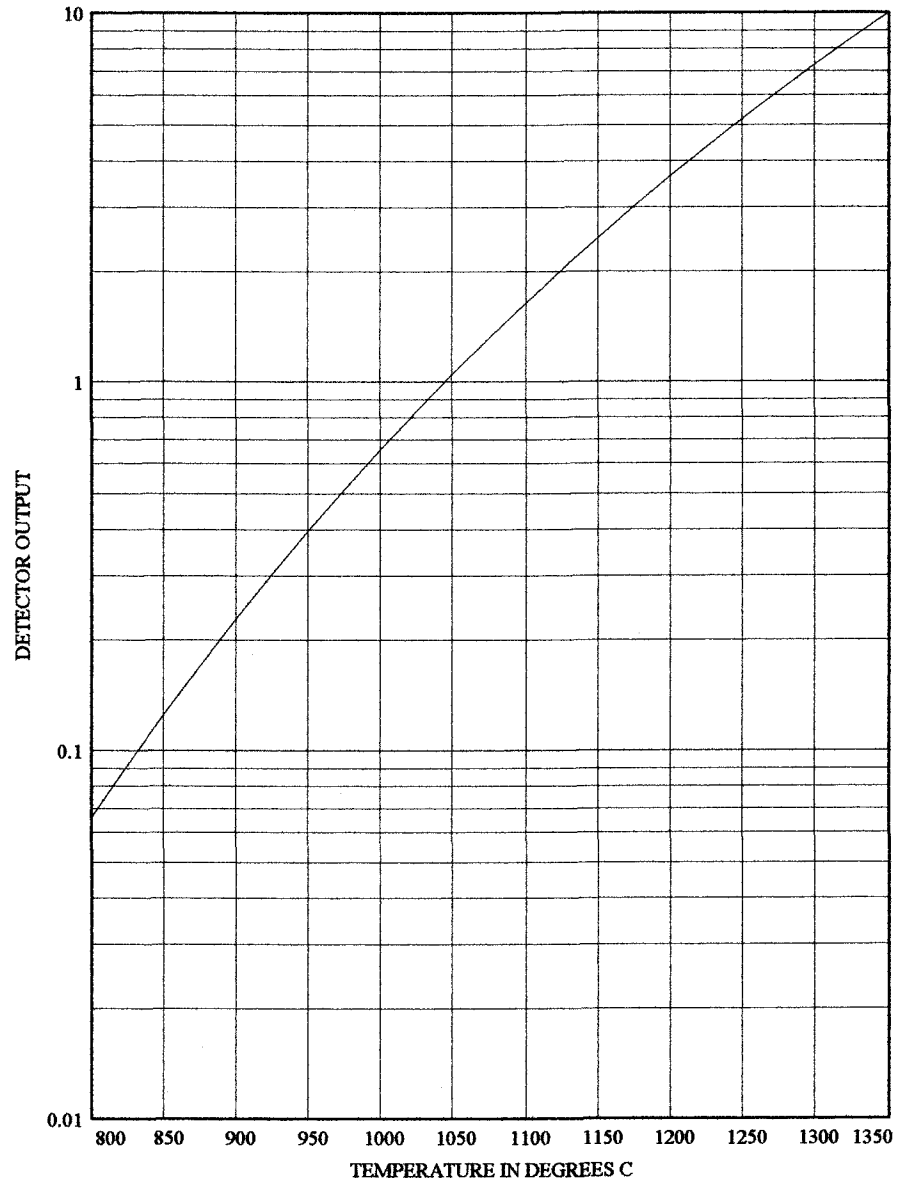
MILLIVOLT OUTPUT TABLE FOR SPECIAL R704
 VOLTAGE ACROSS 2.00 K OHM RESISTOR
 TEMPERATURE RANGE: 800 TO 1350 DEGREES C
 SPECTRUM: 0.70 TO 1.00 MICRONS

DEG. C	[0]	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]
VOLTAGE OUTPUT IN MILLIVOLTS										
[800]	0.131	0.133	0.135	0.137	0.138	0.140	0.142	0.144	0.146	0.148
[810]	0.150	0.152	0.154	0.156	0.158	0.160	0.162	0.165	0.167	0.169
[820]	0.171	0.174	0.176	0.178	0.180	0.183	0.185	0.188	0.190	0.193
[830]	0.195	0.198	0.200	0.203	0.205	0.208	0.211	0.213	0.216	0.219
[840]	0.222	0.225	0.227	0.230	0.233	0.236	0.239	0.242	0.245	0.248
[850]	0.251	0.255	0.258	0.261	0.264	0.267	0.271	0.274	0.278	0.281
[860]	0.284	0.288	0.291	0.295	0.299	0.302	0.306	0.310	0.314	0.317
[870]	0.321	0.325	0.329	0.333	0.337	0.341	0.345	0.349	0.353	0.358
[880]	0.362	0.366	0.371	0.375	0.379	0.384	0.388	0.393	0.398	0.402
[890]	0.407	0.412	0.417	0.422	0.426	0.431	0.436	0.442	0.447	0.452
[900]	0.457	0.462	0.468	0.473	0.478	0.484	0.489	0.495	0.501	0.506
[910]	0.512	0.518	0.524	0.530	0.536	0.542	0.548	0.554	0.560	0.566
[920]	0.573	0.579	0.585	0.592	0.599	0.605	0.612	0.619	0.625	0.632
[930]	0.639	0.646	0.653	0.661	0.668	0.675	0.682	0.690	0.697	0.705
[940]	0.712	0.720	0.728	0.736	0.744	0.752	0.760	0.768	0.776	0.784
[950]	0.793	0.801	0.810	0.818	0.827	0.836	0.844	0.853	0.862	0.871
[960]	0.880	0.890	0.899	0.908	0.918	0.927	0.937	0.947	0.957	0.966
[970]	0.976	0.986	0.997	1.007	1.017	1.028	1.038	1.049	1.059	1.070
[980]	1.081	1.092	1.103	1.114	1.126	1.137	1.148	1.160	1.172	1.183
[990]	1.195	1.207	1.219	1.231	1.244	1.256	1.268	1.281	1.294	1.306
[1000]	1.319	1.332	1.345	1.358	1.372	1.385	1.399	1.412	1.426	1.440
[1010]	1.454	1.468	1.482	1.497	1.511	1.526	1.540	1.555	1.570	1.585
[1020]	1.600	1.616	1.631	1.647	1.662	1.678	1.694	1.710	1.726	1.742
[1030]	1.759	1.775	1.792	1.809	1.826	1.843	1.860	1.877	1.895	1.913
[1040]	1.930	1.948	1.966	1.985	2.003	2.021	2.040	2.059	2.078	2.097
[1050]	2.116	2.135	2.155	2.174	2.194	2.214	2.234	2.254	2.275	2.295
[1060]	2.316	2.337	2.358	2.379	2.400	2.422	2.444	2.465	2.487	2.510
[1070]	2.532	2.554	2.577	2.600	2.623	2.646	2.669	2.693	2.717	2.740
[1080]	2.764	2.789	2.813	2.838	2.862	2.887	2.912	2.938	2.963	2.989
[1090]	3.015	3.041	3.067	3.093	3.120	3.147	3.174	3.201	3.228	3.256
[1100]	3.284	3.311	3.340	3.368	3.397	3.425	3.454	3.483	3.513	3.542
[1110]	3.572	3.602	3.632	3.663	3.693	3.724	3.755	3.787	3.818	3.850
[1120]	3.882	3.914	3.946	3.979	4.012	4.045	4.078	4.111	4.145	4.179
[1130]	4.213	4.248	4.282	4.317	4.352	4.388	4.423	4.459	4.495	4.531
[1140]	4.568	4.605	4.642	4.679	4.717	4.754	4.792	4.831	4.869	4.908
[1150]	4.947	4.986	5.026	5.066	5.106	5.146	5.187	5.228	5.269	5.310
[1160]	5.352	5.394	5.436	5.479	5.522	5.565	5.608	5.652	5.696	5.740
[1170]	5.784	5.829	5.874	5.919	5.965	6.011	6.057	6.104	6.151	6.198
[1180]	6.245	6.293	6.341	6.389	6.438	6.486	6.536	6.585	6.635	6.685
[1190]	6.736	6.786	6.837	6.889	6.941	6.993	7.045	7.098	7.151	7.204

INFRARAIL SPECIAL R704
 DNE99-99C
 800 - 1350 C
 RESOLUTION: D/50 @ 15"
 SPECTRUM: 0.7 - 1.0u

Temp microamps
 degrees C uA
 TC OUTPUT(TC)

1350	10
1325	8.5531
1300	7.2808
1275	6.167
1250	5.1965
1225	4.3549
1200	3.6287
1175	3.0054
1150	2.4735
1125	2.0222
1100	1.6417
1075	1.323
1050	1.0579
1025	0.839
1000	0.6596
975	0.5138
950	0.3964
925	0.3026
900	0.2285
875	0.1705
850	0.1257
825	0.0914
800	0.0656



Subject: Infrarail and Modline 2 output curves

Date: Sun, 16 Jan 2000 14:36:39 -0000

From: Steve Green <sgreen@ircon.nl>

Organization: Ircan

To: "Vern Lappe (E-mail)" <ircon@ircon.com>

Hi Vern,

Could you please send me the voltage output curves for the following sensors?
Modline 2 22A35 and Infrarail DNE99-99C, special R704.. I need these for Alcan in No

Best Regards
Steve Green
UK Sales Manager
Ircan Limited
Email: sgreen@ircon.nl

what temp range?

800 - 1300°C?

See kew C for Voltages

10 mV - or 50 mV?

FRANK

PLEASE HANDLE

Yes

Commercial Invoice



IRCON, INC.
7300 N. Natchez Ave.
Niles, IL 60714 USA

Phone 847-967-5151
Toll Free 800-323-7660
Fax 847-647-0948

SCHEDULED SHIPPING WEEK ENDING MONTH/DAY/YEAR 03/20/99

SOLD TO CUSTOMER NO. 008243-XX

OUR ORDER NO. SA 067172/00 ORDER DATE MONTH/DAY/YEAR 02/15/99

IRCON LIMITED
FAIREY GROUP PLC
STATION ROAD, EGHAM
SURREY, ENGLAND TW20 9NP

YOUR ORDER NO. 7531

TERMS NET 30
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ALCAN SMELTING & POWER UK
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NORTHUMBERLAND NE63 9YH

VIA MSAS PPD. COLL. X

SPECIAL SHIPPING INSTRUCTIONS
TEST CERTIFICATE REQUIRED

02/17/99 PAGE 1

LINE NO.	PART NO.	QTY.	DESCRIPTION	UNIT MEAS	DISCOUNT %	PRICE EACH U.S. DOLLAR X	AMOUNT U.S. DOLLAR X	
01		8	INFRARAIL TEMPERATURE SYSTEM MODEL DNE99-99C SERIAL NBR 002915 THRU 002922	EA		271.74	2173.92	
			CABLE(S) 4 MET. EA (4 MET. EA INCLUDED IN ABOVE)					
			PRODUCT MODIFICATION CHARGES ***** * * SPECIAL R704 * * ***** DNE 9PL RESOLUTION & TEMP 800 TO 1350 DEGREES C D/50 @ 15". MODEL: DNE99-99C			30.88	247.04	
			SUB TOTALS				2420.99	
			GRAND TOTAL				2420.99	
			BILLINGS IN POUNDS STERLING					

THIS ORDER IS ACCEPTED SUBJECT TO TERMS AND CONDITIONS SHOWN ON THIS AND THE REVERSE SIDE

Ship To: IRCON, INC.
7300 N. NATCHEZ AVE.
NILES, IL 60714 USA

FILE

Part No. 020221 Rev A 10/96

BOM Number : DN#630 - IRCON INFRARAIL IRT SO-LI: 70008*1

.....Level.....Part Number.....Description.....Quantity. UM. Alt. MB X .ECO No. ECO Date StartUse End Use.

1	DNODNE	DN PRICES	1.0000	EA	M	P	05-17-96
1	C11201-R704	SENSING HEAD FINAL ASSY	1.0000	EA	M	P	
2	451323	FIELD STOP .044DIA	1.0000	EA	B		
2	C11201/01	SEE EXTENDED DESCRIPTION	8.0000	EA	B		
2	990300005	RETAINING RING 7/16 OD,.2	1.0000	EA	B	3709	
2	431442	DET. LOCATOR MOD2	1.0000	EA	B		
2	C11209	SH DETECTOR ASSEMBLY (E-S	1.0000	EA	M	P	
3	T-C11209-1	SELECT DET. ASSY. (E-SERI	1.0000	EA	B	3770	
2	447352	SENSOR, E-HEAD	1.0000	EA	B	3709	
2	610432	EYE LENS FOR A HEAD	1.0000	EA	B	3709	
2	990100004	EPOXY HB FULLER FE 7004	1.0000	EA	B	3709	
2	447372	FIELD STOP, .312 DIA	1.0000	EA	B	3709	
2	447382	FIELD STOP, .437 DIA	1.0000	EA	B	3709	
2	610422	LENS PLANO CONVEX 15" F/L	1.0000	EA	B	3709	
2	431752	O RING 13/16 X 1/16 TH 70	1.0000	EA	B	3709	
2	447362	LENS RING E-HEAD SENSOR	1.0000	EA	B	3709	
2	200412440	SCREW #4-40 X 3/8 FIL SLO	4.0000	EA	B	3709	
2	220403200	WASHER #4 LOCK SPLIT RING	4.0000	EA	B	3709	
2	454152	SCREW, ADJUSTMENT,	1.0000	EA	B	3709	
2	433372	O RING 3/32 X 7/32 X 1/16	1.0000	EA	B	3709	
2	220602200	WASHER #6 LOCK EXT TOOTH	1.0000	EA	B	3709	
2	200606040	SCREW #6-32 X 3/16 PH SLO	1.0000	EA	B	3709	
2	C11201/02	SEE EXTENDED DESCRIPTION	3.0000	EA	B	3709	
2	443502	RETAINING NUT	1.0000	EA	B		
2	477142	LABEL, SERIAL NUMBER, SEN	1.0000	EA	B	3709	
2	474772	LABEL GROUND WARNING	1.0000	EA	B	3709	
2	T-C11201-1	DETERMINE IF CABLE IS REQ	1.0000	EA	B	3709	
2	C11201/03	SEE EXTENDED DESCRIPTION	5.0000	EA	B		
2	999900013	CAP PLUG #SC-1-1/4	1.0000	EA	B	3709	
2	990100028	SEALANT RTV SILICONE BLAC	1.0000	EA	B	3709	
2	999900014	STEM BUMPER 3/8OD .275T	1.0000	EA	B	3709	
1	D11198	PVC-(INT/EXT-E/F SERIES) (1.0000	EA	M	P	
2	560052	CABLE PVC 2 COND 1100/200	1.0000	FT	B	3913	
2	D11198/01	SEE EXTENDED DESCRIPTION	3.0000	EA	B		
2	D11198/02	SEE EXTENDED DESCRIPTION	8.0000	EA	B		
2	D11198/03	SEE EXTENDED DESCRIPTION	8.0000	EA	B		
2	575882	CONN. CIRC 10SL-3 BACKSHE	1.0000	EA	B	3913	
2	3210G00X0	TUBING #10 PVC CLEAR	3.0000	IN	B	3913	
2	3212G00X0	TUBING #12 PVC CLEAR	1.0000	IN	B	3913	
2	575902	CONN. CIRC 10SL-3 STR PLU	1.0000	EA	B	3913	
2	3216I1400	TUBING 1/4" SHRINKABLE BL	1.0000	IN	B	3913	
2	990100027	ADHESIVE LOCTITE 272	1.0000	EA	B	3913	
2	C-CABLE	DETERMINE CABLE LENGTH FR	1.0000	EA	M	P	
2	477202	LABEL INFRARAIL (2.0" X 0	1.0000	EA	B	3913	
1	U-D11198-C	12 FEET OF CABLE	1.0000	EA	M	P	
2	560052	CABLE PVC 2 COND 1100/200	12.0000	FT	B		
1	U-M1-R704	MODULE ASSEMBLY - M1 - (I	1.0000	EA	M	P	
2	103243011	RES. 324K OHM MF 1/4W 1%	1.0000	EA	B		
2	101872011	RES. 18.7K OHM MF 1/4W 1%	1.0000	EA	B		
2	101183011	RES. 118K OHM MF 1/4W 1%	1.0000	EA	B		
2	101402011	RES. 14.0K OHM MF 1/4W 1%	1.0000	EA	B		

W.O. # 1040
ENGINEERING
L. REPORTS MENU

BOM Number : DNH#630 - IRCON INFRARAIL IRT

SO-LI: 70008*1

.....Level.....Part Number.....Description.....Quantity.....UM. Alt. MB X .ECO No. ECO Date StartUse End Use.

Level	Part Number	Description	Quantity	UM	Alt.	MB	X	ECO No.	ECO Date	StartUse	End Use
2	105762011	RES. 57.6K OHM MF 1/4W 1%	1.0000	EA	B						
2	109531011	RES. 9.53K OHM MF 1/4W 1%	1.0000	EA	B						
2	109092011	RES. 90.9K OHM MF 1/4W 1%	1.0000	EA	B						
2	106341011	RES. 6.34K OHM MF 1/4W 1%	1.0000	EA	B						
2	101473011	RES. 147K OHM MF 1/4W 1%	1.0000	EA	B						
2	104021011	RES. 4.02K OHM MF 1/4W 1%	1.0000	EA	B						
2	102373011	RES. 237K OHM MF 1/4W 1%	1.0000	EA	B						
2	103923011	RES. 392K OHM MF 1/4W 1%	1.0000	EA	B						
2	101471011	RES. 1.47K OHM MF 1/4W 1%	1.0000	EA	B						
2	106813011	RES. 681K OHM MF 1/4W 1%	1.0000	EA	B						
2	101184011	RES. 1.18M OHM MF 1/4W 1%	1.0000	EA	B						
2	104870011	RES. 487 OHM MF 1/4W 1%	1.0000	EA	B						
2	105620011	RES. 562 OHM MF 1/4W 1%	1.0000	EA	B						
2	102104011	RES. 2.10M OHM MF 1/4W 1%	1.0000	EA	B						
1	NL13354	NEW 'N' # FOR L13354	1.0000	EA	M	P					
2	L13354	SH DETECTOR ASSEMBLY E-SE	1.0000	EA	M	P					
3	431432	DET. HOLDER MR20 SERIES	1.0000	EA	B					08-21-96	
3	640642	FILTER, BANDPASS	1.0000	EA	B					08-21-96	
3	590672	DET. SI VACTEC 21D459	1.0000	EA	B					08-21-96	
3	560372	CABLE PVC 1 COND SHIELD 2	3.0000	IN	B					08-21-96	
3	312430100	WIRE 24AWG BARE SOLID	1.0000	IN	B					08-21-96	
3	430292	CONN. GASKET 2000 SERIES	1.0000	EA	B					08-21-96	
3	575892	CONN. CIRC 3 RECEPT 10SL-3	1.0000	EA	B					08-21-96	
3	490042	SPRING DETECTOR RETAINER	1.0000	EA	B					08-21-96	
3	630092	FOLDING MIRROR SH MROA SE	1.0000	EA	B					08-21-96	
3	490032	SPRING FOLDING MIRROR MOD	1.0000	EA	B					08-21-96	
3	200204130	SCREW #2-56 X 1/8 BH SLOT	1.0000	EA	B					08-21-96	
3	990100016	EPOXY HARDMAN #4001 3-5 M	1.0000	EA	B					08-21-96	
3	3214G00X0	TUBING #14 PVC CLEAR	1.0000	IN	B					08-21-96	
1	D11191	INFRARAIL BOX ASSEMBLY	1.0000	EA	M	P					
2	433332	ENCLOSURE, DIN BOX, MODIF	1.0000	EA	B					04-08-96	
2	C11187	POWER SUPPLY/ PEAK-PICKER	1.0000	EA	M	P				04-08-96	
3	C20212	SCHEMATIC: POWER SUPPLY/	1.0000	EA	M	P				01-14-99	
3	LDN200	PWR SUPPLY/ PP PCB ASSY	1.0000	EA	M	P				01-14-99	
4	502505	PCB DIN RAIL POWER PEAK-P	1.0000	EA	B					08-05-96	
4	LDN200/01	SEE EXTENDED DESCRIPTION	8.0000	EA	B						
4	533082	TRAN. MJE800 NPN - DARLIN	1.0000	EA	B					08-05-96	
4	LDN200/02	SEE EXTENDED DESCRIPTION	8.0000	EA	B						
4	LDN200/03	SEE EXTENDED DESCRIPTION	5.0000	EA	B						
4	530882	DIODE 1N4002 GP RECTIFIER	1.0000	EA	B					08-05-96	
4	532952	OP-AMP OP80GP ULTRA LOW B	2.0000	EA	B					08-05-96	
4	532322	IC 4053B ANALOG MUX/DEMUX	1.0000	EA	B					08-05-96	
4	531862	OP-AMP LM346N PROGRAM QUA	1.0000	EA	B					08-05-96	
4	102493011	RES. 249K OHM MF 1/4W 1%	1.0000	EA	B					08-05-96	
4	103321011	RES. 3.32K OHM MF 1/4W 1%	1.0000	EA	B					08-05-96	
4	101820011	RES. 182 OHM MF 1/4W 1%	1.0000	EA	B					08-05-96	
4	104421011	RES. 4.42K OHM MF 1/4W 1%	1.0000	EA	B					08-05-96	
4	106654011	RES. 6.65M OHM MF 1/4W 1%	1.0000	EA	B					08-05-96	
4	104993011	RES. 499K OHM MF 1/4W 1%	1.0000	EA	B					08-05-96	

BOM Number : DN#630 - IRCON INFRARAIL IRT

SO-LI: 70008*1

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Level	Part Number	Description	Quantity	UM	Alt.	MB	X	ECO No.	ECO Date	StartUse	End Use
4	104021011	RES. 4.02K OHM MF 1/4W 1%	1.0000	EA	B			3769		08-05-96	
4	105364011	RES. 5.36M OHM MF 1/4W 1%	2.0000	EA	B			3769		08-05-96	
4	103480011	RES. 348 OHM MF 1/4W 1%	1.0000	EA	B			3769		08-05-96	
4	100000990	JUMPER DUMMY RESISTOR	4.0000	EA	B			3769		08-05-96	
4	101000011	RES. 100 OHM MF 1/4W 1%	1.0000	EA	B			3769		08-05-96	
4	101003011	RES. 100K OHM MF 1/4W 1%	1.0000	EA	B			3769		08-05-96	
4	101004011	RES. 1.00M OHM MF 1/4W 1%	4.0000	EA	B			3769		08-05-96	
4	102001011	RES. 2.00K OHM MF 1/4W 1%	1.0000	EA	B			3769		08-05-96	
4	102003011	RES. 200K OHM MF 1/4W 1%	2.0000	EA	B			3769		08-05-96	
4	104991011	RES. 4.99K OHM MF 1/4W 1%	1.0000	EA	B			3769		08-05-96	
4	530572	DIODE 1N4446 SWITCHING	2.0000	EA	B			3769		08-05-96	
4	530532	DIODE FD300 GENERAL PURPO	1.0000	EA	B			3769		08-05-96	
4	521852	CAP. 0.68 MFD 50V CERAMIC	1.0000	EA	B			3769		08-05-96	
4	521972	CAP. .047 MFD 50V CER X7	1.0000	EA	B			3769		08-05-96	
4	521172	CAP. 22MFD 16V TANT 10%	2.0000	EA	B			3769		08-05-96	
4	551122	CHOKE 9250-122 1.2 UH, .1	2.0000	EA	B			3769		08-05-96	
4	521902	CAP. 1000 PFD 200V CERAMI	1.0000	EA	B			3769		08-05-96	
4	521862	CAP. 3.3 MFD 50V CERAMC X	1.0000	EA	B			3769		08-05-96	
4	521872	CAP. 1.0 MFD 50V CERAMIC	5.0000	EA	B			3769		08-05-96	
4	522002	CAP. .01 MFD 200V CERAMIC	6.0000	EA	B			3769		08-05-96	
4	531892	REG. LM317LZ +1.2/37V ADJ	1.0000	EA	B			3769		08-05-96	
4	431902	BIVAR PERMO PAD 0.250 DIA	1.0000	EA	B			3769		08-05-96	
4	530862	TRAN. 2N2222A NPN MED POW	1.0000	EA	B			3769		08-05-96	
4	551152	INDUCTOR 100UH +/-10% IMS	2.0000	EA	B			3769		08-05-96	
4	531882	DIODE LM385BZ-2.5 2.5V RE	6.0000	EA	B			3769		08-05-96	
4	575602	CONN. HDR AMP STRAIGHT 5	1.0000	EA	B			3769		08-05-96	
4	574592	CONN. HDR AMP STRAIGHT 4	1.0000	EA	B			3769		08-05-96	
4	LDN200/04	SEE EXTENDED DESCRIPTION	6.0000	EA	B		P				
4	572732	HEADER SNGL 36 PIN .1 CNT	11.0000	EA	B		P	3769		08-05-96	
4	LDN200/05	SEE EXTENDED DESCRIPTION	5.0000	EA	B		P				
2	C20211	PREAMP/ LINEARIZER PCB AS	1.0000	EA	M	P		3671		04-08-96	
3	C11186	SCHEMATIC: PREAMP/ LINEAR	1.0000	EA	M	P		3659		04-12-96	
3	LDN100	PREAMP/ LIN PCB ASSY INFR	1.0000	EA	M	P		3659		04-12-96	
4	502493	PCB DIN RAIL LINEARIZER	1.0000	EA	B		P	3767		08-07-96	
4	LDN100/01	SEE EXTENDED DESCRIPTION	8.0000	EA	B		P				
4	LDN100/02	SEE EXTENDED DESCRIPTION	1.0000	EA	B		P				
4	532982	OP-AMP AD548CQ LOW PWR BI	1.0000	EA	B		P	3767		08-07-96	
4	531862	OP-AMP LM346N PROGRAM QUA	2.0000	EA	B		P	3767		08-07-96	
4	532992	OP-AMP OP490EY LOW VOLT Q	1.0000	EA	B		P	3767		08-07-96	
4	530532	DIODE FD300 GENERAL PURPO	16.0000	EA	B		P	3767		08-07-96	
4	514632	RES. 330K NETWORK 10 PIN	2.0000	EA	B		P	3767		08-07-96	
4	514642	RES. 330K NETWORK 10 PIN	2.0000	EA	B		P	3767		08-07-96	
4	104533011	RES. 453K OHM MF 1/4W 1%	1.0000	EA	B		P	3767		08-07-96	
4	1010R0011	RES. 10.0 OHM MF 1/4W 1%	1.0000	EA	B		P	3767		08-07-96	
4	102743011	RES. 274K OHM MF 1/4W 1%	1.0000	EA	B		P	3767		08-07-96	
4	102103011	RES. 210K OHM MF 1/4W 1%	1.0000	EA	B		P	3767		08-07-96	
4	105364011	RES. 5.36M OHM MF 1/4W 1%	4.0000	EA	B		P	3767		08-07-96	
4	101002011	RES. 10.0K OHM MF 1/4W 1%	1.0000	EA	B		P	3767		08-07-96	
4	101003011	RES. 100K OHM MF 1/4W 1%	1.0000	EA	B		P	3767		08-07-96	
4	102003011	RES. 200K OHM MF 1/4W 1%	2.0000	EA	B		P	3767		08-07-96	
4	101000011	RES. 100 OHM MF 1/4W 1%	2.0000	EA	B		P	3767		08-07-96	

BOM Number : DN#630 - IRCON INFRARAIL IRT

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UM

4	100000990	JUMPER DUMMY RESISTOR	1.0000	EA	B	3767	08-07-96
4	551122	CHOKO 9250-122 1.2 UH, .1	1.0000	EA	B	3767	08-07-96
4	540412	FERRITE BEAD ON LEAD AXIA	3.0000	EA	B	3767	08-07-96
4	522002	CAP. .01 MFD 200V CERAMIC	7.0000	EA	B	3767	08-07-96
4	521902	CAP. 1000 PFD 200V CERAMI	2.0000	EA	B	3767	08-07-96
4	521932	CAP. 100 PFD 200V CERAMIC	1.0000	EA	B	3767	08-07-96
4	521962	CAP. 10 PFD 200V CERAMIC	2.0000	EA	B	3767	08-07-96
4	514612	POT. 50K 25T 1/2W 10%	1.0000	EA	B	3767	08-07-96
4	514242	POT. 25K OHM 25T 1/2W 10%	1.0000	EA	B	3767	08-07-96
4	514622	POT. 100K 25T 1/2W 10%	1.0000	EA	B	3767	08-07-96
4	574922	CONN. HDR AMP STRAIGHT 3	1.0000	EA	B	3767	08-07-96
4	LDN100/03	SEE EXTENDED DESCRIPTION	7.0000	EA	B P		
4	574432	SOCKET 40 POS DIP .5HT EL	1.0000	EA	B	3767	08-07-96
4	LDN100/04	SEE EXTENDED DESCRIPTION	6.0000	EA	B P		
4	526002	CAP. SMC 330PF COG 50V 5%	1.0000	EA	B	3767	08-07-96
4	572732	HEADER SNGL 36 PIN .1 CNT	11.0000	EA	B	3767	08-07-96
4	LDN100/05	SEE EXTENDED DESCRIPTION	3.0000	EA	B P		
2	C11193	PCB INTERCONNECT ASSEMBLY	1.0000	EA	M P	3671	04-08-96
3	LDN300	PCB INTERCONN ASSY (INFRA	1.0000	EA	M P		
4	502533	PCB DIN RAIL POWER PEAK-P	1.0000	EA	B	3721	08-01-96
4	575922	CONN. FEMALE 11 POSITION	2.0000	EA	B	3721	08-01-96
2	477112	LABEL, COVER, DIN BOX	1.0000	EA	B	3671	04-08-96
2	C11190	DECAY RATE POT/ CONNECTOR	1.0000	EA	M P	3671	04-08-96
3	LDN003	DECAY RATE POT/ CONN. ASS	1.0000	EA	M P	4030	10-08-97
4	514592	POT. 50K OHM 1T 1/2W 10%	1.0000	EA	B		
4	LDN003/01	SEE EXTENDED DESCRIPTION	4.0000	EA	B P		
4	302479000	WIRE 24AWG VIO/WHITE STRA	1.0000	IN	B		
4	302409000	WIRE 24AWG BLK/WHITE STRA	1.0000	IN	B		
4	302459000	WIRE 24AWG GRN/WHITE STRA	1.0000	IN	B		
4	574662	CONN. CONTACT 20-24 AWG C	3.0000	EA	B		
4	574692	CONN. HOUSING 5 POSITION-	1.0000	EA	B		
2	C11189	RESPONSE TIME POT/ CONNEC	1.0000	EA	M P	3671	04-08-96
3	LDN002	RESP. TIME POT/ CONN. ASS	1.0000	EA	M P		
4	514602	POT. 5M OHM 1T 1/2W 10% P	1.0000	EA	B		
4	302440000	WIRE 24AWG YEL/BLACK STRA	1.0000	IN	B		
4	302460000	WIRE 24AWG BLU/BLACK STRA	1.0000	IN	B		
4	302430000	WIRE 24AWG ORG/BLACK STRA	1.0000	IN	B		
4	574662	CONN. CONTACT 20-24 AWG C	3.0000	EA	B		
4	574682	CONN. HOUSING 4 POSITION-	1.0000	EA	B		
2	C11188	EMISSIVITY POT/ CONNECTOR	1.0000	EA	M P	3671	04-08-96
3	LDN001	EMISSIVITY POT/ CONN. ASS	1.0000	EA	M P	3767	08-07-96
4	513722	POT. 100K 2 DIGIT 1% DIGI	1.0000	EA	B	3767	08-07-96
4	30245X000	WIRE 24AWG GREEN STRANDED	1.0000	IN	B	3767	08-07-96
4	30249X000	WIRE 24AWG WHITE STRANDED	1.0000	IN	B	3767	08-07-96
4	30246X000	WIRE 24AWG BLUE STRANDED	1.0000	IN	B	3767	08-07-96
4	574662	CONN. CONTACT 20-24 AWG C	3.0000	EA	B	3767	08-07-96
4	574672	CONN. HOUSING 3 POSITION-	1.0000	EA	B	3767	08-07-96
4	477212	LABEL - CLEAR WINDOW	1.0000	EA	B	3767	08-07-96
4	575852	KNOB, 9MM COLLET TYPE,	2.0000	EA	B	3671	04-08-96
2	575872	POINTER, 9MM COLLET TYPE	2.0000	EA	B	3671	04-08-96
2	575862	CAP. 9MM COLLET TYPE KNOB	2.0000	EA	B	3671	04-08-96

BOM Number : DNH#630 - IRCON INFRARAIL IRT

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UM

2	C11194	MODULE ASSEMBLY - M1 - (I	1.0000	EA	M	P	3671	04-08-96
3	573912	HEADER 40 PIN DIP .6 CENT	1.0000	EA	B			
3	T-C11194-1	SELECT "M1" MODULE VALUES	1.0000	EA	B			
2	575912	CONN. KEYING ELEMENT (DN-	2.0000	EA	B	3671	04-08-96	
2	477132	LABEL, SERIAL NUMBER, DIN	1.0000	EA	B	3671	04-08-96	
2	477122	LABEL, DIN BOX, INFRARAIL	1.0000	EA	B	3671	04-08-96	
2	574082	TERM. BLOCK JUMPER QUICK	1.0000	EA	B	3671	04-08-96	
2	LDNKIT	MTG CLIP KIT FOR INFRARAI	1.0000	EA	M	P	3671	04-08-96
3	990300010	CLIP MTG FOR DIN BOX	2.0000	EA	B	3694	04-17-96	
3	LDNKIT/01	SEE EXTENDED DESCRIPTION	6.0000	EA	B	P		
2	477182	LABEL-CE MARK (PRODUCTS)	1.0000	EA	B	3671	04-08-96	

BOM Number : DN-HO#7077 - IRCON INFRARAIL IRT

SO-LI: 75402*1

Level	Part Number	Description	Quantity	UM	Alt.	MB X	ECO No.	ECO Date	StartUse	End Use.	
	<i>Change to:</i>										
1	C11201-R704	DN PRICES	1.0000	EA		M	P				
1	<u>C11201</u>	SENSING HEAD FINAL ASSEMB	1.0000	EA		M	P				
2	451323	FIELD STOP .022 DIA <i>.044</i>	1.0000	EA		B	3709	05-17-96			
2	<u>C11201/01</u>	SEE EXTENDED DESCRIPTION	0.0000	EA		M					
2	990300005	RETAINING RING 7/16 OD, .2	1.0000	EA		B	3709	05-17-96			
2	431442	DET. LOCATOR MOD2	1.0000	EA		B	3709	05-17-96			
2	C11209	SH DETECTOR ASSEMBLY (E-S	1.0000	EA		M	P 3709	05-17-96			
3	L13354	SH DETECTOR ASSEMBLY E-SE	1.0000	EA		M	P				
4	431432	DET. HOLDER MR20 SERIES	1.0000	EA		B	3770	08-21-96			
4	640642	FILTER, BANDPASS	1.0000	EA		B	3770	08-21-96			
4	590672	DET. SI VACTEC 21D459	1.0000	EA		B	3770	08-21-96			
4	560372	CABLE PVC 1 COND SHIELD 2	3.0000	IN		B	3770	08-21-96			
4	312430100	WIRE 24AWG BARE SOLID	1.0000	IN		B	3770	08-21-96			
4	430292	CONN. GASKET 2000 SERIES	1.0000	EA		B	3770	08-21-96			
4	575892	CONN. CIRC 3 RECPT 10SL-3	1.0000	EA		B	3770	08-21-96			
4	490042	SPRING DETECTOR RETAINER	1.0000	EA		B	3770	08-21-96			
4	630092	FOLDING MIRROR SH MROA SE	1.0000	EA		B	3770	08-21-96			
4	490032	SPRING FOLDING MIRROR MOD	1.0000	EA		B	3770	08-21-96			
4	200204130	SCREW #2-56 X 1/8 PH SLOT	1.0000	EA		B	3770	08-21-96			
4	990100016	EPOXY HARDMAN #4001 3-5 M	1.0000	EA		B	3770	08-21-96			
4	3214G00X0	TUBING #14 PVC CLEAR	1.0000	IN		B	3770	08-21-96			
4	320811000	BLACK HEAT SHRINK TUBING	1.0000	IN		B					
2	447352	SENSOR, E-HEAD	1.0000	EA		B	3709	05-17-96			
2	610432	EYE LENS FOR A HEAD	1.0000	EA		B	3709	05-17-96			
2	990100004	EPOXY HB FULLER FE 7004	1.0000	EA		B	3709	05-17-96			
2	447372	FIELD STOP, .312 DIA	1.0000	EA		B	3709	05-17-96			
2	447382	FIELD STOP, .437 DIA	1.0000	EA		B	3709	05-17-96			
2	<i>610422</i>	<u>610402</u>	LENS PLANO CONVEX 30" F/L <i>15"</i>	1.0000	EA	B	3709	05-17-96			
2	431752	O RING 13/16 X 1/16 TH 70	1.0000	EA		B	3709	05-17-96			
2	447362	LENS RING E-HEAD SENSOR	1.0000	EA		B	3709	05-17-96			
2	200412440	SCREW #4-40 X 3/8 FIL SLO	4.0000	EA		B	3709	05-17-96			
2	220403200	WASHER #4 LOCK SPLIT RING	4.0000	EA		B	3709	05-17-96			
2	454152	SCREW, ADJUSTMENT,	1.0000	EA		B	3709	05-17-96			
2	433372	O RING 3/32 X 7/32 X 1/16	1.0000	EA		B	3709	05-17-96			
2	220602200	WASHER #6 LOCK EXT TOOTH	1.0000	EA		B	3709	05-17-96			
2	200606040	SCREW #6-32 X 3/16 PH SLO	1.0000	EA		B	3709	05-17-96			
2	C11201/02	SEE EXTENDED DESCRIPTION	0.0000	EA		M					
2	443502	RETAINING NUT	1.0000	EA		B	3709	05-17-96			
2	477142	LABEL, SERIAL NUMBER, SEN	1.0000	EA		B	3709	05-17-96			
2	474772	LABEL GROUND WARNING	1.0000	EA		B	3709	05-17-96			
2	T-C11201-1	DETERMINE IF CABLE IS REQ	0.0000	EA		B	3709	05-17-96			
2	C11201/03	SEE EXTENDED DESCRIPTION	0.0000	EA		M					
2	999900013	CAP PLUG #SC-1-1/4	1.0000	EA		B	3709	05-17-96			
2	990100028	SEALANT RTV SILICONE BLAC	1.0000	EA		B	3709	05-17-96			
2	999900014	STEM BUMPER 3/8OD .275T	1.0000	EA		B	3709	05-17-96			

Before Changes

W.O.#7741

BOM Number : DN-HO#7077 - IRCON INFRARAIL IRT

SO-LI: 75402*1

Level	Part Number	Description	Quantity	UM	Alt	MB X	ECO No.	ECO Date	StartUse	End Use
1	DN1DNE	DN PRICES	1.0000	EA		M P				
1	C11201-R704	SENSING HEAD FINAL ASSY	1.0000	EA		M P				
2	451323	FIELD STOP .044DIA	1.0000	EA		B	3709	05-17-96		
2	C11201/01	SEE EXTENDED DESCRIPTION	0.0000	EA		M				
2	990300005	RETAINING RING 7/16 OD, .2	1.0000	EA		B	3709	05-17-96		
2	431442	DET. LOCATOR MOD2	1.0000	EA		B	3709	05-17-96		
2	C11209	SH DETECTOR ASSEMBLY (E-S	1.0000	EA		M P	3709	05-17-96		
3	L13354	SH DETECTOR ASSEMBLY E-SE	1.0000	EA		M P				
4	431432	DET. HOLDER MR20 SERIES	1.0000	EA		B	3770	08-21-96		
4	640642	FILTER, BANDPASS	1.0000	EA		B	3770	08-21-96		
4	590672	DET. SI VACTEC 21D459	1.0000	EA		B	3770	08-21-96		
4	560372	CABLE PVC 1 COND SHIELD 2	3.0000	IN		B	3770	08-21-96		
4	312430100	WIRE 24AWG BARE SOLID	1.0000	IN		B	3770	08-21-96		
4	430292	CONN. GASKET 2000 SERIES	1.0000	EA		B	3770	08-21-96		
4	575892	CONN. CIRC 3 RECPT 10SL-3	1.0000	EA		B	3770	08-21-96		
4	490042	SPRING DETECTOR RETAINER	1.0000	EA		B	3770	08-21-96		
4	630092	FOLDING MIRROR SH MROA SE	1.0000	EA		B	3770	08-21-96		
4	490032	SPRING FOLDING MIRROR MOD	1.0000	EA		B	3770	08-21-96		
4	200204130	SCREW #2-56 X 1/8 PH SLOT	1.0000	EA		B	3770	08-21-96		
4	990100016	EPOXY HARDMAN #4001 3-5 M	1.0000	EA		B	3770	08-21-96		
4	3214G00X0	TUBING #14 PVC CLEAR	1.0000	IN		B	3770	08-21-96		
4	3208I1000	BLACK HEAT SHRINK TUBING	1.0000	IN		B				
2	447352	SENSOR, E-HEAD	1.0000	EA		B	3709	05-17-96		
2	610432	EYE LENS FOR A HEAD	1.0000	EA		B	3709	05-17-96		
2	990100004	EPOXY HB FULLER FE 7004	1.0000	EA		B	3709	05-17-96		
2	447372	FIELD STOP, .312 DIA	1.0000	EA		B	3709	05-17-96		
2	447382	FIELD STOP, .437 DIA	1.0000	EA		B	3709	05-17-96		
2	610422	LENS PLANO CONVEX 15" F/L	1.0000	EA		B	3709	05-17-96		
2	431752	O RING 13/16 X 1/16 TH 70	1.0000	EA		B	3709	05-17-96		
2	447362	LENS RING E-HEAD SENSOR	1.0000	EA		B	3709	05-17-96		
2	200412440	SCREW #4-40 X 3/8 FIL SLO	4.0000	EA		B	3709	05-17-96		
2	220403200	WASHER #4 LOCK SPLIT RING	4.0000	EA		B	3709	05-17-96		
2	454152	SCREW, ADJUSTMENT,	1.0000	EA		B	3709	05-17-96		
2	433372	O RING 3/32 X 7/32 X 1/16	1.0000	EA		B	3709	05-17-96		
2	220602200	WASHER #6 LOCK EXT TOOTH	1.0000	EA		B	3709	05-17-96		
2	200606040	SCREW #6-32 X 3/16 PH SLO	1.0000	EA		B	3709	05-17-96		
2	C11201/02	SEE EXTENDED DESCRIPTION	0.0000	EA		M				
2	443502	RETAINING NUT	1.0000	EA		B	3709	05-17-96		
2	477142	LABEL, SERIAL NUMBER, SEN	1.0000	EA		B	3709	05-17-96		
2	474772	LABEL GROUND WARNING	1.0000	EA		B	3709	05-17-96		
2	T-C11201-1	DETERMINE IF CABLE IS REQ	0.0000	EA		B	3709	05-17-96		
2	C11201/03	SEE EXTENDED DESCRIPTION	0.0000	EA		M				
2	999900013	CAP PLUG #SC-1-1/4	1.0000	EA		B	3709	05-17-96		
2	990100028	SEALANT RTV SILICONE BLAC	1.0000	EA		B	3709	05-17-96		
2	999900014	STEM BUMPER 3/8OD .275T	1.0000	EA		B	3709	05-17-96		

R704
(Sensor Only)

Acknowledgment



IRCON, INC.
7300 N. Natchez Ave.
Niles, IL 60714 USA

Phone 847-967-5151
Toll Free 800-323-7660
Fax 847-647-0948

SOLD TO CUSTOMER NO. 100426

IRCON B.V.
DATABANKWEG 6 C
3821 AL AMERSFOORT

THE NETHERLANDS

SHIPPING ADDRESS TAX CODE

IRCON B.V.
DATABANKWEG 6 C
3821 AL AMERSFOORT

THE NETHERLANDS

REQUEST DATE (MM-DD-YY) 10-27-00 PROMISE DATE (MM-DD-YY) 10-27-00
OUR ORDER NO. 75402 ORDER DATE (MM-DD-YY) 10-03-00
YOUR ORDER NO. 200040648
TERMS 0.00/0/180
F.O.B. ORIGIN
CODE 1001 (100.00)
VIA MSAS
SPECIAL SHIPPING INSTRUCTIONS REF: LYM133942

99-996

LI	PART NO.	DESCRIPTION	QTY	DSCNT%	UNIT PRICE	AMOUNT
1	DN-HO#7077 <i>w.o. 7741</i>	DN_DNE31-13C IRCON INFRARAIL IRT SENSING HEAD ONLY Consists of the following: 1.0000 - INFRARAIL HEAD ONLY 1.0000 - DN - E SERIES 1.0000 - D/100 RESOLUTION (E) 1.0000 - 800-1300C DN_DNE31-13C	20	0.00	497.20	9944.00
2	MOD-CHARGES	MODIFICATION OF PRODUCT	20	0.00	113.00	2260.00
GRAND TOTAL						

*Reels Special No R704
Temp range 800-1350C
+ D/50 at 1/50 inches
RAB
10/13*

THIS ORDER IS ACCEPTED SUBJECT TO TERMS AND CONDITIONS SHOWN ON THIS AND THE REVERSE SIDE

SHIP TO: IRCON, INC.
7300 N. NATCHEZ AVE.
NILES, IL 60714 USA

IF TAX EXEMPT, PLEASE PROVIDE COPY OF EXEMPTION OR DIRECT PAYMENT CERTIFICATE.

Temp
 degrees C millamp

TC	OUTPUT(TC)
1350	10
1325	8.5531
1300	7.2808
1275	6.167
1250	5.1965
1225	4.3549
1200	3.6287
1175	3.0054
1150	2.4735
1125	2.0222
1100	1.6417
1075	1.323
1050	1.0579
1025	0.839
1000	0.6596
975	0.5138
950	0.3964
925	0.3026
900	0.2285
875	0.1705
850	0.1257
825	0.0914
800	0.0656

