

Date:

9/23/04

(adder to standard)

Delivery:

3 WEEKS RFLIBRS

Approved by:

A. DEMARCO

(adder to standard)

Price:

SEE ABOVE

Specific Exceptions:

+ 600 (2X OUR COST)

\$1575.00

\$975.00

+ 375.00 EACH TO REDD SPECIAL

\$600.00 OUR COST FOR 10 FIBERS

Details of specific approval:

Need base for Museum ~~Ray~~ Number of units
with 6 FT Fiber optic cable
Redd Special No R 723

Base standard model or series:

DNFEC-99F

Description of Request:

To:

AMI

Customer:

UNIT 200

From:

Date:

9/22/04

Page of

Engineering Special or System Request



B U Y C A R D

Last Part:

Part...: 610732

FIB. OPT. 10FT R/OR/SR SE
.080 DIA FIBER OPTIC TH.

Lead Time: 70

Vendor..	.....Vendor Name.....	..Vendor Part..	..Phone No..
001514	FIBEROPTICS TECHNOLOGY	FTIIG17654	800-433-5248
001286	SCHOTT-FOSTEC DIVISION	C37942.120	315-255-2791

Purchase C	Vendor	Buy	Unit	Quantity	Due
Order... D	...Date... Rcpt/VS.	...Qty.... U/M.	..Price...	...Due...	...Date...
12619	P 05-18-2004 001514	48.0000	EA	66.0000	24.0000 09-14-2004
			EA	66.0000	24.0000 11-30-2005
12400	P 04-05-2004 001514	48.0000	EA	66.0000	05-07-2004
			EA	66.0000	07-02-2004
			EA	66.0000	07-22-2004
			EA	66.0000	08-12-2004
			EA	66.0000	08-13-2004
			EA	66.0000	08-13-2004
			EA	66.0000	08-30-2004

To see More, Press <RETURN> to continue

Notes Zoom More

DATE: 08-23-2004
REV.: C
W.O. No: 86211
CUSTOMER: UNITROL ELEC.
LOCATION: NORTHBROOK
LOCATION: ILLINOIS

INFRARAIL SPECIAL NUMBER R733

PURPOSE AND DESCRIPTION:

CUSTOMER REQUIRES A SPECIAL TEMPERATURE RANGE FIBER OPTIC INFRARAIL PYROMETER WITH SPECIAL OPTICAL RESOLUTION AND SPECTRAL RESPONSE.

MODEL: DNFFC-99F
RANGE: 1100 - 2000 DEG. F
OPTICAL RESOLUTION: D/30 X D/150
FIBER OPTIC CABLE: 10 FEET
SPECTRUM: 1.49 - 1.60 MICRON

GENERALITY OF APPLICATION AND RESTRICTIONS:

MAXIMUM SENSOR AMBIENT TEMPERATURE IS RESTRICTED TO 140 DEGREES F (60 DEG. C).

UNRESTRICTED, USE WITH ALL AVAILABLE OPTIONS.

WRITTEN BY: Ami DONADO DATE: 8/23/04
AMI DONADO
APPROVED BY: Ami DONADO DATE: 8/23/04

INFRARAIL SPECIAL NUMBER R733 CONTINUED,

PRODUCTION INSTRUCTIONS:

START WITH A STANDARD MODEL DNFFC-25F ELECTRONIC MODULE AND MAKE THE FOLLOWING CHANGES:

BUILD THE M1 LINEARIZER MODULE PER BILL OF MATERIAL ON PAGE 3.

BUILD FIBER OPTIC CABLE ASSEMBLY NUMBER L120FA5, (10 FT. 1.08 MICRON).

START WITH STANDARD FIBER OPTIC SENSOR MODEL DNFFC-25F AND MAKE THE FOLLOWING CHANGES:

1. BUILD DETECTOR ASSY. # C11207 BUT MAKE THE CABLE (ITEM 2) 2-1/2 INCHES LONG.
2. BUILD DETECTOR LOCATOR PER DRAWING # C11208, DETAIL "A".
3. GLUE DETECTOR/FILTER HOLDER # 433152 TO DETECTOR LOCATOR WITH EPOXY #990100002. LET CURE.
4. WIRE DETECTOR ASSY. TO CONNECTOR # 575892 PER DRAWING # C11208 DETAILS "F" AND "E".
5. ASSEMBLE DETECTOR ASSY., FILTER # 640552 (1.6 u), "O" RING # 433162 AND DETECTOR RETAINER # 431342 INTO DETECTOR/FILTER HOLDER PER DRAWING # C11251.

BUILD SENSOR WITH ABOVE ITEMS PER ASSEMBLY DRAWING NUMBER D11195 BUT OMIT ITEMS # 2 AND 3.

CALIBRATION INSTRUCTIONS:

COMPUTERIZED PRE-CAL PROCEDURE:

SET Iout Head Zero Scale (1100 deg. F) = 0.016 uA

SET Iout Head Full Scale (2000 deg. F) = 0.800 uA

SET THE SPECTRUM TO 1.6 MICRON.

ADJUST PER STANDARD PROCEDURE.

FINAL CALIBRATION:

CALIBRATE PER STANDARD PROCEDURE.

USE TABLE ON PAGE 4 FOR FINAL CALIBRATION.

MANUAL INSTRUCTIONS:

GENERIC INFRARAIL "F" SERIES MANUAL PAGE.

INCLUDE THE RESTRICTIONS LISTED ON PAGE ONE OF THESE DETAIL SHEETS.

INFRARAIL SPECIAL NUMBER R733 CONTINUED,**BILL OF MATERIAL**

MODULE M1 REFERENCE DRAWING No. C11194

SYMBOL	PART NO.	DESCRIPTION		
R1	104024011	RESISTOR	4.02 Mohm	METAL FILM 1/4W 1%
R44	101872011	RESISTOR	18.7 Kohm	METAL FILM 1/4W 1%
R54	101503011	RESISTOR	150 Kohm	METAL FILM 1/4W 1%
R45	101132011	RESISTOR	11.3 Kohm	METAL FILM 1/4W 1%
R55	104642011	RESISTOR	46.4 Kohm	METAL FILM 1/4W 1%
R46	109092011	RESISTOR	9.09 Kohm	METAL FILM 1/4W 1%
R56	106492011	RESISTOR	64.9 Kohm	METAL FILM 1/4W 1%
R47	106651011	RESISTOR	6.65 Kohm	METAL FILM 1/4W 1%
R57	109312011	RESISTOR	93.1 Kohm	METAL FILM 1/4W 1%
R48	104871011	RESISTOR	4.87 Kohm	METAL FILM 1/4W 1%
R58	101373011	RESISTOR	137 Kohm	METAL FILM 1/4W 1%
R49	103401011	RESISTOR	3.40 Kohm	METAL FILM 1/4W 1%
R59	102003011	RESISTOR	200 Kohm	METAL FILM 1/4W 1%
R50	102321011	RESISTOR	2.32 Kohm	METAL FILM 1/4W 1%
R60	103013011	RESISTOR	301 Kohm	METAL FILM 1/4W 1%
R51	101541011	RESISTOR	1.54 Kohm	METAL FILM 1/4W 1%
R61	104643011	RESISTOR	464 Kohm	METAL FILM 1/4W 1%
R52	101001011	RESISTOR	1.00 Kohm	METAL FILM 1/4W 1%
R53	101581011	RESISTOR	1.58 Kohm	METAL FILM 1/4W 1%
R62	107323011	RESISTOR	732 Kohm	METAL FILM 1/4W 1%

DATE: 08-23-2004

REV:C

INFRARAIL SPECIAL NUMBER R733

TEMPERATURE RANGE: 1100 TO 2000 DEGREES F

SPECTRUM: 1.49 TO 1.60 MICRONS

(Planck Output)

TEMPERATURE DEGREES F	SENSOR OUTPUT IN uAMPS	INDICATOR OUTPUT mAMPS
1100.0	0.0157	4.000
1125.0	0.0186	4.444
1150.0	0.0220	4.889
1175.0	0.0257	5.333
1200.0	0.0300	5.778
1225.0	0.0349	6.222
1250.0	0.0403	6.667
1275.0	0.0464	7.111
1300.0	0.0533	7.556
1325.0	0.0608	8.000
1350.0	0.0693	8.444
1375.0	0.0786	8.889
1400.0	0.0888	9.333
1425.0	0.1001	9.778
1450.0	0.1124	10.222
1475.0	0.1259	10.667
1500.0	0.1406	11.111
1525.0	0.1566	11.556
1550.0	0.1739	12.000
1575.0	0.1927	12.444
1600.0	0.2130	12.889
1625.0	0.2348	13.333
1650.0	0.2582	13.778
1675.0	0.2834	14.222
1700.0	0.3104	14.667
1725.0	0.3392	15.111
1750.0	0.3699	15.556
1775.0	0.4027	16.000
1800.0	0.4376	16.444
1825.0	0.4746	16.889
1850.0	0.5138	17.333
1875.0	0.5553	17.778
1900.0	0.5992	18.222
1925.0	0.6456	18.667
1950.0	0.6944	19.111
1975.0	0.7459	19.556
2000.0	0.8000	20.000

**CALIBRATION RECORD
 FIBER OPTIC DINRAIL SPECIAL R733
 D/30 X D/150 RESOLUTION
 12/30/2002 A.D.**

MODEL: DNFFB-99F
 RANGE: 1100-2000 DEG. F
 OPTICAL RESOLUTION: D/30 X D/150
 FIBER OPTIC LENGTH: 10 FEET
 FOCAL DISTANCE: 6 TO 10 INCHES
 SPECTRAL RESPONSE: 1.49 - 1.60 U

<u>Black Body Temp.</u> <u>Degrees F</u>	<u>System Output</u> <u>Milli Amps</u>	<u>Equivalent</u> <u>Temperature</u>
1100	4.000 (Set)	1100
1150	4.888	1150
1200	5.741	1198
1250	6.701	1252
1300	7.526	1298
1350	8.428	1349
1400	9.295	1398
1450	10.220	1450
1500	11.100	1499
1550	11.950	1547
1600	12.790	1594
1650	13.666	1644
1700	14.555	1694
1750	15.500	1747
1800	16.275	1791
1850	17.220	1844
1900	18.050	1890
1950	18.950	1940
2000	20.000 (Set)	2000

Equivalent Temp. = $\frac{\text{Output} - 4}{16} \times (900) + 1100$

W.O. #13910

Number :DN#16774 - IRCON INFRARAIL IRT SO-LI: 82747*1

Level	Part Number	Description	Quantity	UM	Alt	MB X	ECO No.	ECO Date	Start Use	End Use
1	DN0DNFFA		1.0000	EA		M P				
1	NL12006F	NEW 'N'# FOR L12006F	1.0000	EA		M P				
2	L12006F	REIMAGE LENS 6-10" D/30-D	1.0000	EA		M P				
3	453192	HOUSING OUTER REIMAGE MP/	1.0000	EA		B				
3	432502	O RING .547ID X .051THK B	2.0000	EA		B				
3	610782	LENS EQUIBICONVEX CAF2 OB	1.0000	EA		B				
3	445973	SPACER .165THK OBJECTIVE	1.0000	EA		B				
3	453222	RETAINER RING SPRING OBJ	1.0000	EA		B				
3	620222	WINDOW PROTECTIVE IR QUAR	1.0000	EA		B				
3	453172	RETAINER RING OBJECTIVE L	1.0000	EA		B				
3	453162	HOUSING REAR REIMAGE MP/M	1.0000	EA		B				
3	453232	FIELD STOP RECTANGULAR SL	1.0000	EA		B				
3	453134	CAN GLARE STOP .173D PAIN	2.0000	EA		M X				
4	453133	CAN GLARE STOP RAW MP/MR/	2.0000	EA		B				
3	453142	APERTURE THREADED .255 ID	1.0000	EA		B				
3	20100674A	SCREW #10-32 X 3/16 SKT S	1.0000	EA		B				
3	475962	LABEL REIMAGE LENS EXT TI	1.0000	EA		B				
3	453202	NUT HEX 7/8-20 S/S	2.0000	EA		B				
3	432662	PLASTIC CAP/PLUG TAPPED	2.0000	EA		B				
3	411202	KEY HEX 3/32" SHORT ARM	1.0000	EA		B				
3	L12006F/01	SEE EXTENDED DESCRIPTION	0.0000	EA		M P				
1	D11195-R733	SH ASSEMBLY, F-SERIES DIN	1.0000	EA		M P				
2	454143	F-HEAD SENSOR	1.0000	EA		B	3709	05-17-1996		
2	C11207-R733	DETECTOR ASSY. (1.6 MICRON	1.0000	EA		M P	3709	05-17-1996		
3	LDN106-R733	DETECTOR ASSY (1.6 MICRON	1.0000	EA		M P	3681	04-08-1996		
4	590942	DETECTOR InGaAs 1.6u	1.0000	EA		B				
4	560372	CABLE PVC 1 COND SHIELD 2	2.5000	IN		B	3681	04-08-1996		
4	990400001	BAG STATIC SHIELD 3X5 3M	1.0000	EA		B	3681	04-08-1996		
4	3214G00X0	TUBING #14 PVC CLEAR	1.0000	IN		B	3681	04-08-1996		
4	3208I1400	TUBING 1/8" SHRINKABLE BL	0.0000	IN		B				
3	L13353-R733	SH DETECTOR ASSY. F SERIE	1.0000	EA		M P				
4	431452	DET. LOCATOR Z HEAD	1.0000	EA		B				
4	451382	LOCATING PIN FOR Z1	1.0000	EA		B				
4	433152	HOLDER DET, FILTER & STOP	1.0000	EA		B				
4	433162	O RING .319ID X .028W 70	1.0000	EA		B				
4	431342	DET. RETAINER TO-5	1.0000	EA		B				
4	430292	CONN. GASKET 2000 SERIES	1.0000	EA		B				
4	575892	CONN. CIRC 3 RECPT 10SL-3	1.0000	EA		B				
4	490042	SPRING DETECTOR RETAINER	1.0000	EA		B				
4	990100002	EPOXY HARDMAN #4005 GEN P	1.0000	EA		B				
4	312430100	WIRE 24AWG BARE SOLID	1.0000	IN		B				
4	3208I1000	BLACK HEAT SHRINK TUBING	1.0000	IN		B				
3	T-C11207-X	FLOW TAG TEXT FOR DETECTO	0.0000	EA		B	3681	04-08-1996		
2	220403200	WASHER #4 LOCK SPLIT RING	4.0000	EA		B	3709	05-17-1996		
2	200412440	SCREW #4-40 X 3/8 FIL SLO	4.0000	EA		B	3709	05-17-1996		
2	454152	SCREW, ADJUSTMENT,	1.0000	EA		B	3709	05-17-1996		
2	433372	O RING 3/32 X 7/32 X 1/16	1.0000	EA		B	3709	05-17-1996		
2	20100874F	SCREW #10-32 X 1/4 SOCKET	1.0000	EA		B	3709	05-17-1996		
2	220602200	WASHER #6 LOCK EXT TOOTH	1.0000	EA		B	3709	05-17-1996		
2	200606040	SCREW #6-32 X 3/16 PH SLO	1.0000	EA		B	3709	05-17-1996		
2	474772	LABEL GROUND WARNING	1.0000	EA		B	3709	05-17-1996		
2	477142	LABEL, SERIAL NUMBER, SEN	1.0000	EA		B	3709	05-17-1996		
2	454242	NUT RETAINING S.S. E/F-HE	1.0000	EA		B	3709	05-17-1996		
2	T-D11195-1	SELECT FIBER OPTIC LIGHT	0.0000	EA		B	3709	05-17-1996		
2	T-D11195-3	F-SERIES (GT) FIB OPT	0.0000	EA		B				
2	ENGTEXT	ENG CONTROLLED TEXT	1.0000	EA		M P				
2	999900013	CAP PLUG #SC-1-1/4	1.0000	EA		B	3709	05-17-1996		
2	990100028	SEALANT RTV SILICONE BLAC	1.0000	EA		B	3709	05-17-1996		
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	04-02-1997		
2	D11198/01	SEE EXTENDED DESCRIPTION	0.0000	EA		M				
2	D11198/02	SEE EXTENDED DESCRIPTION	0.0000	EA		M				
2	D11198/03	SEE EXTENDED DESCRIPTION	8.0000	EA		M				
2	575882	CONN. CIRC 10SL-3 BACKSHE	1.0000	EA		B	3913	04-02-1997		
2	3210G00X0	TUBING #10 PVC CLEAR	3.0000	IN		B	3913	04-02-1997		
2	3212G00X0	TUBING #12 PVC CLEAR	1.0000	IN		B	3913	04-02-1997		
2	575902	CONN. CIRC 10SL-3 STR PLU	1.0000	EA		B	3913	04-02-1997		
2	3216I1400	TUBING 1/4" SHRINKABLE BL	1.0000	IN		B	3913	04-02-1997		

R733

Number :DN#16774 - IRCON INFRARAIL IRT SO-LI: 82747*1

Level	Part Number	Description	Quantity	UM	Alt	MB X	ECO No.	ECO Date	Start Use	End Use
2	990100027	ADHESIVE LOCTITE 272	1.0000	EA		B	3913	04-02-1997		
2	C-CABLE	DETERMINE CABLE LENGTH FR	1.0000	EA		M P	3913	04-02-1997		
2	477202	LABEL INFRARAIL (2.0" X 0	1.0000	EA		B	3913	04-02-1997		
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-R733	MODULE ASSEMBLY-M1- (DINRA	1.0000	EA		M P				
2	106343011	RES. 634K OHM MF 1/4W 1%	1.0000	EA		B				
2	101872011	RES. 18.7K OHM MF 1/4W 1%	1.0000	EA		B				
2	101503011	RES. 150K OHM MF 1/4W 1%	1.0000	EA		B				
2	101132011	RES. 11.3K OHM MF 1/4W 1%	1.0000	EA		B				
2	104642011	RES. 46.4K OHM MF 1/4W 1%	1.0000	EA		B				
2	109091011	RES. 9.09K OHM MF 1/4W 1%	1.0000	EA		B				
2	106492011	RES. 64.9K OHM MF 1/4W 1%	1.0000	EA		B				
2	106651011	RES. 6.65K OHM MF 1/4W 1%	1.0000	EA		B				
2	109312011	RES. 93.1K OHM MF 1/4W 1%	1.0000	EA		B				
2	104871011	RES. 4.87K OHM MF 1/4W 1%	1.0000	EA		B				
2	101373011	RES. 137K OHM MF 1/4W 1%	1.0000	EA		B				
2	103401011	RES. 3.40K OHM MF 1/4W 1%	1.0000	EA		B				
2	102003011	RES. 200K OHM MF 1/4W 1%	1.0000	EA		B				
2	102321011	RES. 2.32K OHM MF 1/4W 1%	1.0000	EA		B				
2	103013011	RES. 301K OHM MF 1/4W 1%	1.0000	EA		B				
2	101541011	RES. 1.54K OHM MF 1/4W 1%	1.0000	EA		B				
2	104643011	RES. 464K OHM MF 1/4W 1%	1.0000	EA		B				
2	101001011	RES. 1.00K OHM MF 1/4W 1%	1.0000	EA		B				
2	101581011	RES. 1.58K OHM MF 1/4W 1%	1.0000	EA		B				
2	107323011	RES. 732K OHM MF 1/4W 1%	1.0000	EA		B				
1	NL120FA1	NEW 'N'# FOR L120FA1	1.0000	EA		M P				
2	L120FA1	FIB. OPT. 1.6 MICRON 10FT	1.0000	EA		M P				
3	610941	FIB. OPT. 1.6 MICRON 10'	1.0000	EA		B	3501	02-14-1996		
3	453112	NUT LOCKING FIB OPT LT GU	2.0000	EA		B	3501	02-14-1996		
3	410832	RETAINER RING C TYPE .5 D	2.0000	EA		B	3501	02-14-1996		
3	432542	IDENTIFICATION TIE FIBER	1.0000	EA		B	3501	02-14-1996		
3	475982	LABEL LIGHT GUIDE FIBER O	1.0000	EA		B	3501	02-14-1996		
3	999900009	CAP PROTECTIVE,VINYL WHIT	2.0000	EA		B	3501	02-14-1996		
1	D11191	INFRARAIL BOX ASSEMBLY	1.0000	EA		M P				
2	433332	ENCLOSURE, DIN BOX, MODIF	1.0000	EA		B	3671	04-08-1996		
2	C11187	POWER SUPPLY/ PEAK-PICKER	1.0000	EA		M P	3671	04-08-1996		
3	C20212	SCHEMATIC: POWER SUPPLY/	1.0000	EA		M P	4202	01-14-1999		
3	LDN200	PWR SUPPLY/ PP PCB ASSY	1.0000	EA		M P	4202	01-14-1999		
4	502505	PCB DIN RAIL POWER PEAK-P	1.0000	EA		B	3769	08-05-1996		
4	LDN200/01	SEE EXTENDED DESCRIPTION	0.0000	EA		M P				
4	533082	TRAN. MJE800 NPN - DARLIN	1.0000	EA		B	3769	08-05-1996		
4	LDN200/02	SEE EXTENDED DESCRIPTION	0.0000	EA		M P				
4	LDN200/03	SEE EXTENDED DESCRIPTION	0.0000	EA		M P				
4	530882	DIODE 1N4002 GP RECTIFIER	1.0000	EA		B	3769	08-05-1996		
4	532952	OP-AMP ULTRA LOW BIAS	2.0000	EA		B	3769	08-05-1996		
4	532322	IC 4053B ANALOG MUX/DEMUX	1.0000	EA		B	4842	07-31-2002		
4	531862	OP-AMP LM346N PROGRAM QUA	1.0000	EA		B	3769	08-05-1996		
4	102493011	RES. 249K OHM MF 1/4W 1%	1.0000	EA		B	3769	08-05-1996		
4	103321011	RES. 3.32K OHM MF 1/4W 1%	1.0000	EA		B	3769	08-05-1996		
4	101820011	RES. 182 OHM MF 1/4W 1%	1.0000	EA		B	3769	08-05-1996		
4	104421011	RES. 4.42K OHM MF 1/4W 1%	1.0000	EA		B	3769	08-05-1996		
4	106654011	RES. 6.65M OHM MF 1/4W 1%	1.0000	EA		B	3769	08-05-1996		
4	104993011	RES. 499K OHM MF 1/4W 1%	1.0000	EA		B	3769	08-05-1996		
4	104021011	RES. 4.02K OHM MF 1/4W 1%	1.0000	EA		B	3769	08-05-1996		
4	105364011	RES. 5.36M OHM MF 1/4W 1%	2.0000	EA		B	3769	08-05-1996		
4	103480011	RES. 348 OHM MF 1/4W 1%	1.0000	EA		B	3769	08-05-1996		
4	100000990	JUMPER DUMMY RESISTOR	5.0000	EA		B	3769	08-05-1996		
4	101000011	RES. 100 OHM MF 1/4W 1%	1.0000	EA		B	3769	08-05-1996		
4	101003011	RES. 100K OHM MF 1/4W 1%	1.0000	EA		B	3769	08-05-1996		
4	101004011	RES. 1.00M OHM MF 1/4W 1%	4.0000	EA		B	3769	08-05-1996		
4	102003011	RES. 200K OHM MF 1/4W 1%	2.0000	EA		B	3769	08-05-1996		
4	104991011	RES. 4.99K OHM MF 1/4W 1%	1.0000	EA		B	3769	08-05-1996		
4	101503011	RES. 150K OHM MF 1/4W 1%	1.0000	EA		B				
4	530572	DIODE 1N4446 SWITCHING	2.0000	EA		B	4906	05-19-2003		
4	530532	DIODE FD300 GENERAL PURPO	1.0000	EA		B	3769	08-05-1996		
4	521852	CAP. 0.68 MFD 50V CERAMIC	1.0000	EA		B	3769	08-05-1996		
4	521972	CAP. .047 MFD 50V CER X7	1.0000	EA		B	3769	08-05-1996		

Change this to this

NL120FA5

Proprietary and Confidential to IRCON INC

1.0µ 10ft. fiber (better output) A.D. 8/23/04

Number :DN#16774 - IRCON INFRARAIL IRT SO-LI: 82747*1

Level	Part Number	Description	Quantity	UM	Alt	MB X	ECO No.	ECO Date	Start Use	End Use
4	521072	CAP. 22MFD 16V TANT 10%	2.0000	EA		B	3769	08-05-1996		
4	551122	CHOKO 9250-122 1.2 UH, .1	2.0000	EA		B	3769	08-05-1996		
4	521902	CAP. NPO 1000pf 200V .2LS	1.0000	EA		B	3769	08-05-1996		
4	521862	CAP. 3.3 MFD 50V CERAMC X	1.0000	EA		B	3769	08-05-1996		
4	521872	CAP. 1.0 MFD 50V CERAMIC	5.0000	EA		B	3769	08-05-1996		
4	522002	CAP. .01 MFD 200V CERAMIC	6.0000	EA		B	3769	08-05-1996		
4	531892	REG. LM317LZ +1.2/37V ADJ	1.0000	EA		B	3769	08-05-1996		
4	431902	BIVAR PERMO PAD 0.250 DIA	1.0000	EA		B	3769	08-05-1996		
4	530862	TRAN. 2N2222A NPN MED POW	1.0000	EA		B	3769	08-05-1996		
4	551152	INDUCTOR 100UH +/-10% IMS	2.0000	EA		B	3769	08-05-1996		
4	531882	DIODE LM385BZ-2.5 2.5V RE	6.0000	EA		B	3769	08-05-1996		
4	575602	CONN. HDR AMP STRAIGHT 5	1.0000	EA		B	3769	08-05-1996		
4	574592	CONN. HDR AMP STRAIGHT 4	1.0000	EA		B	3769	08-05-1996		
4	LDN200/04	SEE EXTENDED DESCRIPTION	0.0000	EA		M P				
4	572732	HEADER SNGL 36 PIN .1 CNT	11.0000	EA		B	3769	08-05-1996		
4	LDN200/05	SEE EXTENDED DESCRIPTION	0.0000	EA		M P				
2	C11186	PREAMP/ LINEARIZER PCB AS	1.0000	EA		M P	3671	04-08-1996		
3	C20211	SCHEMATIC: PREAMP/ LINEAR	1.0000	EA		M P	4785	03-05-2002		
3	LDN100	PREAMP/ LIN PCB ASSY INFR	1.0000	EA		M P	3659	04-12-1996		
4	502493	PCB DIN RAIL LINEARIZER	1.0000	EA		B	3767	08-07-1996		
4	LDN100/01	SEE EXTENDED DESCRIPTION	0.0000	EA		M P				
4	LDN100/02	SEE EXTENDED DESCRIPTION	0.0000	EA		M P				
4	532982	OP-AMP AD548CQ LOW PWR	1.0000	EA		B	3767	08-07-1996		
4	531862	OP-AMP LM346N PROGRAM QUA	3.0000	EA		B	3767	08-07-1996		
4	530532	DIODE FD300 GENERAL PURPO	16.0000	EA		B	3767	08-07-1996		
4	514632	RES. 330K NETWORK 10 PIN	2.0000	EA		B	3767	08-07-1996		
4	514642	RES. 330K NETWORK 10 PIN	2.0000	EA		B	3767	08-07-1996		
4	104533011	RES. 453K OHM MF 1/4W 1%	1.0000	EA		B	3767	08-07-1996		
4	1010R0011	RES. 10.0 OHM MF 1/4W 1%	1.0000	EA		B	3767	08-07-1996		
4	102743011	RES. 274K OHM MF 1/4W 1%	1.0000	EA		B	3767	08-07-1996		
4	102103011	RES. 210K OHM MF 1/4W 1%	1.0000	EA		B	3767	08-07-1996		
4	105364011	RES. 5.36M OHM MF 1/4W 1%	6.0000	EA		B	3767	08-07-1996		
4	101002011	RES. 10.0K OHM MF 1/4W 1%	1.0000	EA		B	3767	08-07-1996		
4	101003011	RES. 100K OHM MF 1/4W 1%	1.0000	EA		B	3767	08-07-1996		
4	102003011	RES. 200K OHM MF 1/4W 1%	2.0000	EA		B	3767	08-07-1996		
4	101000011	RES. 100 OHM MF 1/4W 1%	2.0000	EA		B	3767	08-07-1996		
4	100000990	JUMPER DUMMY RESISTOR	1.0000	EA		B	3767	08-07-1996		
4	551122	CHOKO 9250-122 1.2 UH, .1	1.0000	EA		B	3767	08-07-1996		
4	540412	FERRITE BEAD ON LEAD AXIA	3.0000	EA		B	3767	08-07-1996		
4	522002	CAP. .01 MFD 200V CERAMIC	7.0000	EA		B	3767	08-07-1996		
4	521902	CAP. NPO 1000pf 200V .2LS	2.0000	EA		B	3767	08-07-1996		
4	521932	CAP. 100 PF COG 200V	1.0000	EA		B	3767	08-07-1996		
4	521962	CAP. 10Pf NPO 200V .2LS	2.0000	EA		B	3767	08-07-1996		
4	514612	POT. 50K 25T 1/2W 10%	1.0000	EA		B	3767	08-07-1996		
4	514242	POT. 25K OHM 25T 1/2W 10%	1.0000	EA		B	3767	08-07-1996		
4	514622	POT. 100K 25T 1/2W 10%	1.0000	EA		B	3767	08-07-1996		
4	574922	CONN. HDR AMP STRAIGHT 3	1.0000	EA		B	3767	08-07-1996		
4	LDN100/03	SEE EXTENDED DESCRIPTION	0.0000	EA		M P				
4	574432	SOCKET 40 POS DIP .5HT EL	1.0000	EA		B	3767	08-07-1996		
4	LDN100/04	SEE EXTENDED DESCRIPTION	0.0000	EA		M P				
4	526002	CAP. SMC 330Pf NPO 50V 5%	1.0000	EA		B	3767	08-07-1996		
4	572732	HEADER SNGL 36 PIN .1 CNT	11.0000	EA		B	3767	08-07-1996		
4	LDN100/05	SEE EXTENDED DESCRIPTION	0.0000	EA		M P				
2	C11193	PCB INTERCONNECT ASSEMBLY	1.0000	EA		M P	3671	04-08-1996		
3	LDN300	PCB INTERCONN ASSY (INFRA	1.0000	EA		M P				
4	502533	PCB DIN RAIL POWER PEAK-P	1.0000	EA		B	3721	08-01-1996		
4	575922	CONN. FEMALE 11 POSITION	2.0000	EA		B	3721	08-01-1996		
2	477112	LABEL, COVER, DIN BOX	1.0000	EA		B	3671	04-08-1996		
2	C11190	DECAY RATE POT/ CONNECTOR	1.0000	EA		M P	3671	04-08-1996		
3	LDN003	DECAY RATE POT/ CONN. ASS	1.0000	EA		M P	4030	10-08-1997		
4	514592	POT. 50K OHM 1T 1/2W 10%	1.0000	EA		B				
4	LDN003/01	SEE EXTENDED DESCRIPTION	0.0000	EA		M 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	04-08-1996		

Number :DN#16774 - IRCON INFRARAIL IRT SO-LI: 82747*1

Level	Part Number	Description	Quantity	UM	Alt	MB	X	ECO No.	ECO Date	Start Use	End Use
3	LDN002	RESP. TIME POT/ CONN. ASS	1.0000	EA		M	P				
4	514602	POT. 5M OHM 1T 1/2W 20% 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	04-08-1996		
3	LDN001	EMISSIVITY POT/ CONN. ASS	1.0000	EA		M	P	3767	08-07-1996		
4	513722	POT. 100K 2 DIGIT 1% DIGI	1.0000	EA		B		3767	08-07-1996		
4	30245X000	WIRE 24AWG GREEN STRANDED	1.0000	IN		B		3767	08-07-1996		
4	30249X000	WIRE 24AWG WHITE STRANDED	1.0000	IN		B		3767	08-07-1996		
4	30246X000	WIRE 24AWG BLUE STRANDED	1.0000	IN		B		3767	08-07-1996		
4	574662	CONN. CONTACT 20-24 AWG C	3.0000	EA		B		3767	08-07-1996		
4	574672	CONN. HOUSING 3 POSITION-	1.0000	EA		B		3767	08-07-1996		
4	477212	LABEL - CLEAR WINDOW	1.0000	EA		B		3767	08-07-1996		
2	575852	KNOB, 9MM COLLET TYPE,	2.0000	EA		B		3671	04-08-1996		
2	575872	POINTER, 9MM COLLET TYPE	2.0000	EA		B		3671	04-08-1996		
2	575862	CAP. 9MM COLLET TYPE KNOB	2.0000	EA		B		3671	04-08-1996		
2	C11194	MODULE ASSEMBLY - M1 - (I	1.0000	EA		M	P	3671	04-08-1996		
3	573912	HEADER 40 PIN DIP .6 CENT	1.0000	EA		B					
3	T-C11194-1	SELECT "M1" MODULE VALUES	0.0000	EA		B					
3	T-C11194-3	GT M1 MODULE VALUES	0.0000	EA		B					
2	575912	CONN. KEYING ELEMENT (DN-	2.0000	EA		B		3671	04-08-1996		
2	477132	LABEL, SERIAL NUMBER, DIN	1.0000	EA		B		3671	04-08-1996		
2	477122	LABEL, DIN BOX, INFRARAIL	1.0000	EA		B		3671	04-08-1996		
2	574082	TERM. BLOCK JUMPER QUICK	1.0000	EA		B		3671	04-08-1996		
2	LDNKIT	MTG CLIP KIT FOR INFRARAI	1.0000	EA		M	P	3671	04-08-1996		
3	990300010	CLIP MTG FOR DIN BOX	2.0000	EA		B		3694	04-17-1996		
3	LDNKIT/01	SEE EXTENDED DESCRIPTION	0.0000	EA		M	P				
2	477182	LABEL-CE MARK (PRODUCTS)	1.0000	EA		B		3671	04-08-1996		
1	B10927	FIBER OPTIC - LIGHT GUIDE	1.0000	EA		M	P				
2	T-B10927-1	SELECT (MOD+ R/V/W/2/6) F	0.0000	EA		B		2399	01-17-1990		
2	T-B10927-2	SELECT (MIR OR/20/60) FIB	0.0000	EA		B		2399	01-17-1990		
2	T-B10927-3	SELECT (SR SR-SERIES) FI	0.0000	EA		B		2399	01-17-1990		
2	T-B10927-4	SELECT (SA-SERIES) FIB. O	0.0000	EA		B		2399	01-17-1990		
2	T-B10927-5	SELECT (F-SERIES) (INFRARA	0.0000	EA		B		2399	01-17-1990		
2	T-B10927-6	SELECT (MOD3) FIB. OPT. L	0.0000	EA		B		2399	01-17-1990		
2	T-B10927-7	SELECT GT F/O LIGHT GUIDE	0.0000	EA		B					

SEE REV "C"

8/23/04 AD.

PAGE 1 OF 4

DATE: 05-23-2003
REV.: B
W.O. No: 82747
CUSTOMER: UNITROL ELEC.
LOCATION: NORTHBROOK
LOCATION: ILLINOIS

INFRARAIL SPECIAL NUMBER R733

PURPOSE AND DESCRIPTION:

CUSTOMER REQUIRES A SPECIAL TEMPERATURE RANGE FIBER OPTIC INFRARAIL PYROMETER WITH SPECIAL OPTICAL RESOLUTION AND SPECTRAL RESPONSE.

MODEL: DNFFC-99F
RANGE: 1100 - 2000 DEG. F
OPTICAL RESOLUTION: D/30 X D/150
FIBER OPTIC CABLE: 10 FEET
SPECTRUM: 1.49 - 1.60 MICRON

GENERILITY OF APPLICATION AND RESTRICTIONS:

MAXIMUM SENSOR AMBIENT TEMPERATURE IS RESTRICTED TO 140 DEGREES F (60 DEG. C).

UNRESTRICTED, USE WITH ALL AVAILABLE OPTIONS.

WRITTEN BY: Ami DONADO DATE: 5/23/03
AMI DONADO

APPROVED BY: Ami DONADO DATE: 5/23/03

INFRARAIL SPECIAL NUMBER R733 CONTINUED,

PRODUCTION INSTRUCTIONS:

START WITH A STANDARD MODEL DNFFC-25F ELECTRONIC MODULE AND MAKE THE FOLLOWING CHANGES:

BUILD THE M1 LINEARIZER MODULE PER BILL OF MATERIAL ON PAGE 3.

BUILD THE FIBER OPTIC CABLE PER ASSEMBLY NUMBER L120FA1, (10 FT. 1.6 MICRON).

START WITH STANDARD FIBER OPTIC SENSOR MODEL DNFFC-25F AND MAKE THE FOLLOWING CHANGES:

1. BUILD DETECTOR ASSY. # C11207 BUT MAKE THE CABLE (ITEM 2) 2-1/2 INCHES LONG.
2. BUILD DETECTOR LOCATOR PER DRAWING # C11208, DETAIL "A".
3. GLUE DETECTOR/FILTER HOLDER # 433152 TO DETECTOR LOCATOR WITH EPOXY #990100002. LET CURE.
4. WIRE DETECTOR ASSY. TO CONNECTOR # 575892 PER DRAWING # C11208 DETAILS "F" AND "E".
5. ASSEMBLE DETECTOR ASSY., FILTER # 640552 (1.6 u), "O" RING # 433162 AND DETECTOR RETAINER # 431342 INTO DETECTOR/FILTER HOLDER PER DRAWING # C11251.

BUILD SENSOR WITH ABOVE ITEMS PER ASSEMBLY DRAWING NUMBER D11195 BUT OMIT ITEMS # 2 AND 3.

E
A.D.
8/4/04

CALIBRATION INSTRUCTIONS:

COMPUTERIZED PRE-CAL PROCEDURE:

SET Iout Head Zero Scale (1100 deg. F) = 0.016 uA
SET Iout Head Full Scale (2000 deg. F) = 0.800 uA
SET THE SPECTRUM TO 1.6 MICRON.

ADJUST PER STANDARD PROCEDURE.

FINAL CALIBRATION:

CALIBRATE PER STANDARD PROCEDURE.

USE TABLE ON PAGE 4 FOR FINAL CALIBRATION.

MANUAL INSTRUCTIONS:

GENERIC INFRARAIL "F" SERIES MANUAL PAGE.
INCLUDE THE RESTRICTIONS LISTED ON PAGE ONE OF THESE DETAIL SHEETS.

INFRARAIL SPECIAL NUMBER R733 CONTINUED,

BILL OF MATERIAL

MODULE M1 REFERENCE DRAWING No. C11194

SYMBOL	PART NO.	DESCRIPTION		
R1	104024011	RESISTOR	4.02 Mohm	METAL FILM 1/4W 1%
R44	101872011	RESISTOR	18.7 Kohm	METAL FILM 1/4W 1%
R54	101503011	RESISTOR	150 Kohm	METAL FILM 1/4W 1%
R45	101132011	RESISTOR	11.3 Kohm	METAL FILM 1/4W 1%
R55	104642011	RESISTOR	46.4 Kohm	METAL FILM 1/4W 1%
R46	109092011	RESISTOR	9.09 Kohm	METAL FILM 1/4W 1%
R56	106492011	RESISTOR	64.9 Kohm	METAL FILM 1/4W 1%
R47	106651011	RESISTOR	6.65 Kohm	METAL FILM 1/4W 1%
R57	109312011	RESISTOR	93.1 Kohm	METAL FILM 1/4W 1%
R48	104871011	RESISTOR	4.87 Kohm	METAL FILM 1/4W 1%
R58	101373011	RESISTOR	137 Kohm	METAL FILM 1/4W 1%
R49	103401011	RESISTOR	3.40 Kohm	METAL FILM 1/4W 1%
R59	102003011	RESISTOR	200 Kohm	METAL FILM 1/4W 1%
R50	102321011	RESISTOR	2.32 Kohm	METAL FILM 1/4W 1%
R60	103013011	RESISTOR	301 Kohm	METAL FILM 1/4W 1%
R51	101541011	RESISTOR	1.54 Kohm	METAL FILM 1/4W 1%
R61	104643011	RESISTOR	464 Kohm	METAL FILM 1/4W 1%
R52	101001011	RESISTOR	1.00 Kohm	METAL FILM 1/4W 1%
R53	101581011	RESISTOR	1.58 Kohm	METAL FILM 1/4W 1%
R62	107323011	RESISTOR	732 Kohm	METAL FILM 1/4W 1%

DATE: 05-23-2003
REV:B

INFRARAIL SPECIAL NUMBER R733

TEMPERATURE RANGE: 1100 TO 2000 DEGREES F
SPECTRUM: 1.49 TO 1.60 MICRONS
(Linear Output)

TEMPERATURE DEGREES F	SENSOR OUTPUT IN mAMPS	INDICATOR OUTPUT mAMPS
1100.0	4.0000	4.000
1125.0	4.0592	4.444
1150.0	4.1269	4.889
1175.0	4.2041	5.333
1200.0	4.2916	5.778
1225.0	4.3905	6.222
1250.0	4.5017	6.667
1275.0	4.6263	7.111
1300.0	4.7655	7.556
1325.0	4.9204	8.000
1350.0	5.0921	8.444
1375.0	5.2819	8.889
1400.0	5.4911	9.333
1425.0	5.7210	9.778
1450.0	5.9729	10.222
1475.0	6.2481	10.667
1500.0	6.5481	11.111
1525.0	6.8742	11.556
1550.0	7.2279	12.000
1575.0	7.6106	12.444
1600.0	8.0237	12.889
1625.0	8.4689	13.333
1650.0	8.9475	13.778
1675.0	9.4611	14.222
1700.0	10.0111	14.667
1725.0	10.5990	15.111
1750.0	11.2265	15.556
1775.0	11.8949	16.000
1800.0	12.6058	16.444
1825.0	13.3606	16.889
1850.0	14.1610	17.333
1875.0	15.0083	17.778
1900.0	15.9040	18.222
1925.0	16.8496	18.667
1950.0	17.8465	19.111
1975.0	18.8962	19.556
2000.0	20.0000	20.000

**DRAWING (S) TOO LARGE
TO SCAN.**

**TO VIEW THE ORIGINAL
DESIGN,
A REQUEST TO VIEW
PHYSICAL FILE
IS YOUR NEXT OPTION.**

D/30 X D/150
with 10 FT
Fiber

12/26/02 12:24 PM



INFRARAIL CALIBRATION TEST REPORT

TECHNICIAN# 639

SERIAL# 0

MODEL# DNFFC-99F

SPECIAL# R734

FULL SCALE 2000F

FS CURRENT= 0.800 uA

λ_{max} = 1.60

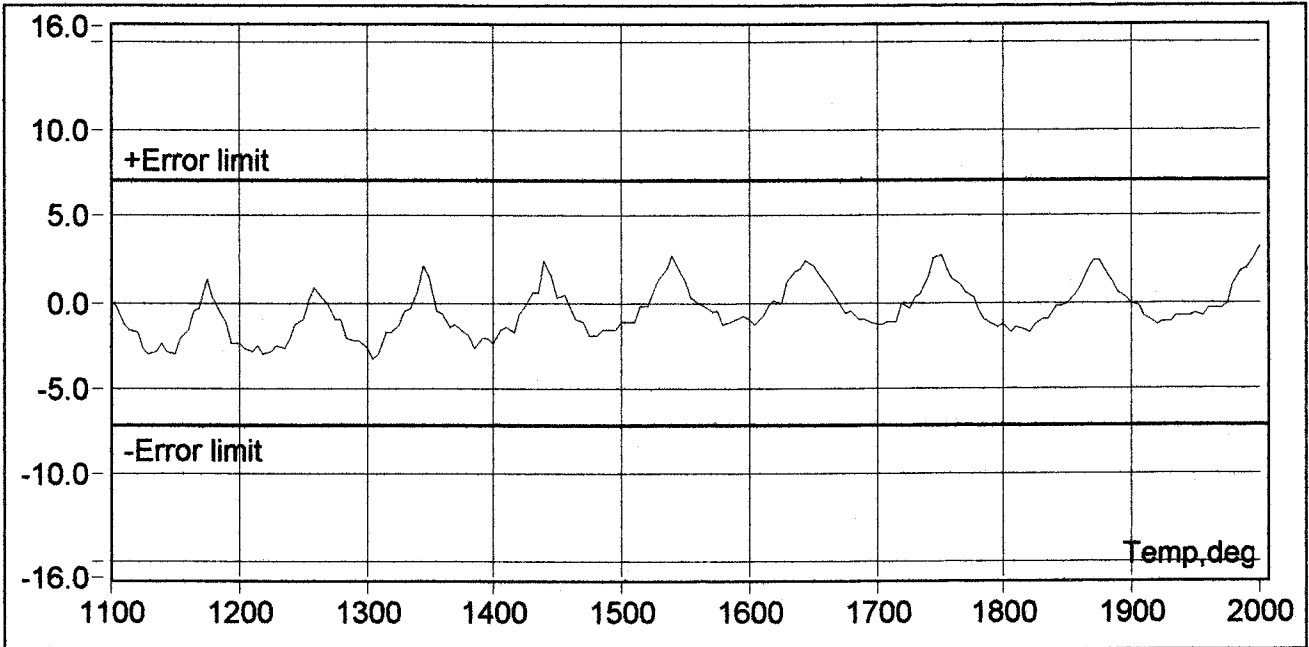
ZERO SCALE 1100F

ZS CURRENT= 0.016 uA

λ_{min} = 1.49

TEST NAME	SPEC.	TEST RESULT	EVAL
1. REFERENCE 3.2 V	3.2 \pm 0.005 V	3.200	P
2. CURRENT OUTPUT	4 \pm 0.05 mA	4.21	P
	20 \pm 0.05 mA	20.01	
3. LINEARIZER TEST			P
4. EMISSIVITY CONTROL			P
5. RESPONSE TIME	10 \pm 2 S	9.2	P
	10 \pm 2 mS	10.0	
6. P-P DECAY RATE	< 0.05%	0.052	P
	5 - 6.5 %	6.6	

Temp. Error, deg



Tech# _____

DATE _____

QA# _____

KEEP FOR REFERENCE

Entered as -DNS02-99F

TO GET THESE
PAGES

PAGE 2 OF 4
REV.: B
DATE: 12-26-2002

A.D.

INFRARAIL SPECIAL NUMBER R733 CONTINUED,

D/30 X D/150, 10F Fiber

PRODUCTION INSTRUCTIONS:

START WITH A STANDARD MODEL DNS02-18F SENSOR AND MAKE THE FOLLOWING CHANGES:
IF NO CHANGES ARE LISTED, THEN BUILD THE STANDARD SENSOR LISTED ABOVE.

START WITH A STANDARD MODEL DNS02-18F ELECTRONIC MODULE AND MODIFY THE
M1 LINEARIZER MODULE PER PAGE 3 ATTACHED.

@ COMPUTER CAL,
ENTER AS DNFFC-99F
L D/30 X D/150
w/ 10FT Fiber

TESTED D/30 X D/150 SENSOR
ONLY @ 2000°F

ISCFS \approx .838 μ
ADJUSTED IT TO \approx .800 μ A
ISCZS (@ 1100°F) \approx 16.036 μ A

CALIBRATION INSTRUCTIONS:

CALIBRATE AS A STANDARD MODEL.

REFERENCE IscZS 0.016 μ AMPS
REFERENCE IscFS 0.800 μ AMPS

12/26/2002 A.D.

MANUAL INSTRUCTIONS:

GENERIC INFRARAIL SERIES MANUAL.

1. RAN DINRAILZ.BAS.
2. @ SERIES20: CHANGED ISREF TO .800 (@ D/20)
3. CHANGED SPECTRUM TO 1.49 - 1.60 μ .
4. ENTERED SPECIAL AS DNS02-99F
5. THAT PRODUCED THESE PAGES.

OK

PER TEST
@ 2000°F
D/30 X D/150
REIMAGING LENS

PAGE 1 OF 4
DATE :12-26-2002
REVISION:B
W.O.NO :INTERNAL
CUSTOMER:IRCON NILES
LOCATION:
LOCATION:

INFRARAIL SPECIAL NUMBER R733

PURPOSE AND DESCRIPTION:

CUSTOMER REQUIRES A SPECIAL TEMPERATURE RANGE IFRARAIL MODEL 'S' SERIES
PYROMETER AS FOLLOWS:

MODEL: DNS02-99
RANGE: 1100 - 2000 DEG. F
OPTICAL RESOLUTION: D/20

GENERALITY OF APPLICATON AND RESTRICTIONS:

UNRESTRICTED: SUITABLE FOR USE WITH ALL STANDARD OPTIONS.

WRITTEN BY: _____

APPROVED BY: _____ DATE: _____

INFRARAIL SPECIAL NUMBER R733 CONTINUED,

BILL OF MATERIAL
MODEL: DNS02-99F

MODULE M1 (Reference Drawing No. C11194).

SYMBOL	PART NO.	DESCRIPTION		
R1	104024011	RESISTOR	4.02 Mohm	METAL FILM 1/4W 1%
R44	101872011	RESISTOR	18.7 Kohm	METAL FILM 1/4W 1%
R54	101503011	RESISTOR	150 Kohm	METAL FILM 1/4W 1%
R45	101132011	RESISTOR	11.3 Kohm	METAL FILM 1/4W 1%
R55	104642011	RESISTOR	46.4 Kohm	METAL FILM 1/4W 1%
R46	109091011	RESISTOR	9.09 Kohm	METAL FILM 1/4W 1%
R56	106492011	RESISTOR	64.9 Kohm	METAL FILM 1/4W 1%
R47	106651011	RESISTOR	6.65 Kohm	METAL FILM 1/4W 1%
R57	109312011	RESISTOR	93.1 Kohm	METAL FILM 1/4W 1%
R48	104871011	RESISTOR	4.87 Kohm	METAL FILM 1/4W 1%
R58	101373011	RESISTOR	137 Kohm	METAL FILM 1/4W 1%
R49	103401011	RESISTOR	3.40 Kohm	METAL FILM 1/4W 1%
R59	102003011	RESISTOR	200 Kohm	METAL FILM 1/4W 1%
R50	102321011	RESISTOR	2.32 Kohm	METAL FILM 1/4W 1%
R60	103013011	RESISTOR	301 Kohm	METAL FILM 1/4W 1%
R51	101541011	RESISTOR	1.54 Kohm	METAL FILM 1/4W 1%
R61	104643011	RESISTOR	464 Kohm	METAL FILM 1/4W 1%
R52	101001011	RESISTOR	1.00 Kohm	METAL FILM 1/4W 1%
R53	101581011	RESISTOR	1.58 Kohm	METAL FILM 1/4W 1%
R62	107323011	RESISTOR	732 Kohm	METAL FILM 1/4W 1%

① SAME AS FOR D/60
1.6μ INGAAS MINUS DIFFERENT
R1.

② BUILD D/30 X D/150 REIMAGING
Lens A2-F3

R733

FOR D/60 FIBER OPTIC DINRAIL:

- a. Took sensor with 10ft fiber +
And measured IOUT @ F.S. D/60 lens.
- b. Took measured current (.897mA @ 2000°F)
And ran INRAIL.BAS program to
determine sensor output @ TEMP
Range 1100 - 2000°F.
- c. Ran DINRAIL2.BAS FOR DNS02-99F
 - └ AT "SERIES20" LABEL IN THE PROGRAM
CHANGED THE SPECTRUM TO 1.49-1.60μM
 - └ changed IREF @ IF OX\$ = "D/20" TO
0.897μA (measured ISC FS)
 - └ changed TCAL @ IF OX\$ = "D/20" TO
2000 (TFS)
- d. Above procedure gives PAGE 3 OF 4
when PROGRAM IS RUN. (MODULE M1)
- e. RUN INRAIL.BAS. FOR PAGE 4 OF 4.

FOR D/30 X D/150:

- A. Change REIMAGING LENS TO THAT
RESOLUTION
- B. Check ISC FS AND RECORD
- C. Follow ABOVE (c) STEP.
- d. Follow " (d) STEP
- e. " " (e) STEP

INFRARAIL SPECIAL NUMBER DEMO CONTINUED,

BILL OF MATERIAL
 MODEL: DNS02-99F

MODULE M1 (Reference Drawing No. C11194).

SYMBOL	PART NO.	DESCRIPTION			
R1	103574011	RESISTOR	3.57 Mohm	METAL FILM	1/4W 1%
R44	101872011	RESISTOR	18.7 Kohm	METAL FILM	1/4W 1%
R54	101503011	RESISTOR	150 Kohm	METAL FILM	1/4W 1%
R45	101132011	RESISTOR	11.3 Kohm	METAL FILM	1/4W 1%
R55	104642011	RESISTOR	46.4 Kohm	METAL FILM	1/4W 1%
R46	109091011	RESISTOR	9.09 Kohm	METAL FILM	1/4W 1%
R56	106492011	RESISTOR	64.9 Kohm	METAL FILM	1/4W 1%
R47	106651011	RESISTOR	6.65 Kohm	METAL FILM	1/4W 1%
R57	109312011	RESISTOR	93.1 Kohm	METAL FILM	1/4W 1%
R48	104871011	RESISTOR	4.87 Kohm	METAL FILM	1/4W 1%
R58	101373011	RESISTOR	137 Kohm	METAL FILM	1/4W 1%
R49	103401011	RESISTOR	3.40 Kohm	METAL FILM	1/4W 1%
R59	102003011	RESISTOR	200 Kohm	METAL FILM	1/4W 1%
R50	102321011	RESISTOR	2.32 Kohm	METAL FILM	1/4W 1%
R60	103013011	RESISTOR	301 Kohm	METAL FILM	1/4W 1%
R51	101541011	RESISTOR	1.54 Kohm	METAL FILM	1/4W 1%
R61	104643011	RESISTOR	464 Kohm	METAL FILM	1/4W 1%
R52	101001011	RESISTOR	1.00 Kohm	METAL FILM	1/4W 1%
R53	101581011	RESISTOR	1.58 Kohm	METAL FILM	1/4W 1%
R62	107323011	RESISTOR	732 Kohm	METAL FILM	1/4W 1%

RAN PROGRAM (DINRAIL2.BAS)
 FOR DNS02-99F, AT "SERIES20" LABEL,

- CHANGED SPECTRUM TO 1.49 - 1.60 μ
- CHANGED IREF @ IF 0X\$ = "D/20" TO .897MA
- CHANGED TCAL @ IF 0X\$ = "D/20" TO 2000

Doesn't MATTER WITH resolution
 but both IREF & TCAL
 must be FOR SAME resolution.

T.F.S. OF SPECIAL

INFRARAIL SPECIAL NUMBER DEMO CONTINUED,

PRODUCTION INSTRUCTIONS:

START WITH A STANDARD MODEL DNS02-18F SENSOR AND MAKE THE FOLLOWING CHANGES:
IF NO CHANGES ARE LISTED, THEN BUILD THE STANDARD SENSOR LISTED ABOVE.

START WITH A STANDARD MODEL DNS02-18F ELECTRONIC MODULE AND MODIFY THE
M1 LINEARIZER MODULE PER PAGE 3 ATTACHED.

CALIBRATION INSTRUCTIONS:

CALIBRATE AS A STANDARD MODEL.

REFERENCE IscZS 0.018 μ AMPS
REFERENCE IscFS 0.897 μ AMPS

OK @ 1.6 μ

MANUAL INSTRUCTIONS:

GENERIC INFRARAIL SERIES MANUAL.

PAGE 1 OF 4
DATE :09-25-2002
REVISION:
W.O.NO :
CUSTOMER:
LOCATION:
LOCATION:

INFRARAIL SPECIAL NUMBER DEMO

PURPOSE AND DESCRIPTION:

CUSTOMER REQUIRES A SPECIAL TEMPERATURE RANGE IFRARAIL MODEL 'S' SERIES
PYROMETER AS FOLLOWS:

MODEL DNS02-99F
RANGE: 1100 - 2000 DEG. F
OPTICAL RESOLUTION: D/20

GENERALITY OF APPLICATON AND RESTRICTIONS:

UNRESTRICTED: SUITABLE FOR USE WITH ALL STANDARD OPTIONS.

WRITTEN BY: _____

APPROVED BY: _____ DATE: _____

DINRAIL Fiber Optic SENSORS

DNFFE-16F - 1200-1600°F D/30

$$I_{SCZS} = 11.2 \text{ nA}$$

SIG. SPAN = 27/1

$$I_{SCFS} = .300 \mu\text{A}$$

$$I_{SCZS} (w/ "e" = .1) = .11 \text{ nA}$$

DNFFB - 25F D/60 - 1500-2500°F

SIG.
 $SPAN = 141/1$

$$I_{SCZS} = 37.2 \text{ nA}$$

$$I_{SCFS} = 5.23 \mu\text{A}$$

$$I_{SCZS} (w/ "e" = .1) = .37 \text{ nA}$$

SPECIAL

DNFFB-99F 1150-2000 D/60

SIG.
 $SPAN = 429/1$

$$I_{SCZS} = 1.66 \text{ nA} \leftarrow \text{VERY VERY LOW SIGNAL}$$

$$I_{SCFS} = .714 \mu\text{A}$$

$$I_{SCZS} (w/ "e" = .1) = .02 \text{ nA}$$

D/30 would BE OK

FOR REFERENCE ONLY

STANDARD

INFRARAIL SPECIAL NUMBER DEMO CONTINUED,

BILL OF MATERIAL
MODEL: DNS02-99F

MODULE M1 (Reference Drawing No. C11194).

SYMBOL	PART NO.	DESCRIPTION		
R1	102674011	RESISTOR	2.67 Mohm ✓	METAL FILM 1/4W 1%
R44	101872011	RESISTOR	18.7 Kohm ✓	METAL FILM 1/4W 1%
R54	101073011	RESISTOR	0.07 Kohm	METAL FILM 1/4W 1%
R45	101542011	RESISTOR	15.4 Kohm ✓	METAL FILM 1/4W 1%
R55	106192011	RESISTOR	61.9 Kohm ✓	METAL FILM 1/4W 1%
R46	109761011	RESISTOR	9.76 Kohm ✓	METAL FILM 1/4W 1%
R56	101053011	RESISTOR	105 Kohm ✓	METAL FILM 1/4W 1%
R47	106191011	RESISTOR	6.19 Kohm	METAL FILM 1/4W 1%
R57	101783011	RESISTOR	178 Kohm ✓	METAL FILM 1/4W 1%
R48	103571011	RESISTOR	3.57 Kohm ✓	METAL FILM 1/4W 1%
R58	103093011	RESISTOR	309 Kohm ✓	METAL FILM 1/4W 1%
R49	102051011	RESISTOR	2.05 Kohm ✓	METAL FILM 1/4W 1%
R59	105493011	RESISTOR	549 Kohm ✓	METAL FILM 1/4W 1%
R50	101151011	RESISTOR	1.15 Kohm ✓	METAL FILM 1/4W 1%
R60	101024011	RESISTOR	1.02 Mohm ✓	METAL FILM 1/4W 1%
R51	106190011	RESISTOR	619 ohm	METAL FILM 1/4W 1%
R61	101964011	RESISTOR	1.96 Mohm ✓	METAL FILM 1/4W 1%
R52	103240011	RESISTOR	324 ohm	METAL FILM 1/4W 1%
R53	103160011	RESISTOR	316 ohm	METAL FILM 1/4W 1%
R62	103744011	RESISTOR	3.74 Mohm	METAL FILM 1/4W 1%

0.7 - 1.08 μ

INFRARAIL SPECIAL NUMBER DEMO CONTINUED,

PRODUCTION INSTRUCTIONS:

START WITH A STANDARD MODEL DNS02-18F SENSOR AND MAKE THE FOLLOWING CHANGES:
IF NO CHANGES ARE LISTED, THEN BUILD THE STANDARD SENSOR LISTED ABOVE.

START WITH A STANDARD MODEL DNS02-18F ELECTRONIC MODULE AND MODIFY THE
M1 LINEARIZER MODULE PER PAGE 3 ATTACHED.

CALIBRATION INSTRUCTIONS:

CALIBRATE AS A STANDARD MODEL.

REFERENCE I_{scZS} 0.004 uAMPS
REFERENCE I_{scFS} 1.200 uAMPS

MANUAL INSTRUCTIONS:

GENERIC INFRARAIL SERIES MANUAL.

PAGE 1 OF 4
DATE :09-24-2002
REVISION:
W.O.NO :
CUSTOMER:
LOCATION:
LOCATION:

INFRARAIL SPECIAL NUMBER DEMO

PURPOSE AND DESCRIPTION:

CUSTOMER REQUIRES A SPECIAL TEMPERATURE RANGE IFRARAIL MODEL 'S' SERIES
PYROMETER AS FOLLOWS:

MODEL: DNS02-99
RANGE: 1150 - 2000 DEG. F
OPTICAL RESOLUTION: D/20

GENERALITY OF APPLICATION AND RESTRICTIONS:

UNRESTRICTED: SUITABLE FOR USE WITH ALL STANDARD OPTIONS.

WRITTEN BY: _____

APPROVED BY: _____ DATE: _____

INFRARAIL SPECIAL NUMBER DEMO CONTINUED,

PRODUCTION INSTRUCTIONS:

START WITH A STANDARD MODEL DNS05-20F SENSOR AND MAKE THE FOLLOWING CHANGES:
IF NO CHANGES ARE LISTED, THEN BUILD THE STANDARD SENSOR LISTED ABOVE.

START WITH A STANDARD MODEL DNS05-20F ELECTRONIC MODULE AND MODIFY THE
M1 LINEARIZER MODULE PER PAGE 3 ATTACHED.

CALIBRATION INSTRUCTIONS:

CALIBRATE AS A STANDARD MODEL.

REFERENCE IscZS 0.002 uAMPS
REFERENCE IscFS 0.413 uAMPS

— 2.239 nA

VERY
LOW
SIGNALS

MANUAL INSTRUCTIONS:

GENERIC INFRARAIL SERIES MANUAL.

\ 1100 - 1800°c

\ 1100 1600

\ 1200 2000

\ 1150 - 2000

No-1100 - 2000

Using Detector

VACTEC VTB-5051

AND SPECTRUM

.7 - 1.08 μ

.000413 mA
.000000413 A

INFRARAIL SPECIAL NUMBER DEMO CONTINUED,

BILL OF MATERIAL
MODEL: DNS05-99F

MODULE M1 (Reference Drawing No. C11194).

SYMBOL	PART NO.	DESCRIPTION		
R1	107684011	RESISTOR	7.68 Mohm	METAL FILM 1/4W 1%
R44	101872011	RESISTOR	18.7 Kohm	METAL FILM 1/4W 1%
R54	101103011	RESISTOR	110 Kohm	METAL FILM 1/4W 1%
R45	101472011	RESISTOR	14.7 Kohm	METAL FILM 1/4W 1%
R55	105902011	RESISTOR	59.0 Kohm	METAL FILM 1/4W 1%
R46	109761011	RESISTOR	9.76 Kohm	METAL FILM 1/4W 1%
R56	109532011	RESISTOR	95.3 Kohm	METAL FILM 1/4W 1%
R47	106341011	RESISTOR	6.34 Kohm	METAL FILM 1/4W 1%
R57	101583011	RESISTOR	158 Kohm	METAL FILM 1/4W 1%
R48	103921011	RESISTOR	3.92 Kohm	METAL FILM 1/4W 1%
R58	102613011	RESISTOR	261 Kohm	METAL FILM 1/4W 1%
R49	102321011	RESISTOR	2.32 Kohm	METAL FILM 1/4W 1%
R59	104533011	RESISTOR	453 Kohm	METAL FILM 1/4W 1%
R50	101371011	RESISTOR	1.37 Kohm	METAL FILM 1/4W 1%
R60	108063011	RESISTOR	806 Kohm	METAL FILM 1/4W 1%
R51	107680011	RESISTOR	768 ohm	METAL FILM 1/4W 1%
R61	101474011	RESISTOR	1.47 Mohm	METAL FILM 1/4W 1%
R52	104220011	RESISTOR	422 ohm	METAL FILM 1/4W 1%
R53	104640011	RESISTOR	464 ohm	METAL FILM 1/4W 1%
R62	102614011	RESISTOR	2.61 Mohm	METAL FILM 1/4W 1%

PAGE 1 OF 4
DATE : 09-20-2002
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LOCATION:

INFRARAIL SPECIAL NUMBER DEMO

PURPOSE AND DESCRIPTION:

CUSTOMER REQUIRES A SPECIAL TEMPERATURE RANGE IFRARAIL MODEL 'S' SERIES
PYROMETER AS FOLLOWS:

MODEL: DNS05-99
RANGE: 1100 - 1800 DEG. F
OPTICAL RESOLUTION: D/50

SPECTRUM

.7 - 1.08 μ

Isc ZS =

Isc FS = .413 MA

GENERALITY OF APPLICATION AND RESTRICTIONS:

UNRESTRICTED: SUITABLE FOR USE WITH ALL STANDARD OPTIONS.

WRITTEN BY: _____

APPROVED BY: _____ DATE: _____

INFRARAIL SPECIAL NUMBER DEMO CONTINUED,

BILL OF MATERIAL
MODEL: DNS02-99F

MODULE M1 (Reference Drawing No. C11194).

SYMBOL	PART NO.	DESCRIPTION		
R1	102674011	RESISTOR	2.67 Mohm	METAL FILM 1/4W 1%
R44	101872011	RESISTOR	18.7 Kohm	METAL FILM 1/4W 1%
R54	101073011	RESISTOR	107 Kohm	METAL FILM 1/4W 1%
R45	101542011	RESISTOR	15.4 Kohm	METAL FILM 1/4W 1%
R55	106192011	RESISTOR	61.9 Kohm	METAL FILM 1/4W 1%
R46	109761011	RESISTOR	9.76 Kohm	METAL FILM 1/4W 1%
R56	101053011	RESISTOR	105 Kohm	METAL FILM 1/4W 1%
R47	106191011	RESISTOR	6.19 Kohm	METAL FILM 1/4W 1%
R57	101783011	RESISTOR	178 Kohm	METAL FILM 1/4W 1%
R48	103571011	RESISTOR	3.57 Kohm	METAL FILM 1/4W 1%
R58	103093011	RESISTOR	309 Kohm	METAL FILM 1/4W 1%
R49	102051011	RESISTOR	2.05 Kohm	METAL FILM 1/4W 1%
R59	105493011	RESISTOR	549 Kohm	METAL FILM 1/4W 1%
R50	101151011	RESISTOR	1.15 Kohm	METAL FILM 1/4W 1%
R60	101024011	RESISTOR	1.02 Mohm	METAL FILM 1/4W 1%
R51	106190011	RESISTOR	619 ohm	METAL FILM 1/4W 1%
R61	101964011	RESISTOR	1.96 Mohm	METAL FILM 1/4W 1%
R52	103240011	RESISTOR	324 ohm	METAL FILM 1/4W 1%
R53	103160011	RESISTOR	316 ohm	METAL FILM 1/4W 1%
R62	103744011	RESISTOR	3.74 Mohm	METAL FILM 1/4W 1%

.7 - 1.08 μ

INFRARAIL SPECIAL NUMBER DEMO CONTINUED,

PRODUCTION INSTRUCTIONS:

START WITH A STANDARD MODEL DNS02-18F SENSOR AND MAKE THE FOLLOWING CHANGES:
IF NO CHANGES ARE LISTED, THEN BUILD THE STANDARD SENSOR LISTED ABOVE.

START WITH A STANDARD MODEL DNS02-18F ELECTRONIC MODULE AND MODIFY THE
M1 LINEARIZER MODULE PER PAGE 3 ATTACHED.

CALIBRATION INSTRUCTIONS:

CALIBRATE AS A STANDARD MODEL.

REFERENCE IscZs	0.004 uAMPS
REFERENCE IscFS	1.200 uAMPS

MANUAL INSTRUCTIONS:

GENERIC INFRARAIL SERIES MANUAL.

PAGE 1 OF 4
DATE :09-24-2002
REVISION:
W.O.NO :
CUSTOMER:
LOCATION:
LOCATION:

INFRARAIL SPECIAL NUMBER DEMO

PURPOSE AND DESCRIPTION:

CUSTOMER REQUIRES A SPECIAL TEMPERATURE RANGE IFRARAIL MODEL 'S' SERIES
PYROMETER AS FOLLOWS:

MODEL: DNS02-99
RANGE: 1150 - 2000 DEG. F
OPTICAL RESOLUTION: D/20

1.7 - 1.08 μm
VACTEC VTB-5051
Detector

GENERALITY OF APPLICATION AND RESTRICTIONS:

UNRESTRICTED: SUITABLE FOR USE WITH ALL STANDARD OPTIONS.

WRITTEN BY: _____

APPROVED BY: _____ DATE: _____

INFRARAIL SPECIAL NUMBER DEMO CONTINUED,

BILL OF MATERIAL
MODEL: DNS02-99F

MODULE M1 (Reference Drawing No. C11194).

SYMBOL	PART NO.	DESCRIPTION			
R1	102674011	RESISTOR	2.67 Mohm	METAL FILM 1/4W 1%	
R44	101872011	RESISTOR	18.7 Kohm	METAL FILM 1/4W 1%	
R54	101023011	RESISTOR	102 Kohm	METAL FILM 1/4W 1%	
R45	101622011	RESISTOR	16.2 Kohm	METAL FILM 1/4W 1%	
R55	106492011	RESISTOR	64.9 Kohm	METAL FILM 1/4W 1%	
R46	101002011	RESISTOR	10.0 Kohm	METAL FILM 1/4W 1%	
R56	101133011	RESISTOR	113 Kohm	METAL FILM 1/4W 1%	
R47	105901011	RESISTOR	5.90 Kohm	METAL FILM 1/4W 1%	
R57	102003011	RESISTOR	200 Kohm	METAL FILM 1/4W 1%	
R48	103321011	RESISTOR	3.32 Kohm	METAL FILM 1/4W 1%	
R58	103653011	RESISTOR	365 Kohm	METAL FILM 1/4W 1%	
R49	101871011	RESISTOR	1.87 Kohm	METAL FILM 1/4W 1%	
R59	106813011	RESISTOR	681 Kohm	METAL FILM 1/4W 1%	
R50	109760011	RESISTOR	976 ohm	METAL FILM 1/4W 1%	
R60	101334011	RESISTOR	1.33 Mohm	METAL FILM 1/4W 1%	
R51	104990011	RESISTOR	499 ohm	METAL FILM 1/4W 1%	
R61	102614011	RESISTOR	2.61 Mohm	METAL FILM 1/4W 1%	
R52	102490011	RESISTOR	249 ohm	METAL FILM 1/4W 1%	
R53	102210011	RESISTOR	221 ohm	METAL FILM 1/4W 1%	
R62	105234011	RESISTOR	5.23 Mohm	METAL FILM 1/4W 1%	

.7 - 1.0μ

INFRARAIL SPECIAL NUMBER DEMO CONTINUED,

PRODUCTION INSTRUCTIONS:

START WITH A STANDARD MODEL DNS02-18F SENSOR AND MAKE THE FOLLOWING CHANGES:
IF NO CHANGES ARE LISTED, THEN BUILD THE STANDARD SENSOR LISTED ABOVE.

START WITH A STANDARD MODEL DNS02-18F ELECTRONIC MODULE AND MODIFY THE
M1 LINEARIZER MODULE PER PAGE 3 ATTACHED.

CALIBRATION INSTRUCTIONS:

CALIBRATE AS A STANDARD MODEL.

LINEARIZER ACCURACY FOR THIS SPECIAL IS 0.5%.

REFERENCE I_{scZS}	0.003 μ AMPS
REFERENCE I_{scFS}	1.200 μ AMPS

MANUAL INSTRUCTIONS:

GENERIC INFRARAIL SERIES MANUAL.

PAGE 1 OF 4
DATE :09-24-2002
REVISION:
W.O.NO :
CUSTOMER:
LOCATION:
LOCATION:

INFRARAIL SPECIAL NUMBER DEMO

PURPOSE AND DESCRIPTION:

CUSTOMER REQUIRES A SPECIAL TEMPERATURE RANGE IFRARAIL MODEL 'S' SERIES
PYROMETER AS FOLLOWS:

MODEL: DNS02-99
RANGE: 1150 - 2000 DEG. F
OPTICAL RESOLUTION: D/20

GENERALITY OF APPLICATON AND RESTRICTIONS:

RESTRICTIONS: CALIBRATION ACCURACY IS 1.0% FOR THIS SPECIAL.

UNRESTRICTED: SUITABLE FOR USE WITH ALL STANDARD OPTIONS.

WRITTEN BY: _____

APPROVED BY: _____ DATE: _____

Temperature range: 1150 TO 2000 degrees F
Spectrum: 0.70 TO 1.00 Microns
(current output is nonlinear with Planck)

Temp.in Deg. F	% Signal	Iout in uamps
1150.0	0.233	0.0028
1175.0	0.304	0.0036
1200.0	0.392	0.0047
1225.0	0.503	0.0060
1250.0	0.641	0.0077
1275.0	0.812	0.0097
1300.0	1.021	0.0122
1325.0	1.275	0.0153
1350.0	1.584	0.0190
1375.0	1.957	0.0235
1400.0	2.404	0.0289
1425.0	2.938	0.0353
1450.0	3.573	0.0429
1475.0	4.324	0.0519
1500.0	5.207	0.0625
1525.0	6.244	0.0749
1550.0	7.454	0.0895
1575.0	8.862	0.1063
1600.0	10.494	0.1259
1625.0	12.378	0.1485
1650.0	14.545	0.1745
1675.0	17.030	0.2044
1700.0	19.870	0.2384
1725.0	23.106	0.2773
1750.0	26.780	0.3214
1775.0	30.941	0.3713
1800.0	35.640	0.4277
1825.0	40.930	0.4912
1850.0	46.871	0.5625
1875.0	53.526	0.6423
1900.0	60.961	0.7315
1925.0	69.247	0.8310
1950.0	78.462	0.9415
1975.0	88.684	1.0642
2000.0	100.000	1.2000

Temperature range: 1150 TO 2000 degrees F
Spectrum: 0.70 TO 1.08 Microns
(current output is nonlinear with Planck)

Temp.in Deg. F	% Signal	Iout in uamps
1150.0	0.345	0.0041
1175.0	0.441	0.0053
1200.0	0.561	0.0067
1225.0	0.707	0.0085
1250.0	0.887	0.0106
1275.0	1.105	0.0133
1300.0	1.368	0.0164
1325.0	1.684	0.0202
1350.0	2.063	0.0248
1375.0	2.513	0.0302
1400.0	3.046	0.0365
1425.0	3.673	0.0441
1450.0	4.410	0.0529
1475.0	5.270	0.0632
1500.0	6.271	0.0753
1525.0	7.432	0.0892
1550.0	8.771	0.1053
1575.0	10.313	0.1238
1600.0	12.080	0.1450
1625.0	14.098	0.1692
1650.0	16.398	0.1968
1675.0	19.008	0.2281
1700.0	21.962	0.2635
1725.0	25.296	0.3036
1750.0	29.048	0.3486
1775.0	33.259	0.3991
1800.0	37.973	0.4557
1825.0	43.236	0.5188
1850.0	49.097	0.5892
1875.0	55.609	0.6673
1900.0	62.829	0.7539
1925.0	70.814	0.8498
1950.0	79.627	0.9555
1975.0	89.332	1.0720
2000.0	100.000	1.2000

Temperature range: 1150 TO 2000 degrees F
Spectrum: 1.49 TO 1.60 Microns
(current output is nonlinear with Planck)

Temp.in Deg. F	% Signal	Iout in uamps
1150.0	2.744	0.0237
1175.0	3.217	0.0278
1200.0	3.753	0.0325
1225.0	4.359	0.0377
1250.0	5.040	0.0436
1275.0	5.804	0.0502
1300.0	6.657	0.0576
1325.0	7.605	0.0658
1350.0	8.658	0.0749
1375.0	9.821	0.0850
1400.0	11.103	0.0960
1425.0	12.511	0.1082
1450.0	14.054	0.1216
1475.0	15.741	0.1362
1500.0	17.579	0.1521
1525.0	19.577	0.1693
1550.0	21.744	0.1881
1575.0	24.089	0.2084
1600.0	26.620	0.2303
1625.0	29.348	0.2539
1650.0	32.280	0.2792
1675.0	35.427	0.3064
1700.0	38.797	0.3356
1725.0	42.399	0.3668
1750.0	46.244	0.4000
1775.0	50.339	0.4354
1800.0	54.695	0.4731
1825.0	59.320	0.5131
1850.0	64.224	0.5555
1875.0	69.415	0.6004
1900.0	74.903	0.6479
1925.0	80.697	0.6980
1950.0	86.805	0.7509
1975.0	93.237	0.8065
2000.0	100.000	0.8650

Temperature range: 1150 TO 2000 degrees F
Spectrum: 1.49 TO 1.60 Microns
(current output is nonlinear with Planck)

Temp.in Deg. F	% Signal	Iout in uamps
1150.0	2.744	0.0274
1175.0	3.217	0.0322
1200.0	3.753	0.0375
1225.0	4.359	0.0436
1250.0	5.040	0.0504
1275.0	5.804	0.0580
1300.0	6.657	0.0666
1325.0	7.605	0.0761
1350.0	8.658	0.0866
1375.0	9.821	0.0982
1400.0	11.103	0.1110
1425.0	12.511	0.1251
1450.0	14.054	0.1405
1475.0	15.741	0.1574
1500.0	17.579	0.1758
1525.0	19.577	0.1958
1550.0	21.744	0.2174
1575.0	24.089	0.2409
1600.0	26.620	0.2662
1625.0	29.348	0.2935
1650.0	32.280	0.3228
1675.0	35.427	0.3543
1700.0	38.797	0.3880
1725.0	42.399	0.4240
1750.0	46.244	0.4624
1775.0	50.339	0.5034
1800.0	54.695	0.5469
1825.0	59.320	0.5932
1850.0	64.224	0.6422
1875.0	69.415	0.6942
1900.0	74.903	0.7490
1925.0	80.697	0.8070
1950.0	86.805	0.8681
1975.0	93.237	0.9324
2000.0	100.000	1.0000

DATE: 09-24-2002
REV:A

INFRARAIL SPECIAL NUMBER DEMO

TEMPERATURE RANGE: 1150 TO 2000 DEGREES F
SPECTRUM: 0.70 TO 1.00 MICRONS
(Planck Output)

TEMPERATURE DEGREES F	SENSOR OUTPUT IN uAMPS	INDICATOR OUTPUT mAMPS
1150.0	0.0028	4.000
1175.0	0.0036	4.471
1200.0	0.0047	4.941
1225.0	0.0060	5.412
1250.0	0.0077	5.882
1275.0	0.0097	6.353
1300.0	0.0122	6.824
1325.0	0.0153	7.294
1350.0	0.0190	7.765
1375.0	0.0235	8.235
1400.0	0.0289	8.706
1425.0	0.0353	9.176
1450.0	0.0429	9.647
1475.0	0.0519	10.118
1500.0	0.0625	10.588
1525.0	0.0749	11.059
1550.0	0.0895	11.529
1575.0	0.1063	12.000
1600.0	0.1259	12.471
1625.0	0.1485	12.941
1650.0	0.1745	13.412
1675.0	0.2044	13.882
1700.0	0.2384	14.353
1725.0	0.2773	14.824
1750.0	0.3214	15.294
1775.0	0.3713	15.765
1800.0	0.4277	16.235
1825.0	0.4912	16.706
1850.0	0.5625	17.176
1875.0	0.6423	17.647
1900.0	0.7315	18.118
1925.0	0.8310	18.588
1950.0	0.9415	19.059
1975.0	1.0642	19.529
2000.0	1.2000	20.000

DINRAIL SENSOR w/
VACTEC VTV 5051 Detector

9/24/02
AD

TBB. °F	Isc
1100 °F	1.14 nA
2000 °F	.890 μ A

- P1-F2 F. OPTIC REIMAGING lens
- L120FA5 - 3 meter (10F) F. optic cable 4 μ
- L120FA1 - 3 meter (10F) F. optic 1.6 μ
- F.O. cable = 610942 (1.6 μ)
- F.O. cable = 610732 (4 μ)

09/23/02 01:07 PM



INFRARAIL CALIBRATION TEST REPORT

TECHNICIAN# 639

SERIAL# 0

MODEL# DNFFB-99F

SPECIAL# R999

FULL SCALE 1800F

FS CURRENT= 103.800 μ A

λ_{max} = 1.00

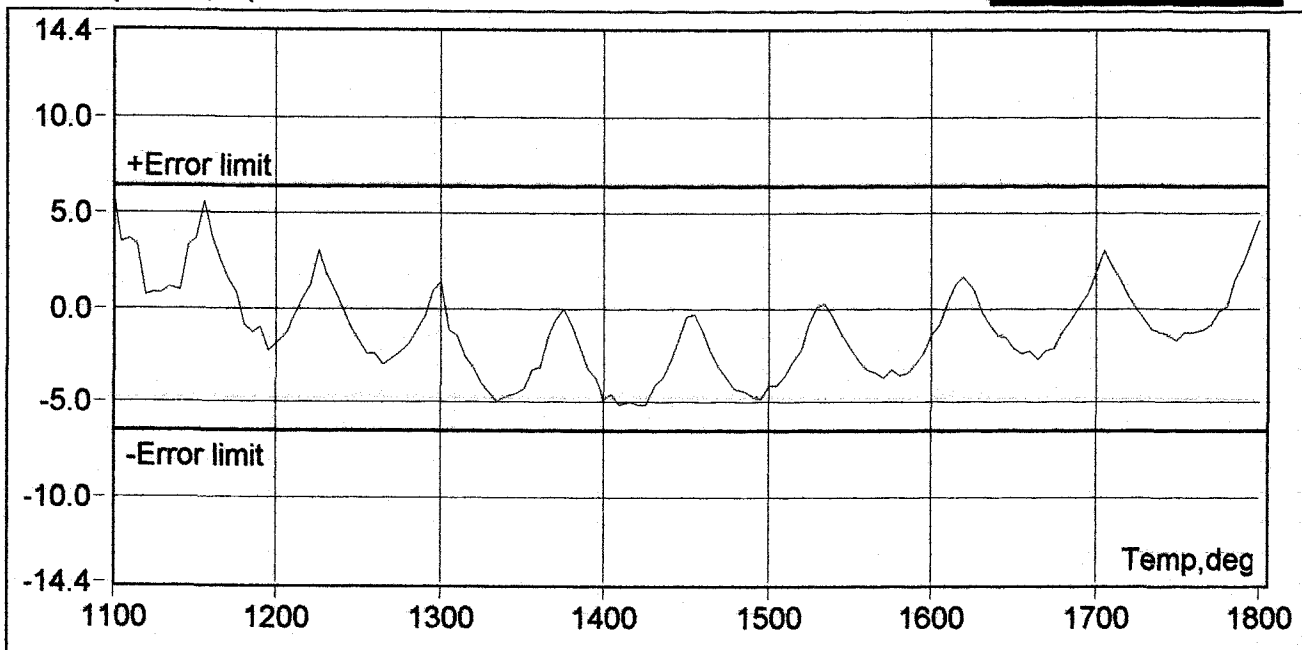
ZERO SCALE 1100F

ZS CURRENT= 0.390 μ A

λ_{min} = 0.70

TEST NAME	SPEC.	TEST RESULT	EVAL
1. REFERENCE 3.2 V	3.2 \pm 0.005 V	3.200	P
2. CURRENT OUTPUT	4 \pm 0.05 mA	3.98	F
	20 \pm 0.05 mA	19.92	
3. LINEARIZER TEST			P
4. EMISSIVITY CONTROL			P
5. RESPONSE TIME	10 \pm 2 S	10.0	P
	10 \pm 2 mS	11.0	
6. P-P DECAY RATE	< 0.05%	0.049	P
	5 - 6.5 %	6.2	

Temp. Error, deg



Tech# _____

DATE _____

QA# _____

1.49 - 1.60 μ Detector of Fiber optic

TBB °F
ISC (Sensor)

2000	0.5 μA .865 μ A
1900	.647 μ A
1800	.472 μ A
1700	.336 μ A
1600	.230 μ A
1500	.152 μ A
1400	.09 μ A
1300	60.5 nA
1200	68.5 μA 33.7 nA

ENGINEERING
TEST

- 1 μ Detector
- P1-P2 Reimaging lens (D/co)
- 10 FT 1 μ Fiber optic cable

1 μ sensor
ISC (sensor)

2000 °F	1.20 μ A
1900 °F	.7890 μ A
1800 °F	.462 μ A
1700 °F	.264 μ A
1600 °F	.135 μ A

TBB °F

ISC

1500	71.2 nA
1400	37.5 nA
1300	
1200	11.3 nA
1150	9.4 nA
1100	8.00 nA

Q110985 2/20 Fiber Optic

D11195 - 'F' Series

C11204 - 'S' Series

C11203 - 'S' Series 1M

C11201 - 'E' Series

C11197 - 'S' Series E10A1

ASSY

IRCON INC
Single Level Bill Of Materials
Effectivity Date : 04-02-2001
Phantoms Exploded
C11203 - SH REAR PLT (OPTICAL) ASS

LI Item.. X	Part Number..	Rev	Quantity.	Alt-Part....	Reference Designator.....	UM.	ECO No.	ECO Date..	Start Use..
	Description		Inv	Oper.			Yield%		End Use...
P	C11203	F	1.0000						
	SH REAR PLT (OPTICAL) ASS								
2	T-C11203-1		0.0000				EA	3646	02-28-1996
	SELECT RETICLE (1.6 MICRO								
3	431312	D	1.0000	11	2		EA	100.00	
	LENS RETICLE SPACER 6								
4	432652		1.0000	10	11		EA	3646	02-28-1996
	O RING .75ID X .875OD #18								
5	610132	B	1.0000	10	3		EA	100.00	
	FIELD LENS ALL M1 SERIES								
6	450022	D	1.0000	10	4		EA	3646	02-28-1996
	RETAINING RING FIELD LENS								
7	P B11131	A	1.0000	10	5		EA	100.00	
	FOLDING MIRROR ASSY (1.6								
1	P L13005	A	1.0000	9	6		EA	100.00	
	FOLDING MIRROR 1.6 MICRON								
1	PC 441522	C	1.0000	1	1		EA	100.00	
	FOLDING MIRROR PLATE 6000								
2	PC 630132	A	1.0000	1	2		EA	100.00	
	MIRROR, DICHOIC 1.6 MICR								
3	PC 990100002		1.0000	1	3		EA	100.00	
	EPOXY HARDMAN #4005 GEN P								
2	PC T-B11131-X		0.0000	9			EA	100.00	
	FLOW TAG TEXT								
8	20061293P		2.0000	10	7		EA	3646	02-28-1996
	SCREW #6-32 X 3/8 PH PHL								
9	610262		1.0000	10	8		EA	100.00	02-28-1996
	EYE LENS 2000/6000 SERIES								
10	410242		1.0000	10	9		EA	3646	02-28-1996
	RETAINING RING 0.482 X 0.								
11	990100002		1.0000	10	12		EA	3646	02-28-1996
	EPOXY HARDMAN #4005 GEN P								

	NOTE: ALIGNMENT OF DETECTOR MTG								
	BLOCK MUST BE DONE BEFORE EPOXY								
	(ITEM 12) IS APPLIED..**								
	(SEE DRAWING FOR PROCEDURE)								

12	990100001	B	1.0000	10	15		EA	3646	02-28-1996
	ADHESIVE LOCTITE 222								
13	640552	A	1.0000	10	13		EA	3646	02-28-1996
	FILTER, BANDPASS								
14	431342	A	1.0000	10	14		EA	3646	02-28-1996
	DET. RETAINER TO-5								
15	990100039	A	AR	10	21		AR	100.00	
	ADHESIVE LORD 310 A/B								

104 - LDN/05
C11206
LDN: ~~106~~ 106

LI Item.. X	..Part Number.. Description	Rev	Quantity. Inv	Alt-Part.... Oper.	.....Reference Designator.....	.UM.	ECO No. Yield%	ECO Date..	Start Use. End Use...
	P D11195	C	1.0000				EA		
	SH ASSEMBLY (F-SERIES) (IN								
1	454143	D	1.0000				EA	3709	05-17-1996
	F-HEAD SENSOR			10	1		100.00		
2	640362		1.0000				EA	3709	05-17-1996
	FILTER RG715			10	2		100.00		
3	990100034		1.0000				EA	3709	05-17-1996
	ADHESIVE OPTICAL CEMENT S			10	12		100.00		
4	640462		1.0000				EA	3709	05-17-1996
	FILTER BANDPASS 0.7-1.0U			10	3		100.00		
5	990100009		1.0000				EA	3709	05-17-1996
	ADHESIVE CYANOACRYLATE BLK			10	13		100.00		
6	P C11208	B	1.0000				EA	3709	05-17-1996
	SH DETECTOR ASSEMBLY (F-S			5	4		100.00		
7	220403200		4.0000				EA	3709	05-17-1996
	WASHER #4 LOCK SPLIT RING			10	5		100.00		
8	200412440		4.0000				EA	3709	05-17-1996
	SCREW #4-40 X 3/8 FIL SLO			10	6		100.00		
9	454152	C	1.0000				EA	3709	05-17-1996
	SCREW, ADJUSTMENT,			10	7		100.00		
10	433372		1.0000				EA	3709	05-17-1996
	O RING 3/32 X 7/32 X 1/16			10	8		100.00		
11	20100874F		1.0000				EA	3709	05-17-1996
	SCREW #10-32 X 1/4 SOCKET			10	9		100.00		
12	220602200		1.0000				EA	3709	05-17-1996
	WASHER #6 LOCK EXT TOOTH			10	16		100.00		
13	200606040		1.0000				EA	3709	05-17-1996
	SCREW #6-32 X 3/16 PH SLO			10	17		100.00		
14	474772	B	1.0000				EA	3709	05-17-1996
	LABEL GROUND WARNING			10	18		100.00		
15	477142	A	1.0000				EA	3709	05-17-1996
	LABEL, SERIAL NUMBER, SEN			10	14		100.00		
16	454242		1.0000				EA	3709	05-17-1996
	NUT RETAINING S.S. E/F-HE			10	10		100.00		
17	T-D11195-1		0.0000				EA	3709	05-17-1996
	SELECT FIBER OPTIC LIGHT			14	15		100.00		
18	T-D11195-3		0.0000				EA		
	F-SERIES (GT) FIB OPT			14	15		100.00		
	THIS TABLE IS USED ON "GT" SERIES								
19	P ENGTEXT		1.0000				EA		
	ENG CONTROLLED TEXT			10			100.00		
	NOTE: THE FOLLOWING PARTS ARE TO BE INSTALLED AFTER CAL.								
20	999900013		1.0000				EA	3709	05-17-1996
	CAP PLUG #SC-1-1/4			10	11		100.00		
21	990100028	A	1.0000				EA	3709	05-17-1996
	SEALANT RTV SILICONE BLAC			10	19		100.00		

IRCON INC
Single Level Bill Of Materials
Effectivity Date : 04-02-2001
Phantoms Exploded
C11203 - SH REAR PLT (OPTICAL) ASS

LI Item.. X	Part Number..	Rev	Quantity..	Alt-Part....	Reference Designator.....	UM.	ECO No.	ECO Date..	Start Use..
	Description		Inv	Oper.			Yield*		End Use...
	P C11203	F	1.0000				EA		
	SH REAR PLT (OPTICAL) ASS								
1	P C11204	C	1.0000				EA	3646	02-28-1996
	SH REAR PLT BASIC MECH/ W								
1	X 442913	I	1.0000	6	1		EA	3682	06-10-1996
	REAR PLATE SH FINISHED 11								
2	PC 430292	D	1.0000	10	1		EA	3682	06-10-1996
	CONN. GASKET 2000 SERIES								
3	PC 575892		1.0000	10	2		EA	3682	06-10-1996
	CONN. CIRC 3 RECPT 10SL-3								
4	PC 220403030		4.0000	10	3		EA	3682	06-10-1996
	WASHER #4 LOCK SPLIT RING								
5	PC 200412040		3.0000	10	4		EA	3682	06-10-1996
	SCREW #4-40 X 3/8 PH SLOT								
6	PC 570892		1.0000	10	5		EA	3682	06-10-1996
	CAP W/CHAIN EYE LENS COVE								
7	PC 200416031		1.0000	10	6		EA	3682	06-10-1996
	SCREW #4-40 X 1/2 PH SLOT								
8	PC 474772	B	1.0000	10	7		EA	3682	06-10-1996
	LABEL GROUND WARNING								
9	PC 330000005		1.0000	10	9		EA	3682	06-10-1996
	CABLE MOUNT BASE #8 SCREW								
10	PC 200612140		1.0000	10	10		EA	3682	06-10-1996
	SCREW #6-32 X 3/8 BH SLOT								
11	PC 220601030		3.0000	10	11		EA	3682	06-10-1996
	WASHER #6 LOCK INT TOOTH								
12	PC T-C11204-1		0.0000	10	12		EA	3682	06-10-1996
	SELECT DET. MOUNTING BLK								
13	PC 200616140		2.0000	10	13		EA	3682	06-10-1996
	SCREW #6-32 X 1/2 BH SLOT								
14	PC 220600030		2.0000	10	14		EA	3682	06-10-1996
	WASHER #6 FLAT 3/8OD								
15	PC T-C11204-2		0.0000	10	15		EA	3682	06-10-1996
	SELECT DETECTOR ASSY (S-S)								
16	PC 312430100		1.0000	10	16		EA	3682	06-10-1996
	WIRE 24AWG BARE SOLID								
					20		IN	3682	06-10-1996
								100.00	
									CUT (1) PIECE 1/2 INCHES LONG
17	PC 330000001	A	1.0000	95-1031	17		EA	3682	06-10-1996
	TYWRAP SMALL								
2	T-C11203-1		0.0000	10	19		EA	3646	02-28-1996
	SELECT RETICLE (1.6 MICRO								
3	431312	D	1.0000	11	2		EA	3646	02-28-1996
	LENS RETICLE SPACER 6								
4	432652		1.0000	10	11		EA	3646	02-28-1996
	O RING .75ID X .875OD #18								
5	610132	B	1.0000	10	3		EA	3646	02-28-1996
	FIELD LENS ALL M1 SERIES								
6	450022	D	1.0000	10	4		EA	3646	02-28-1996
	RETAINING RING FIELD LENS								
7	P B11131	A	1.0000	10	5		EA	3646	02-28-1996
	FOLDING MIRROR ASSY (1.6								
1	P L13005	A	1.0000	9	6		EA	100.00	
	FOLDING MIRROR 1.6 MICRON								
1	PC 441522	C	1.0000				EA	100.00	
	FOLDING MIRROR PLATE 6000								
2	PC 630132	A	1.0000	1	1		EA	100.00	
	MIRROR, DICHOIC 1.6 MICR								
3	PC 990100002		1.0000	1	2		EA	100.00	
	EPOXY HARDMAN #4005 GEN P								
2	PC T-B11131-X		0.0000	1	3		EA	100.00	
	FLOW TAG TEXT								
8	20061293P		2.0000	9			EA	3646	02-28-1996
	SCREW #6-32 X 3/8 PH PHL								
9	610262		1.0000	10	7		EA	3646	02-28-1996
	EYE LENS 2000/6000 SERIES								
10	410242		1.0000	10	8		EA	3646	02-28-1996
	RETAINING RING 0.482 X 0.								
				10	9		EA	3646	02-28-1996
								100.00	

IRCON INC
 Single Level Bill Of Materials
 Effectivity Date : 04-02-2001
 Phantoms Exploded
 C11203 - SH REAR PLT (OPTICAL) ASS

LI Item.. X	..Part Number.. Description	Rev	Quantity. Inv	Alt-Part.... Oper.	.....Reference Designator.....	.UM.	ECO No. Yield%	ECO Date..	Start Use. End Use...
11	990100002 EPOXY HARDMAN #4005 GEN P		1.0000	10	12	EA	3646 100.00	02-28-1996	
***** NOTE: ALIGNMENT OF DETECTOR MTG BLOCK MUST BE DONE BEFORE EPOXY (ITEM 12) IS APPLIED.*** (SEE DRAWING FOR PROCEDURE) *****									
12	990100001 ADHESIVE LOCTITE 222	B	1.0000	10	15	EA	3646 100.00	02-28-1996	
13	640552 FILTER, BANDPASS	A	1.0000	10	13	EA	3646 100.00	02-28-1996	
14	431342 DET. RETAINER TO-5	A	1.0000	10	14	EA	3646 100.00	02-28-1996	
15	990100039 ADHESIVE LORD 310 A/B	A	AR	10	21	AR	100.00		

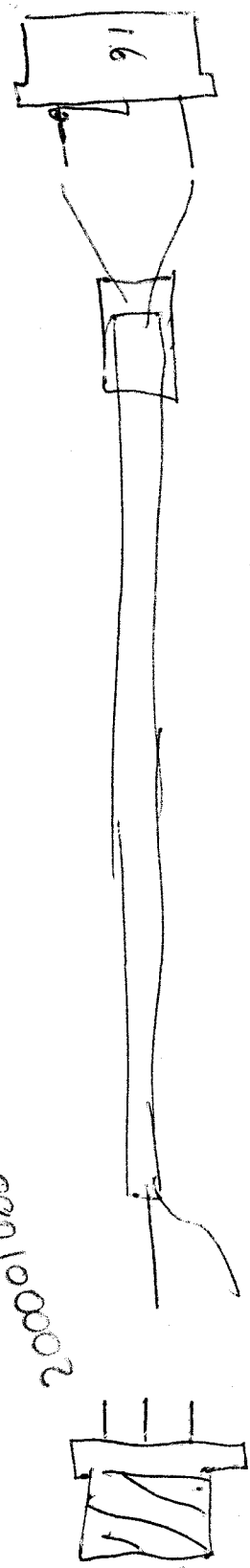
<u>T_{BB}</u>	<u>I_{out}</u>	<u>T_{ind}</u>
2000	(set) 20.00 mA	2000°F
1950	19.03	1945
1900	18.21	1899
1850	17.28	1847
1800	16.39	1797
1750	15.55	1750
1700	14.63	1698
1650	13.75	1648
1600	12.83	1597
1550	11.98	1549
1500	11.03	1495
1450	10.25	1452
1400	9.31	1399
1350	8.41	1348
1300	7.64	1305
1250	6.65	1249
1200	5.81	1202
1150	4.910	1151
1100	4.00 (set)	1100

9/25/02

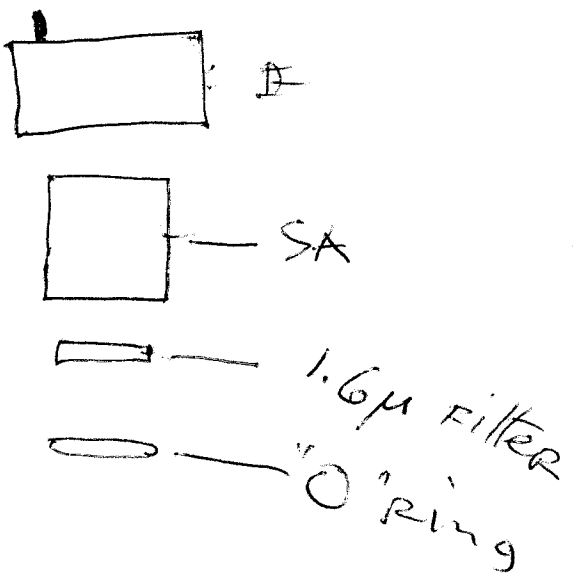
This was the
FINAL CAL. check

Pin

F Series



Epox # 990100002
 HX1000000



21/251
 21/251

Assess per

#

09/25/02 12:49 PM



INFRARAIL CALIBRATION TEST REPORT

TECHNICIAN# 639

SERIAL# 0

MODEL# DNFFB-99F

SPECIAL# R733

FULL SCALE 2000F

FS CURRENT= 0.897 uA

λ_{max} = 1.60

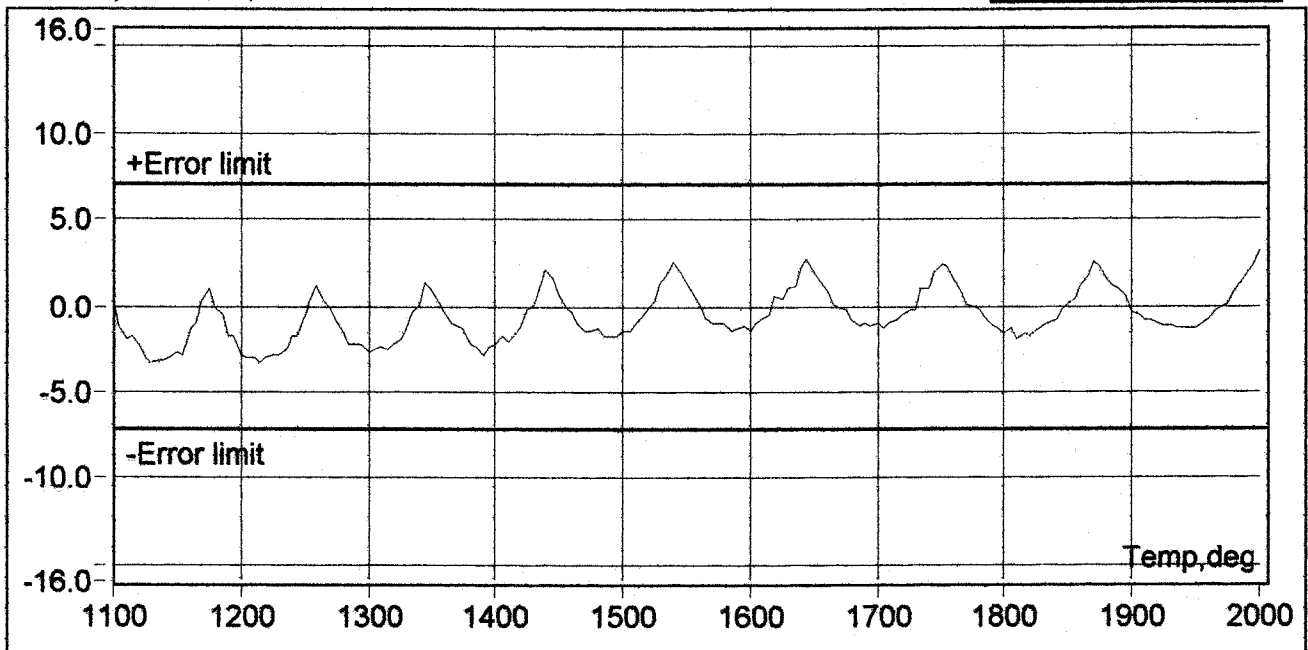
ZERO SCALE 1100F

ZS CURRENT= 0.018 uA

λ_{min} = 1.49

TEST NAME	SPEC.	TEST RESULT	EVAL
1. REFERENCE 3.2 V	3.2 \pm 0.005 V	3.200	P
2. CURRENT OUTPUT	4 \pm 0.05 mA	4.33	P
	20 \pm 0.05 mA	20.00	
3. LINEARIZER TEST			P
4. EMISSIVITY CONTROL			P
5. RESPONSE TIME	10 \pm 2 S	9.3	P
	10 \pm 2 mS	11.0	
6. P-P DECAY RATE	< 0.05%	0.039	P
	5 - 6.5 %	6.6	

Temp. Error, deg



Tech# _____

DATE _____

QA# _____

DATE: 09-25-2002

REV:A

INFRARAIL SPECIAL NUMBER R733

TEMPERATURE RANGE: 1100 TO 2000 DEGREES F
SPECTRUM: 1.49 TO 1.60 MICRONS
(Planck Output)

TEMPERATURE DEGREES F	SENSOR OUTPUT IN uAMPS	INDICATOR OUTPUT mAMPS
1100.0	0.0176	4.000
1125.0	0.0209	4.444
1150.0	0.0246	4.889
1175.0	0.0289	5.333
1200.0	0.0337	5.778
1225.0	0.0391	6.222
1250.0	0.0452	6.667
1275.0	0.0521	7.111
1300.0	0.0597	7.556
1325.0	0.0682	8.000
1350.0	0.0777	8.444
1375.0	0.0881	8.889
1400.0	0.0996	9.333
1425.0	0.1122	9.778
1450.0	0.1261	10.222
1475.0	0.1412	10.667
1500.0	0.1577	11.111
1525.0	0.1756	11.556
1550.0	0.1950	12.000
1575.0	0.2161	12.444
1600.0	0.2388	12.889
1625.0	0.2632	13.333
1650.0	0.2896	13.778
1675.0	0.3178	14.222
1700.0	0.3480	14.667
1725.0	0.3803	15.111
1750.0	0.4148	15.556
1775.0	0.4515	16.000
1800.0	0.4906	16.444
1825.0	0.5321	16.889
1850.0	0.5761	17.333
1875.0	0.6227	17.778
1900.0	0.6719	18.222
1925.0	0.7239	18.667
1950.0	0.7786	19.111
1975.0	0.8363	19.556
2000.0	0.8970	20.000

09/25/02 11:55 AM



INFRARAIL CALIBRATION TEST REPORT

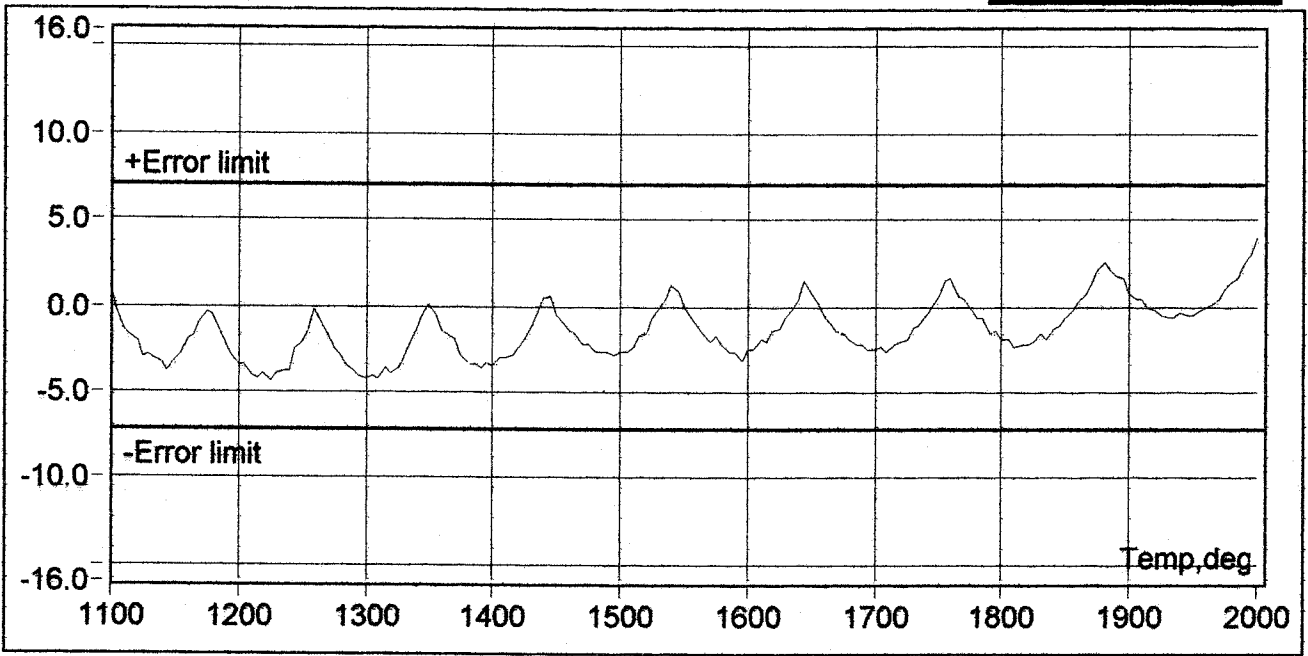
TECHNICIAN# 639 SERIAL# 0

MODEL# DNFFB-99F SPECIAL# ~~R005~~ K733

FULL SCALE 2000	FS CURRENT= 0.897 uA	λ_{max} = 1.60
ZERO SCALE 1100	ZS CURRENT= 0.018 uA	λ_{min} = 1.49

TEST NAME	SPEC.	TEST RESULT	EVAL
1. REFERENCE 3.2 V	3.2 \pm 0.005 V	3.200	P
2. CURRENT OUTPUT	4 \pm 0.05 mA	4.00	P
	20 \pm 0.05 mA	19.99	
3. LINEARIZER TEST			P
4. EMISSIVITY CONTROL			P
5. RESPONSE TIME	10 \pm 2 S	10.2	P
	10 \pm 2 mS	11.0	
6. P-P DECAY RATE	< 0.05%	0.032	P
	5 - 6.5 %	6.0	

Temp. Error, deg



Tech# _____ DATE _____ QA# _____

PAGE 1 OF 4

DATE: 09-25-2002
REV. : A
W.O. No: INTERNAL
CUSTOMER: IRCON
LOCATION: NILES
LOCATION: ILLINOIS

INFRARAIL SPECIAL NUMBER R733

PURPOSE AND DESCRIPTION:

CUSTOMER REQUIRES A SPECIAL TEMPERATURE RANGE FIBER OPTIC INFRARAIL PYROMETER WITH SPECIAL OPTICAL RESOLUTION AND SPECTRAL RESPONSE.

MODEL: DNFFB-99F
RANGE: 1100 - 2000 DEG. F
OPTICAL RESOLUTION: D/60
FIBER OPTIC CABLE: 10 FEET
SPECTRUM: 1.49 - 1.60 MICRON

GENERALITY OF APPLICATION AND RESTRICTIONS:

MAXIMUM SENSOR AMBIENT TEMPERATURE IS RESTRICTED TO 140 DEGREES F (60 DEG. C).

UNRESTRICTED, USE WITH ALL AVAILABLE OPTIONS.

Reming
lens
P2-F3
 Need
 D/30x D/50
 G-10-1
~~10~~
OK
possible

CALIBRATION RECORD
FIBER OPTIC DINRAIL SPECIAL R733
 9/26/2002 A.D.

MODEL: DNFFB-99F
 RANGE: 1100-2000 DEG. F
 OPTICAL RESOLUTION: D/60
 FIBER OPTIC LENGTH: 10 FEET
 SPECTRAL RESPONSE: 1.49 - 1.60 U

<u>Black Body Temp.</u> <u>Degrees F</u>	<u>System Output</u> <u>Milli Amps</u>	<u>Equivalent</u> <u>Temperature</u>
1100	4.000 (Set)	1100
1150	4.910	1151
1200	5.810	1202
1250	6.650	1249
1300	7.640	1305
1350	8.410	1348
1400	9.310	1399
1450	10.250	1452
1500	11.030	1495
1550	11.980	1549
1600	12.830	1597
1650	13.750	1648
1700	14.630	1698
1750	15.550	1750
1800	16.390	1797
1850	17.280	1847
1900	18.210	1899
1950	19.030	1945
2000	20.000 (Set)	2000

Equivalent Temp. = $\frac{\text{Output} - 4}{16} \times (900) + 1100$

9/20/02
A.D.

FOR DOING SPECIAL INFRARED FIBER OPTIC

1. QUOTE SPECIAL RANGE
AND GET ISC FULLSCALE CURRENT
IF SPECIAL IS DOABLE.
2. GO TO "DINRAIL2.BAS" PROGRAM AND
SEARCH "SERIES20" LABEL
3. FOR THE CORRECT MODEL (ie OF RC AND
ANY RESOLUTION, TEMPORARILY REPLACE
"IREF" WITH "ISC FULLSCALE" FROM
"QUOTES" PROGRAM.
4. ALSO AND FOR THE SAME RESOLUTION
AS IN STEP 3, CHANGE "TCAL" TO
THE SAME AS THE FULL SCALE TEMPERATURE
OF THE SPECIAL RANGE
5. RUN THE SPECIAL "DINRAIL20" PROGRAM
TO GET PAGE 3 OF 3 (RESISTOR MODULE)
6. GET PAGE 4 OF 4 BY RUNNING "INFRAIL".BAS
PROGRAM. NORMALIZE TO FULL SCALE
CURRENT AND USE ISC FS. CURRENT FROM
"QUOTES" PROGRAM. RUN AS PLANK OUTPL
DO NOT NORMALIZE TO Z.S. CURRENT.

7- DO REST OF PAGES WITH WORD PROCESSOR

**DRAWING(S) TOO LARGE
TO SCAN.**

**TO VIEW THE ORIGINAL
DESIGN,**

**A REQUEST TO VIEW
PHYSICAL FILE
IS YOUR NEXT OPTION.**

CALIBRATION RECORD
FIBER OPTIC DINRAIL SPECIAL R733
9/26/2002 A.D.

MODEL: DNFFB-99F
RANGE: 1100-2000 DEG. F
OPTICAL RESOLUTION: D/60
FIBER OPTIC LENGTH: 10 FEET
SPECTRAL RESPONSE: 1.49 - 1.60 U

<u>Black Body Temp.</u> <u>Degrees F</u>	<u>System Output</u> <u>Milli Amps</u>	<u>Equivalent</u> <u>Temperature</u>
1100	4.000 (Set)	1100
1150	4.910	1151
1200	5.810	1202
1250	6.650	1249
1300	7.640	1305
1350	8.410	1348
1400	9.310	1399
1450	10.250	1452
1500	11.030	1495
1550	11.980	1549
1600	12.830	1597
1650	13.750	1648
1700	14.630	1698
1750	15.550	1750
1800	16.390	1797
1850	17.280	1847
1900	18.210	1899
1950	19.030	1945
2000	20.000 (Set)	2000

SEE REV. B
5/23/03 A.D.

PAGE 1 OF 4

DATE: 05-19-2003
REV.: A
W.O. No: 82747
CUSTOMER: UNITROL ELEC.
LOCATION: NORTHBROOK
LOCATION: ILLINOIS

INFRARAIL SPECIAL NUMBER R733

PURPOSE AND DESCRIPTION:

CUSTOMER REQUIRES A SPECIAL TEMPERATURE RANGE FIBER OPTIC INFRARAIL PYROMETER WITH SPECIAL OPTICAL RESOLUTION AND SPECTRAL RESPONSE.

MODEL: DNFFC-99F
RANGE: 1100 - 2000 DEG. F
OPTICAL RESOLUTION: D/30 X D/150
FIBER OPTIC CABLE: 10 FEET
SPECTRUM: 1.49 - 1.60 MICRON

GENERALITY OF APPLICATION AND RESTRICTIONS:

MAXIMUM SENSOR AMBIENT TEMPERATURE IS RESTRICTED TO 140 DEGREES F (60 DEG. C).

UNRESTRICTED, USE WITH ALL AVAILABLE OPTIONS.

WRITTEN BY: Ami DONADO DATE: 5-19-2003
AMI DONADO

APPROVED BY: Ami DONADO DATE: 5-19-2003

INFRARAIL SPECIAL NUMBER R733 CONTINUED,

PRODUCTION INSTRUCTIONS:

START WITH A STANDARD MODEL DNFFC-25F ELECTRONIC MODULE AND MAKE THE FOLLOWING CHANGES:

BUILD THE M1 LINEARIZER MODULE PER BILL OF MATERIAL ON PAGE 3.

BUILD THE FIBER OPTIC CABLE PER ASSEMBLY NUMBER L120FA1, (10 FT. 1.6 MICRON).

START WITH STANDARD FIBER OPTIC SENSOR MODEL DNFFC-25F AND MAKE THE FOLLOWING CHANGES:

1. BUILD DETECTOR ASSY. # C11207 BUT MAKE THE CABLE (ITEM 2) 2-1/2 INCHES LONG.
2. BUILD DETECTOR LOCATOR PER DRAWING # C11208, DETAIL "A".
3. GLUE DETECTOR/FILTER HOLDER # 433152 TO DETECTOR LOCATOR WITH EPOXY #990100002. LET CURE.
4. WIRE DETECTOR ASSY. TO CONNECTOR # 575892 PER DRAWING # C11208 DETAILS "F" AND "F".
5. ASSEMBLE DETECTOR ASSY., FILTER # 640552 (1.6 u), "O" RING # 433162 AND DETECTOR RETAINER # 431342 INTO DETECTOR/FILTER HOLDER PER DRAWING # C11251.

BUILD SENSOR WITH ABOVE ITEMS PER ASSEMBLY DRAWING NUMBER D11195 BUT OMIT ITEMS # 2 AND 3.

CALIBRATION INSTRUCTIONS:

COMPUTERIZED PRE-CAL PROCEDURE:

SET Iout Head Zero Scale (1100 deg. F) = 0.016 uA
SET Iout Head Full Scale (2000 deg. F) = 0.800 uA
SET THE SPECTRUM TO 1.6 MICRON.

ADJUST PER STANDARD PROCEDURE.

FINAL CALIBRATION:

CALIBRATE PER STANDARD PROCEDURE.

USE TABLE ON PAGE 4 FOR FINAL CALIBRATION.

MANUAL INSTRUCTIONS:

GENERIC INFRARAIL "F" SERIES MANUAL PAGE.
INCLUDE THE RESTRICTIONS LISTED ON PAGE ONE OF THESE DETAIL SHEETS.

INFRARAIL SPECIAL NUMBER R733 CONTINUED,

BILL OF MATERIAL

MODULE M1 REFERENCE DRAWING No. C11194

SYMBOL	PART NO.	DESCRIPTION		
R1	104024011	RESISTOR	4.02 Mohm	METAL FILM 1/4W 1%
R44	101872011	RESISTOR	18.7 Kohm	METAL FILM 1/4W 1%
R54	101503011	RESISTOR	150 Kohm	METAL FILM 1/4W 1%
R45	101132011	RESISTOR	11.3 Kohm	METAL FILM 1/4W 1%
R55	104642011	RESISTOR	46.4 Kohm	METAL FILM 1/4W 1%
R46	109092011	RESISTOR	9.09 Kohm	METAL FILM 1/4W 1%
R56	106492011	RESISTOR	64.9 Kohm	METAL FILM 1/4W 1%
R47	106651011	RESISTOR	6.65 Kohm	METAL FILM 1/4W 1%
R57	109312011	RESISTOR	93.1 Kohm	METAL FILM 1/4W 1%
R48	104871011	RESISTOR	4.87 Kohm	METAL FILM 1/4W 1%
R58	101373011	RESISTOR	137 Kohm	METAL FILM 1/4W 1%
R49	103401011	RESISTOR	3.40 Kohm	METAL FILM 1/4W 1%
R59	102003011	RESISTOR	200 Kohm	METAL FILM 1/4W 1%
R50	102321011	RESISTOR	2.32 Kohm	METAL FILM 1/4W 1%
R60	103013011	RESISTOR	301 Mohm	METAL FILM 1/4W 1%
R51	101541011	RESISTOR	1.54 Kohm	METAL FILM 1/4W 1%
R61	104643011	RESISTOR	464 Kohm	METAL FILM 1/4W 1%
R52	101001011	RESISTOR	1.00 Kohm	METAL FILM 1/4W 1%
R53	101581011	RESISTOR	1.58 Kohm	METAL FILM 1/4W 1%
R62	107323011	RESISTOR	732 Kohm	METAL FILM 1/4W 1%

DATE: 05-19-2003
REV:A

INFRARAIL SPECIAL NUMBER R733

TEMPERATURE RANGE: 1100 TO 2000 DEGREES F
SPECTRUM: 1.49 TO 1.60 MICRONS
(Linear Output)

TEMPERATURE DEGREES F	SENSOR OUTPUT IN mAMPS	INDICATOR OUTPUT mAMPS
1100.0	4.0000	4.000
1150.0	4.1269	4.889
1200.0	4.2916	5.778
1250.0	4.5017	6.667
1300.0	4.7655	7.556
1350.0	5.0921	8.444
1400.0	5.4911	9.333
1450.0	5.9729	10.222
1500.0	6.5481	11.111
1550.0	7.2279	12.000
1600.0	8.0237	12.889
1650.0	8.9475	13.778
1700.0	10.0111	14.667
1750.0	11.2265	15.556
1800.0	12.6058	16.444
1850.0	14.1610	17.333
1900.0	15.9040	18.222
1950.0	17.8465	19.111
2000.0	20.0000	20.000

DATE: 12-26-2002
REV:B

INFRARAIL SPECIAL NUMBER R733

TEMPERATURE RANGE: 1100 TO 2000 DEGREES F
SPECTRUM: 1.49 TO 1.60 MICRONS
(Planck Output)

TEMPERATURE DEGREES F	SENSOR OUTPUT IN uAMPS	INDICATOR OUTPUT mAMPS
1100.0	0.0157	4.000
1125.0	0.0186	4.444
1150.0	0.0220	4.889
1175.0	0.0257	5.333
1200.0	0.0300	5.778
1225.0	0.0349	6.222
1250.0	0.0403	6.667
1275.0	0.0464	7.111
1300.0	0.0533	7.556
1325.0	0.0608	8.000
1350.0	0.0693	8.444
1375.0	0.0786	8.889
1400.0	0.0888	9.333
1425.0	0.1001	9.778
1450.0	0.1124	10.222
1475.0	0.1259	10.667
1500.0	0.1406	11.111
1525.0	0.1566	11.556
1550.0	0.1739	12.000
1575.0	0.1927	12.444
1600.0	0.2130	12.889
1625.0	0.2348	13.333
1650.0	0.2582	13.778
1675.0	0.2834	14.222
1700.0	0.3104	14.667
1725.0	0.3392	15.111
1750.0	0.3699	15.556
1775.0	0.4027	16.000
1800.0	0.4376	16.444
1825.0	0.4746	16.889
1850.0	0.5138	17.333
1875.0	0.5553	17.778
1900.0	0.5992	18.222
1925.0	0.6456	18.667
1950.0	0.6944	19.111
1975.0	0.7459	19.556
2000.0	0.8000	20.000

INFRARAIL SPECIAL NUMBER R733 CONTINUED,

BILL OF MATERIAL

MODEL: DNS02-99F

MODULE M1 (Reference Drawing No. C11194).

SYMBOL	PART NO.	DESCRIPTION		
R1	103574011	RESISTOR	3.57 Mohm	METAL FILM 1/4W 1%
R44	101872011	RESISTOR	18.7 Kohm	METAL FILM 1/4W 1%
R54	101503011	RESISTOR	150 Kohm	METAL FILM 1/4W 1%
R45	101132011	RESISTOR	11.3 Kohm	METAL FILM 1/4W 1%
R55	104642011	RESISTOR	46.4 Kohm	METAL FILM 1/4W 1%
R46	109091011	RESISTOR	9.09 Kohm	METAL FILM 1/4W 1%
R56	106492011	RESISTOR	64.9 Kohm	METAL FILM 1/4W 1%
R47	106651011	RESISTOR	6.65 Kohm	METAL FILM 1/4W 1%
R57	109312011	RESISTOR	93.1 Kohm	METAL FILM 1/4W 1%
R48	104871011	RESISTOR	4.87 Kohm	METAL FILM 1/4W 1%
R58	101373011	RESISTOR	137 Kohm	METAL FILM 1/4W 1%
R49	103401011	RESISTOR	3.40 Kohm	METAL FILM 1/4W 1%
R59	102003011	RESISTOR	200 Kohm	METAL FILM 1/4W 1%
R50	102321011	RESISTOR	2.32 Kohm	METAL FILM 1/4W 1%
R60	103013011	RESISTOR	301 Kohm	METAL FILM 1/4W 1%
R51	101541011	RESISTOR	1.54 Kohm	METAL FILM 1/4W 1%
R61	104643011	RESISTOR	464 Kohm	METAL FILM 1/4W 1%
R52	101001011	RESISTOR	1.00 Kohm	METAL FILM 1/4W 1%
R53	101581011	RESISTOR	1.58 Kohm	METAL FILM 1/4W 1%
R62	107323011	RESISTOR	732 Kohm	METAL FILM 1/4W 1%

DATE: 09-25-2002
REV:A

INFRARAIL SPECIAL NUMBER R733

TEMPERATURE RANGE: 1100 TO 2000 DEGREES F
SPECTRUM: 1.49 TO 1.60 MICRONS
(Planck Output)

TEMPERATURE DEGREES F	SENSOR OUTPUT IN uAMPS	INDICATOR OUTPUT mAMPS
1100.0	0.0176	4.000
1125.0	0.0209	4.444
1150.0	0.0246	4.889
1175.0	0.0289	5.333
1200.0	0.0337	5.778
1225.0	0.0391	6.222
1250.0	0.0452	6.667
1275.0	0.0521	7.111
1300.0	0.0597	7.556
1325.0	0.0682	8.000
1350.0	0.0777	8.444
1375.0	0.0881	8.889
1400.0	0.0996	9.333
1425.0	0.1122	9.778
1450.0	0.1261	10.222
1475.0	0.1412	10.667
1500.0	0.1577	11.111
1525.0	0.1756	11.556
1550.0	0.1950	12.000
1575.0	0.2161	12.444
1600.0	0.2388	12.889
1625.0	0.2632	13.333
1650.0	0.2896	13.778
1675.0	0.3178	14.222
1700.0	0.3480	14.667
1725.0	0.3803	15.111
1750.0	0.4148	15.556
1775.0	0.4515	16.000
1800.0	0.4906	16.444
1825.0	0.5321	16.889
1850.0	0.5761	17.333
1875.0	0.6227	17.778
1900.0	0.6719	18.222
1925.0	0.7239	18.667
1950.0	0.7786	19.111
1975.0	0.8363	19.556
2000.0	0.8970	20.000

DATE: 09-25-2002

REV.: A

W.O. No: INTERNAL

CUSTOMER: IRCON

LOCATION: NILES

LOCATION: ILLINOIS

INFRARAIL SPECIAL NUMBER R733

PURPOSE AND DESCRIPTION:

CUSTOMER REQUIRES A SPECIAL TEMPERATURE RANGE FIBER OPTIC INFRARAIL PYROMETER WITH SPECIAL OPTICAL RESOLUTION AND SPECTRAL RESPONSE.

DNFFC-99F

MODEL: DNFFB-99F

RANGE: 1100 - 2000 DEG. F

OPTICAL RESOLUTION: D/60

FIBER OPTIC CABLE: 10 FEET *-OK*

SPECTRUM: 1.49 - 1.60 MICRON *-OK*

D/30 X D/150

GENERALITY OF APPLICATION AND RESTRICTIONS:

MAXIMUM SENSOR AMBIENT TEMPERATURE IS RESTRICTED TO 140 DEGREES F (60 DEG. C).

UNRESTRICTED, USE WITH ALL AVAILABLE OPTIONS.

WRITTEN BY: _____ DATE: _____
AMI DONADO

APPROVED BY: _____ DATE: _____

INFRARAIL SPECIAL NUMBER R733 CONTINUED,

*Change to D/30 X D/150
DNFFC-25F*

PRODUCTION INSTRUCTIONS:

START WITH A STANDARD MODEL DNFFB-25F ELECTRONIC MODULE AND MAKE THE FOLLOWING CHANGES:

BUILD THE M1 LINEARIZER MODULE PER BILL OF MATERIAL ON PAGE 3.

START WITH STANDARD FIBER OPTIC SENSOR MODEL DNFFB^c-25F AND MAKE THE FOLLOWING CHANGES:

1. USE DETECTOR PART NUMBER 590942 (1.6 u InGaAs).
2. USE BANPASS FILTER PART NUMBER 640552 (1.6 u).
3. USE DETECTOR HOLDER PART NUMBER 431452 WITH PIN PART NUMBER 451382.
4. USE DETECTOR HOLDER PART NUMBER 433152
5. USE DETECTOR RETAINER RING PART NUMBER 431342.

ASSEMBLE AND WIRE ABOVE ITEMS PER MODIFIED DRAWING NUMBER D11195.

CALIBRATION INSTRUCTIONS:

COMPUTERIZED PRE-CAL PROCEDURE:

SET Iout Head Zero Scale (1100 deg. F) = 0.018 uA
SET Iout Head Full Scale (2000 deg. F) = 0.897 uA
SET THE SPECTRUM TO 1.6 MICRON.

ADJUST PER STANDARD PROCEDURE.

FINAL CALIBRATION:

CALIBRATE PER STANDARD PROCEDURE.

USE TABLE ON PAGE 4 FOR FINAL CALIBRATION.

MANUAL INSTRUCTIONS:

GENERIC INFRARAIL "F" SERIES MANUAL PAGE.

R733

Temp. 400 F	TAUT mA	TEQUIVALENT
1100	4.000 (set)	1100 °F
1150	4.888	1150 1150
1200	5.741	1198
1250	6.701	1252
1300	7.526	1298
1350	8.428	1349
1400	9.295	1398
1450	10.220 ✓	
1500	11.100 ✓	
1550	11.95 ✓	
1600	12.79 ✓	
1650	13.666 ✓	
1700	14.555 ✓	
1750	15.435 15.50	
1800	16.233 16.27	
1850	17.175 17.22	
1900	17.985 18.05	
1950	18.862 18.95	
2000	20.000 (set)	
2050		

12/30/02 A.D.
D/30 x D/150

1. INFRAIL.BAS
2. RUN AS NORMALIZED
TO CURRENT OUTPUT
4 - 20 MA LINEAR OUTPUT (NOT PLACK)
3. IT WILL GIVE
EXPECTED LINEARIZED
SYSTEM OUTPUT

INFRARAIL SPECIAL NUMBER R733
TEMPERATURE RANGE: 1100 TO 2000 DEGREES F
SPECTRUM: 1.49 TO 1.60 MICRONS
(Linear Output)

TEMPERATURE DEGREES F	SENSOR OUTPUT IN mAMPS	EXPECTED OUTPUT		Actual
		INDICATOR OUTPUT mAMPS	Actual	Tind
1100.0	4.0000	4.000	3.960	1098%
1150.0	4.1269	4.889	4.780	
1200.0	4.2916	5.778	5.670	
1250.0	4.5017	6.667	6.566	
1300.0	4.7655	7.556	7.435	
1350.0	5.0921	8.444	8.373	
1400.0	5.4911	9.333	9.280	
1450.0	5.9729	10.222	10.190	
1500.0	6.5481	11.111	11.000	
1550.0	7.2279	12.000	11.947	
1600.0	8.0237	12.889	12.738	
1650.0	8.9475	13.778	13.710	
1700.0	10.0111	14.667	14.550	
1750.0	11.2265	15.556	15.62	
1800.0	12.6058	16.444	16.305	
1850.0	14.1610	17.333	17.188	
1900.0	15.9040	18.222	18.123	
1950.0	17.8465	19.111	19.000	
2000.0	20.0000	20.000	20.000	2000

↑
Set

Field Stop .030"

A2-F3

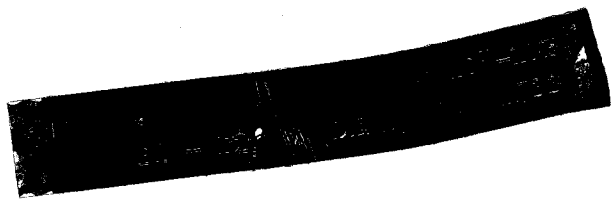
610802 Lens Menicus
610792 Lens Equibiconvex
445974 Spacers

(6'10')

L12016

A2-F3

for
Ami Denado.



Number :DN#16774 - IRCON INFRARAIL IRT SO-LI: 82747*1

Level	Part Number	Description	Quantity	UM	Alt	MB X	ECO No.	ECO Date	Start Use	End Use
1	DN0DNFFA		1.0000	EA		M P				
1	NL12006F	NEW 'N'# FOR L12006F	1.0000	EA		M P				
2	L12006F	REIMAGE LENS 6-10" D/30-D	1.0000	EA		M P				
3	453192	HOUSING OUTER REIMAGE MP/	1.0000	EA		B				
3	432502	O RING .547ID X .051THK B	2.0000	EA		B				
3	610782	LENS EQUIBICONVEX CAF2 OB	1.0000	EA		B				
3	445973	SPACER .165THK OBJECTIVE	1.0000	EA		B				
3	453222	RETAINER RING SPRING OBJ	1.0000	EA		B				
3	620222	WINDOW PROTECTIVE IR QUAR	1.0000	EA		B				
3	453172	RETAINER RING OBJECTIVE L	1.0000	EA		B				
3	453162	HOUSING REAR REIMAGE MP/M	1.0000	EA		B				
3	453232	FIELD STOP RECTANGULAR SL	1.0000	EA		B				
3	453134	CAN GLARE STOP .173D PAIN	2.0000	EA		M X				
4	453133	CAN GLARE STOP RAW MP/MR/	2.0000	EA		B				
3	453142	APERTURE THREADED .255 ID	1.0000	EA		B				
3	20100674A	SCREW #10-32 X 3/16 SKT S	1.0000	EA		B				
3	475962	LABEL REIMAGE LENS EXT TI	1.0000	EA		B				
3	453202	NUT HEX 7/8-20 S/S	2.0000	EA		B				
3	432662	PLASTIC CAP/PLUG TAPPED	2.0000	EA		B				
3	411202	KEY HEX 3/32" SHORT ARM	1.0000	EA		B				
3	L12006F/01	SEE EXTENDED DESCRIPTION	0.0000	EA		M P				
1	D11195-R733	SH ASSEMBLY, F-SERIES DIN	1.0000	EA		M P				
2	454143	F-HEAD SENSOR	1.0000	EA		B	3709	05-17-1996		
2	990100034	ADHESIVE OPTICAL CEMENT S	1.0000	EA		B	3709	05-17-1996		
2	990100009	ADHESIVE CYANOACRYLATE BLK	1.0000	EA		B	3709	05-17-1996		
2	C11207-R733	DETECTOR ASSY (1.6 MICRON	1.0000	EA		M P	3709	05-17-1996		
3	LDN106-R733	DETECTOR ASSY 1.6 MICRON	1.0000	EA		M P	3681	04-08-1996		
4	590942	DETECTOR InGaAs 1.6u	1.0000	EA		B				
4	560372	CABLE PVC 1 COND SHIELD 2x5	6.0000	IN		B	3681	04-08-1996		
4	990400001	BAG STATIC SHIELD 3X5 3M	1.0000	EA		B	3681	04-08-1996		
4	3214G00X0	TUBING #14 PVC CLEAR	1.0000	IN		B	3681	04-08-1996		
4	3208I1400	TUBING 1/8" SHRINKABLE BL	0.0000	IN		B				
3	T-C11207-X	FLOW TAG TEXT FOR DETECTO	0.0000	EA		B	3681	04-08-1996		
2	220403200	WASHER #4 LOCK SPLIT RING	4.0000	EA		B	3709	05-17-1996		
2	200412440	SCREW #4-40 X 3/8 FIL SLO	4.0000	EA		B	3709	05-17-1996		
2	454152	SCREW, ADJUSTMENT,	1.0000	EA		B	3709	05-17-1996		
2	433372	O RING 3/32 X 7/32 X 1/16	1.0000	EA		B	3709	05-17-1996		
2	20100874F	SCREW #10-32 X 1/4 SOCKET	1.0000	EA		B	3709	05-17-1996		
2	220602200	WASHER #6 LOCK EXT TOOTH	1.0000	EA		B	3709	05-17-1996		
2	200606040	SCREW #6-32 X 3/16 PH SLO	1.0000	EA		B	3709	05-17-1996		
2	474772	LABEL GROUND WARNING	1.0000	EA		B	3709	05-17-1996		
2	477142	LABEL, SERIAL NUMBER, SEN	1.0000	EA		B	3709	05-17-1996		
2	454242	NUT RETAINING S.S. E/F-HE	1.0000	EA		B	3709	05-17-1996		
2	T-D11195-1	SELECT FIBER OPTIC LIGHT	0.0000	EA		B	3709	05-17-1996		
2	T-D11195-3	F-SERIES (GT) FIB OPT	0.0000	EA		B				
2	ENGTEXT	ENG CONTROLLED TEXT	1.0000	EA		M P				
2	999900013	CAP PLUG #SC-1-1/4	1.0000	EA		B	3709	05-17-1996		
2	990100028	SEALANT RTV SILICONE BLAC	1.0000	EA		B	3709	05-17-1996		
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	04-02-1997		
2	D11198/01	SEE EXTENDED DESCRIPTION	0.0000	EA		M				
2	D11198/02	SEE EXTENDED DESCRIPTION	0.0000	EA		M				
2	D11198/03	SEE EXTENDED DESCRIPTION	8.0000	EA		M				
2	575882	CONN. CIRC 10SL-3 BACKSHE	1.0000	EA		B	3913	04-02-1997		
2	3210G00X0	TUBING #10 PVC CLEAR	3.0000	IN		B	3913	04-02-1997		
2	3212G00X0	TUBING #12 PVC CLEAR	1.0000	IN		B	3913	04-02-1997		
2	575902	CONN. CIRC 10SL-3 STR PLU	1.0000	EA		B	3913	04-02-1997		
2	3216I1400	TUBING 1/4" SHRINKABLE BL	1.0000	IN		B	3913	04-02-1997		
2	990100027	ADHESIVE LOCTITE 272	1.0000	EA		B	3913	04-02-1997		
2	C-CABLE	DETERMINE CABLE LENGTH FR	1.0000	EA		M P	3913	04-02-1997		
2	477202	LABEL INFRARAIL (2.0" X 0	1.0000	EA		B	3913	04-02-1997		
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-R733	MODULE ASSEMBLY-M1-(DINRA	1.0000	EA		M P				
2	106343011	RES. 634K OHM MF 1/4W 1%	1.0000	EA		B				
2	101872011	RES. 18.7K OHM MF 1/4W 1%	1.0000	EA		B				
2	101503011	RES. 150K OHM MF 1/4W 1%	1.0000	EA		B				
2	101132011	RES. 11.3K OHM MF 1/4W 1%	1.0000	EA		B				

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Level	Part Number	Description	Quantity	UM	Alt	MB X	ECO No.	ECO Date	Start Use	End Use
2	104642011	RES. 46.4K OHM MF 1/4W 1%	1.0000	EA		B				
2	109091011	RES. 9.09K OHM MF 1/4W 1%	1.0000	EA		B				
2	106492011	RES. 64.9K OHM MF 1/4W 1%	1.0000	EA		B				
2	106651011	RES. 6.65K OHM MF 1/4W 1%	1.0000	EA		B				
2	109312011	RES. 93.1K OHM MF 1/4W 1%	1.0000	EA		B				
2	104871011	RES. 4.87K OHM MF 1/4W 1%	1.0000	EA		B				
2	101373011	RES. 137K OHM MF 1/4W 1%	1.0000	EA		B				
2	103401011	RES. 3.40K OHM MF 1/4W 1%	1.0000	EA		B				
2	102003011	RES. 200K OHM MF 1/4W 1%	1.0000	EA		B				
2	102321011	RES. 2.32K OHM MF 1/4W 1%	1.0000	EA		B				
2	103013011	RES. 301K OHM MF 1/4W 1%	1.0000	EA		B				
2	101541011	RES. 1.54K OHM MF 1/4W 1%	1.0000	EA		B				
2	104643011	RES. 464K OHM MF 1/4W 1%	1.0000	EA		B				
2	101001011	RES. 1.00K OHM MF 1/4W 1%	1.0000	EA		B				
2	101581011	RES. 1.58K OHM MF 1/4W 1%	1.0000	EA		B				
2	107323011	RES. 732K OHM MF 1/4W 1%	1.0000	EA		B				
1	NL120FA1	NEW 'N'# FOR L120FA1	1.0000	EA		M P				
2	L120FA1	FIB. OPT. 1.6 MICRON 10FT	1.0000	EA		M P				
3	610941	FIB. OPT. 1.6 MICRON 10'	1.0000	EA		B	3501	02-14-1996		
3	453112	NUT LOCKING FIB OPT LT GU	2.0000	EA		B	3501	02-14-1996		
3	410832	RETAINER RING C TYPE .5 D	2.0000	EA		B	3501	02-14-1996		
3	432542	IDENTIFICATION TIE FIBER	1.0000	EA		B	3501	02-14-1996		
3	475982	LABEL LIGHT GUIDE FIBER O	1.0000	EA		B	3501	02-14-1996		
3	999900009	CAP PROTECTIVE,VINYL WHIT	2.0000	EA		B	3501	02-14-1996		
1	D11191	INFRARAIL BOX ASSEMBLY	1.0000	EA		M P				
2	433332	ENCLOSURE, DIN BOX, MODIF	1.0000	EA		B	3671	04-08-1996		
2	C11187	POWER SUPPLY/ PEAK-PICKER	1.0000	EA		M P	3671	04-08-1996		
3	C20212	SCHEMATIC: POWER SUPPLY/	1.0000	EA		M P	4202	01-14-1999		
3	LDN200	PWR SUPPLY/ PP PCB ASSY	1.0000	EA		M P	4202	01-14-1999		
4	502505	PCB DIN RAIL POWER PEAK-P	1.0000	EA		B	3769	08-05-1996		
4	LDN200/01	SEE EXTENDED DESCRIPTION	0.0000	EA		M P				
4	533082	TRAN. MJE800 NPN - DARLIN	1.0000	EA		B	3769	08-05-1996		
4	LDN200/02	SEE EXTENDED DESCRIPTION	0.0000	EA		M P				
4	LDN200/03	SEE EXTENDED DESCRIPTION	0.0000	EA		M P				
4	530882	DIODE 1N4002 GP RECTIFIER	1.0000	EA		B	3769	08-05-1996		
4	532952	OP-AMP ULTRA LOW BIAS	2.0000	EA		B	3769	08-05-1996		
4	532322	IC 4053B ANALOG MUX/DEMUX	1.0000	EA		B	4842	07-31-2002		
4	531862	OP-AMP LM346N PROGRAM QUA	1.0000	EA		B	3769	08-05-1996		
4	102493011	RES. 249K OHM MF 1/4W 1%	1.0000	EA		B	3769	08-05-1996		
4	103321011	RES. 3.32K OHM MF 1/4W 1%	1.0000	EA		B	3769	08-05-1996		
4	101820011	RES. 182 OHM MF 1/4W 1%	1.0000	EA		B	3769	08-05-1996		
4	104421011	RES. 4.42K OHM MF 1/4W 1%	1.0000	EA		B	3769	08-05-1996		
4	106654011	RES. 6.65M OHM MF 1/4W 1%	1.0000	EA		B	3769	08-05-1996		
4	104993011	RES. 499K OHM MF 1/4W 1%	1.0000	EA		B	3769	08-05-1996		
4	104021011	RES. 4.02K OHM MF 1/4W 1%	1.0000	EA		B	3769	08-05-1996		
4	105364011	RES. 5.36M OHM MF 1/4W 1%	2.0000	EA		B	3769	08-05-1996		
4	103480011	RES. 348 OHM MF 1/4W 1%	1.0000	EA		B	3769	08-05-1996		
4	100000990	JUMPER DUMMY RESISTOR	5.0000	EA		B	3769	08-05-1996		
4	101000011	RES. 100 OHM MF 1/4W 1%	1.0000	EA		B	3769	08-05-1996		
4	101003011	RES. 100K OHM MF 1/4W 1%	1.0000	EA		B	3769	08-05-1996		
4	101004011	RES. 1.00M OHM MF 1/4W 1%	4.0000	EA		B	3769	08-05-1996		
4	102003011	RES. 200K OHM MF 1/4W 1%	2.0000	EA		B	3769	08-05-1996		
4	104991011	RES. 4.99K OHM MF 1/4W 1%	1.0000	EA		B	3769	08-05-1996		
4	101503011	RES. 150K OHM MF 1/4W 1%	1.0000	EA		B	3769	08-05-1996		
4	530572	DIODE 1N4446 SWITCHING	2.0000	EA		B	4906	05-19-2003		
4	530532	DIODE FD300 GENERAL PURPO	1.0000	EA		B	3769	08-05-1996		
4	521852	CAP. 0.68 MFD 50V CERAMIC	1.0000	EA		B	3769	08-05-1996		
4	521972	CAP. .047 MFD 50V CER X7	1.0000	EA		B	3769	08-05-1996		
4	521072	CAP. 22MFD 16V TANT 10%	2.0000	EA		B	3769	08-05-1996		
4	551122	CHOKO 9250-122 1.2 UH, .1	2.0000	EA		B	3769	08-05-1996		
4	521902	CAP. NPO 1000pf 200V .2LS	1.0000	EA		B	3769	08-05-1996		
4	521862	CAP. 3.3 MFD 50V CERAMC X	1.0000	EA		B	3769	08-05-1996		
4	521872	CAP. 1.0 MFD 50V CERAMIC	5.0000	EA		B	3769	08-05-1996		
4	522002	CAP. .01 MFD 200V CERAMIC	6.0000	EA		B	3769	08-05-1996		
4	531892	REG. LM317LZ +1.2/37V ADJ	1.0000	EA		B	3769	08-05-1996		
4	431902	BIVAR PERMO PAD 0.250 DIA	1.0000	EA		B	3769	08-05-1996		
4	530862	TRAN. 2N2222A NPN MED POW	1.0000	EA		B	3769	08-05-1996		
4	551152	INDUCTOR 100UH +/-10% IMS	2.0000	EA		B	3769	08-05-1996		

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Level	Part Number	Description	Quantity	UM	Alt	MB X	ECO No.	ECO Date	Start Use	End Use
4	531882	DIODE LM385BZ-2.5 2.5V RE	6.0000	EA		B	3769	08-05-1996		
4	575602	CONN. HDR AMP STRAIGHT 5	1.0000	EA		B	3769	08-05-1996		
4	574592	CONN. HDR AMP STRAIGHT 4	1.0000	EA		B	3769	08-05-1996		
4	LDN200/04	SEE EXTENDED DESCRIPTION	0.0000	EA		M P				
4	572732	HEADER SNGL 36 PIN .1 CNT	11.0000	EA		B	3769	08-05-1996		
4	LDN200/05	SEE EXTENDED DESCRIPTION	0.0000	EA		M P				
2	C11186	PREAMP/ LINEARIZER PCB AS	1.0000	EA		M P	3671	04-08-1996		
3	C20211	SCHEMATIC: PREAMP/ LINEAR	1.0000	EA		M P	4785	03-05-2002		
3	LDN100	PREAMP/ LIN PCB ASSY INFR	1.0000	EA		M P	3659	04-12-1996		
4	502493	PCB DIN RAIL LINEARIZER	1.0000	EA		B	3767	08-07-1996		
4	LDN100/01	SEE EXTENDED DESCRIPTION	0.0000	EA		M P				
4	LDN100/02	SEE EXTENDED DESCRIPTION	0.0000	EA		M P				
4	532982	OP-AMP AD548CQ LOW PWR	1.0000	EA		B	3767	08-07-1996		
4	531862	OP-AMP LM346N PROGRAM QUA	3.0000	EA		B	3767	08-07-1996		
4	530532	DIODE FD300 GENERAL PURPO	16.0000	EA		B	3767	08-07-1996		
4	514632	RES. 330K NETWORK 10 PIN	2.0000	EA		B	3767	08-07-1996		
4	514642	RES. 330K NETWORK 10 PIN	2.0000	EA		B	3767	08-07-1996		
4	104533011	RES. 453K OHM MF 1/4W 1%	1.0000	EA		B	3767	08-07-1996		
4	1010R0011	RES. 10.0 OHM MF 1/4W 1%	1.0000	EA		B	3767	08-07-1996		
4	102743011	RES. 274K OHM MF 1/4W 1%	1.0000	EA		B	3767	08-07-1996		
4	102103011	RES. 210K OHM MF 1/4W 1%	1.0000	EA		B	3767	08-07-1996		
4	105364011	RES. 5.36M OHM MF 1/4W 1%	6.0000	EA		B	3767	08-07-1996		
4	101002011	RES. 10.0K OHM MF 1/4W 1%	1.0000	EA		B	3767	08-07-1996		
4	101003011	RES. 100K OHM MF 1/4W 1%	1.0000	EA		B	3767	08-07-1996		
4	102003011	RES. 200K OHM MF 1/4W 1%	2.0000	EA		B	3767	08-07-1996		
4	101000011	RES. 100 OHM MF 1/4W 1%	2.0000	EA		B	3767	08-07-1996		
4	100000990	JUMPER DUMMY RESISTOR	1.0000	EA		B	3767	08-07-1996		
4	551122	CHOKER 9250-122 1.2 UH, .1	1.0000	EA		B	3767	08-07-1996		
4	540412	FERRITE BEAD ON LEAD AXIA	3.0000	EA		B	3767	08-07-1996		
4	522002	CAP. .01 MFD 200V CERAMIC	7.0000	EA		B	3767	08-07-1996		
4	521902	CAP. NPO 1000pf 200V .2LS	2.0000	EA		B	3767	08-07-1996		
4	521932	CAP. 100 PF COG 200V	1.0000	EA		B	3767	08-07-1996		
4	521962	CAP. 10Pf NPO 200V .2LS	2.0000	EA		B	3767	08-07-1996		
4	514612	POT. 50K 25T 1/2W 10%	1.0000	EA		B	3767	08-07-1996		
4	514242	POT. 25K OHM 25T 1/2W 10%	1.0000	EA		B	3767	08-07-1996		
4	514622	POT. 100K 25T 1/2W 10%	1.0000	EA		B	3767	08-07-1996		
4	574922	CONN. HDR AMP STRAIGHT 3	1.0000	EA		B	3767	08-07-1996		
4	LDN100/03	SEE EXTENDED DESCRIPTION	0.0000	EA		M P				
4	574432	SOCKET 40 POS DIP .5HT EL	1.0000	EA		B	3767	08-07-1996		
4	LDN100/04	SEE EXTENDED DESCRIPTION	0.0000	EA		M P				
4	526002	CAP. SMC 330Pf NPO 50V 5%	1.0000	EA		B	3767	08-07-1996		
4	572732	HEADER SNGL 36 PIN .1 CNT	11.0000	EA		B	3767	08-07-1996		
4	LDN100/05	SEE EXTENDED DESCRIPTION	0.0000	EA		M P				
2	C11193	PCB INTERCONNECT ASSEMBLY	1.0000	EA		M P	3671	04-08-1996		
3	LDN300	PCB INTERCONN ASSY (INFRA	1.0000	EA		M P				
4	502533	PCB DIN RAIL POWER PEAK-P	1.0000	EA		B	3721	08-01-1996		
4	575922	CONN. FEMALE 11 POSITION	2.0000	EA		B	3721	08-01-1996		
2	477112	LABEL, COVER, DIN BOX	1.0000	EA		B	3671	04-08-1996		
2	C11190	DECAY RATE POT/ CONNECTOR	1.0000	EA		M P	3671	04-08-1996		
3	LDN003	DECAY RATE POT/ CONN. ASS	1.0000	EA		M P	4030	10-08-1997		
4	514592	POT. 50K OHM 1T 1/2W 10%	1.0000	EA		B				
4	LDN003/01	SEE EXTENDED DESCRIPTION	0.0000	EA		M 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	04-08-1996		
3	LDN002	RESP. TIME POT/ CONN. ASS	1.0000	EA		M P				
4	514602	POT. 5M OHM 1T 1/2W 20% 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	04-08-1996		
3	LDN001	EMISSIVITY POT/ CONN. ASS	1.0000	EA		M P	3767	08-07-1996		
4	513722	POT. 100K 2 DIGIT 1% DIGI	1.0000	EA		B	3767	08-07-1996		

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Level	Part Number	Description	Quantity	UM	Alt	MB X	ECO No.	ECO Date	Start Use	End Use
4	30245X000	WIRE 24AWG GREEN STRANDED	1.0000	IN		B	3767	08-07-1996		
4	30249X000	WIRE 24AWG WHITE STRANDED	1.0000	IN		B	3767	08-07-1996		
4	30246X000	WIRE 24AWG BLUE STRANDED	1.0000	IN		B	3767	08-07-1996		
4	574662	CONN. CONTACT 20-24 AWG C	3.0000	EA		B	3767	08-07-1996		
4	574672	CONN. HOUSING 3 POSITION-	1.0000	EA		B	3767	08-07-1996		
4	477212	LABEL - CLEAR WINDOW	1.0000	EA		B	3767	08-07-1996		
2	575852	KNOB, 9MM COLLET TYPE,	2.0000	EA		B	3671	04-08-1996		
2	575872	POINTER, 9MM COLLET TYPE	2.0000	EA		B	3671	04-08-1996		
2	575862	CAP. 9MM COLLET TYPE KNOB	2.0000	EA		B	3671	04-08-1996		
2	C11194	MODULE ASSEMBLY - M1 - (I	1.0000	EA		M P	3671	04-08-1996		
3	573912	HEADER 40 PIN DIP .6 CENT	1.0000	EA		B				
3	T-C11194-1	SELECT "M1" MODULE VALUES	0.0000	EA		B				
3	T-C11194-3	GT M1 MODULE VALUES	0.0000	EA		B				
2	575912	CONN. KEYING ELEMENT (DN-	2.0000	EA		B	3671	04-08-1996		
2	477132	LABEL, SERIAL NUMBER, DIN	1.0000	EA		B	3671	04-08-1996		
2	477122	LABEL, DIN BOX, INFRARAIL	1.0000	EA		B	3671	04-08-1996		
2	574082	TERM. BLOCK JUMPER QUICK	1.0000	EA		B	3671	04-08-1996		
2	LDNKIT	MTG CLIP KIT FOR INFRARAI	1.0000	EA		M P	3671	04-08-1996		
3	990300010	CLIP MTG FOR DIN BOX	2.0000	EA		B	3694	04-17-1996		
3	LDNKIT/01	SEE EXTENDED DESCRIPTION	0.0000	EA		M P				
2	477182	LABEL-CE MARK (PRODUCTS)	1.0000	EA		B	3671	04-08-1996		
1	B10927	FIBER OPTIC - LIGHT GUIDE	1.0000	EA		M P				
2	T-B10927-1	SELECT (MOD+ R/V/W/2/6) F	0.0000	EA		B	2399	01-17-1990		
2	T-B10927-2	SELECT (MIR OR/20/60) FIB	0.0000	EA		B	2399	01-17-1990		
2	T-B10927-3	SELECT (SR SR-SERIES) FI	0.0000	EA		B	2399	01-17-1990		
2	T-B10927-4	SELECT (SA-SERIES) FIB. O	0.0000	EA		B	2399	01-17-1990		
2	T-B10927-5	SELECT (F-SERIES) (INFRARA	0.0000	EA		B	2399	01-17-1990		
2	T-B10927-6	SELECT (MOD3) FIB. OPT. L	0.0000	EA		B	2399	01-17-1990		
2	T-B10927-7	SELECT GT F/O LIGHT GUIDE	0.0000	EA		B				

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Level	Part Number	Description	Quantity	UM	Alt	MB X	ECO No.	ECO Date	Start Use	End Use
1	DN0DNFFA		1.0000	EA		M	P			
1	NL12006F	NEW 'N'# FOR L12006F	1.0000	EA		M	P			
2	L12006F	REIMAGE LENS 6-10" D/30-D	1.0000	EA		M	P			
3	453192	HOUSING OUTER REIMAGE MP/	1.0000	EA		B				
3	432502	O RING .547ID X .051THK B	2.0000	EA		B				
3	610782	LENS EQUIBICONVEX CAF2 OB	1.0000	EA		B				
3	445973	SPACER .165THK OBJECTIVE	1.0000	EA		B				
3	453222	RETAINER RING SPRING OBJ	1.0000	EA		B				
3	620222	WINDOW PROTECTIVE IR QUAR	1.0000	EA		B				
3	453172	RETAINER RING OBJECTIVE L	1.0000	EA		B				
3	453162	HOUSING REAR REIMAGE MP/M	1.0000	EA		B				
3	453232	FIELD STOP RECTANGULAR SL	1.0000	EA		B				
3	453134	CAN GLARE STOP .173D PAIN	2.0000	EA		M	X			
4	453133	CAN GLARE STOP RAW MP/MR/	2.0000	EA		B				
3	453142	APERTURE THREADED .255 ID	1.0000	EA		B				
3	20100674A	SCREW #10-32 X 3/16 SKT S	1.0000	EA		B				
3	475962	LABEL REIMAGE LENS EXT TI	1.0000	EA		B				
3	453202	NUT HEX 7/8-20 S/S	2.0000	EA		B				
3	432662	PLASTIC CAP/PLUG TAPPED	2.0000	EA		B				
3	411202	KEY HEX 3/32" SHORT ARM	1.0000	EA		B				
3	L12006F/01	SEE EXTENDED DESCRIPTION	0.0000	EA		M	P			
1	D11195	SH ASSEMBLY (F-SERIES) (IN	1.0000	EA		M	P			
2	454143	F-HEAD SENSOR	1.0000	EA		B	3709	05-17-1996		
2	640362	FILTER RS913 <i>cut</i>	1.0000	EA		B	3709	05-17-1996		
2	990100034	ADHESIVE OPTICAL CEMENT S	1.0000	EA		B	3709	05-17-1996		
2	640462	FILTER BANDPASS 0.7-2.0UM 16.4	1.0000	EA		B	3709	05-17-1996		
2	990100009	ADHESIVE CYANOACRYLATE BLK	1.0000	EA		B	3709	05-17-1996		
2	C11208	SH DETECTOR ASSEMBLY (F-S	1.0000	EA		M	P	3709	05-17-1996	
3	L13353 <i>R733</i>	SH DETECTOR ASSY F-SERIES	1.0000	EA		M	P			
4	431452	DET. LOCATOR Z HEAD	1.0000	EA		B				
4	451382	LOCATING PIN FOR Z1	1.0000	EA		B				
4	590292	DET. VIB 6061 VACTEC Z/L	1.0000	EA		B				
4	560372	CABLE PVC 1 COND SHIELD 2	2.5000	IN		B				
4	430292	CONN. GASKET 2000 SERIES	1.0000	EA		B				
4	575892	CONN. CIRC 3 RECPT 10SL-3	1.0000	EA		B				
4	490042	SPRING DETECTOR RETAINER	1.0000	EA		B				
4	501822	PCB DETECTOR Z/L MOD2	1.0000	EA		B				
4	990100002	EPOXY HARDMAN #4005 GEN P	1.0000	EA		B				
4	312430100	WIRE 24AWG BARE SOLID	1.0000	IN		B				
4	3208I1000	BLACK HEAT SHRINK TUBING	1.0000	IN		B				
2	220403200	WASHER #4 LOCK SPLIT RING	4.0000	EA		B	3709	05-17-1996		
2	200412440	SCREW #4-40 X 3/8 FIL SLO	4.0000	EA		B	3709	05-17-1996		
2	454152	SCREW, ADJUSTMENT,	1.0000	EA		B	3709	05-17-1996		
2	433372	O RING 3/32 X 7/32 X 1/16	1.0000	EA		B	3709	05-17-1996		
2	20100874F	SCREW #10-32 X 1/4 SOCKET	1.0000	EA		B	3709	05-17-1996		
2	220602200	WASHER #6 LOCK EXT TOOTH	1.0000	EA		B	3709	05-17-1996		
2	200606040	SCREW #6-32 X 3/16 PH SLO	1.0000	EA		B	3709	05-17-1996		
2	474772	LABEL GROUND WARNING	1.0000	EA		B	3709	05-17-1996		
2	477142	LABEL, SERIAL NUMBER, SEN	1.0000	EA		B	3709	05-17-1996		
2	454242	NUT RETAINING S.S. E/F-HE	1.0000	EA		B	3709	05-17-1996		
2	T-D11195-1	SELECT FIBER OPTIC LIGHT	0.0000	EA		B	3709	05-17-1996		
2	T-D11195-3	F-SERIES (GT) FIB OPT	0.0000	EA		B				
2	ENGTEXT	ENG CONTROLLED TEXT	1.0000	EA		M	P			
2	999900013	CAP PLUG #SC-1-1/4	1.0000	EA		B	3709	05-17-1996		
2	990100028	SEALANT RTV SILICONE BLAC	1.0000	EA		B	3709	05-17-1996		
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	04-02-1997		
2	D11198/01	SEE EXTENDED DESCRIPTION	0.0000	EA		M				
2	D11198/02	SEE EXTENDED DESCRIPTION	0.0000	EA		M				
2	D11198/03	SEE EXTENDED DESCRIPTION	8.0000	EA		M				
2	575882	CONN. CIRC 10SL-3 BACKSHE	1.0000	EA		B	3913	04-02-1997		
2	3210G00X0	TUBING #10 PVC CLEAR	3.0000	IN		B	3913	04-02-1997		
2	3212G00X0	TUBING #12 PVC CLEAR	1.0000	IN		B	3913	04-02-1997		
2	575902	CONN. CIRC 10SL-3 STR PLU	1.0000	EA		B	3913	04-02-1997		
2	321611400	TUBING 1/4" SHRINKABLE BL	1.0000	IN		B	3913	04-02-1997		
2	990100027	ADHESIVE LOCTITE 272	1.0000	EA		B	3913	04-02-1997		
2	C-CABLE	DETERMINE CABLE LENGTH FR	1.0000	EA		M	P	3913	04-02-1997	
2	477202	LABEL INFRARAIL (2.0" X 0	1.0000	EA		B	3913	04-02-1997		

Change to
C11207-R733
LDN106
LT-C11207-X
BUT ADD
L13353-R733

Number :DN#16774 - IRCON INFRARAIL IRT SO-LI: 82747*1

Level	Part Number	Description	Quantity	UM	Alt	MB	X	ECO No.	ECO Date	Start Use	End Use
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-R733	MODULE ASSEMBLY-M1-(DINRA	1.0000	EA		M	P				
2	106343011	RES. 634K OHM MF 1/4W 1%	1.0000	EA		B					
2	101872011	RES. 18.7K OHM MF 1/4W 1%	1.0000	EA		B					
2	101503011	RES. 150K OHM MF 1/4W 1%	1.0000	EA		B					
2	101132011	RES. 11.3K OHM MF 1/4W 1%	1.0000	EA		B					
2	104642011	RES. 46.4K OHM MF 1/4W 1%	1.0000	EA		B					
2	109091011	RES. 9.09K OHM MF 1/4W 1%	1.0000	EA		B					
2	106492011	RES. 64.9K OHM MF 1/4W 1%	1.0000	EA		B					
2	106651011	RES. 6.65K OHM MF 1/4W 1%	1.0000	EA		B					
2	109312011	RES. 93.1K OHM MF 1/4W 1%	1.0000	EA		B					
2	104871011	RES. 4.87K OHM MF 1/4W 1%	1.0000	EA		B					
2	101373011	RES. 137K OHM MF 1/4W 1%	1.0000	EA		B					
2	103401011	RES. 3.40K OHM MF 1/4W 1%	1.0000	EA		B					
2	102003011	RES. 200K OHM MF 1/4W 1%	1.0000	EA		B					
2	102321011	RES. 2.32K OHM MF 1/4W 1%	1.0000	EA		B					
2	103013011	RES. 301K OHM MF 1/4W 1%	1.0000	EA		B					
2	101541011	RES. 1.54K OHM MF 1/4W 1%	1.0000	EA		B					
2	104643011	RES. 464K OHM MF 1/4W 1%	1.0000	EA		B					
2	101001011	RES. 1.00K OHM MF 1/4W 1%	1.0000	EA		B					
2	101581011	RES. 1.58K OHM MF 1/4W 1%	1.0000	EA		B					
2	107323011	RES. 732K OHM MF 1/4W 1%	1.0000	EA		B					
1	NL120FA1	NEW 'N'# FOR L120FA1	1.0000	EA		M	P				
2	L120FA1	FIB. OPT. 1.6 MICRON 10FT	1.0000	EA		M	P				
3	610941	FIB. OPT. 1.6 MICRON 10'	1.0000	EA		B		3501	02-14-1996		
3	453112	NUT LOCKING FIB OPT LT GU	2.0000	EA		B		3501	02-14-1996		
3	410832	RETAINER RING C TYPE .5 D	2.0000	EA		B		3501	02-14-1996		
3	432542	IDENTIFICATION TIE FIBER	1.0000	EA		B		3501	02-14-1996		
3	475982	LABEL LIGHT GUIDE FIBER O	1.0000	EA		B		3501	02-14-1996		
3	999900009	CAP PROTECTIVE,VINYL WHIT	2.0000	EA		B		3501	02-14-1996		
1	D11191	INFRARAIL BOX ASSEMBLY	1.0000	EA		M	P				
2	433332	ENCLOSURE, DIN BOX, MODIF	1.0000	EA		B		3671	04-08-1996		
2	C11187	POWER SUPPLY/ PEAK-PICKER	1.0000	EA		M	P	3671	04-08-1996		
3	C20212	SCHEMATIC: POWER SUPPLY/	1.0000	EA		M	P	4202	01-14-1999		
3	LDN200	PWR SUPPLY/ PP PCB ASSY	1.0000	EA		M	P	4202	01-14-1999		
4	502505	PCB DIN RAIL POWER PEAK-P	1.0000	EA		B		3769	08-05-1996		
4	LDN200/01	SEE EXTENDED DESCRIPTION	0.0000	EA		M	P				
4	533082	TRAN. MJE800 NPN - DARLIN	1.0000	EA		B		3769	08-05-1996		
4	LDN200/02	SEE EXTENDED DESCRIPTION	0.0000	EA		M	P				
4	LDN200/03	SEE EXTENDED DESCRIPTION	0.0000	EA		M	P				
4	530882	DIODE 1N4002 GP RECTIFIER	1.0000	EA		B		3769	08-05-1996		
4	532952	OP-AMP ULTRA LOW BIAS	2.0000	EA		B		3769	08-05-1996		
4	532322	IC 4053B ANALOG MUX/DEMUX	1.0000	EA		B		4842	07-31-2002		
4	531862	OP-AMP LM346N PROGRAM QUA	1.0000	EA		B		3769	08-05-1996		
4	102493011	RES. 249K OHM MF 1/4W 1%	1.0000	EA		B		3769	08-05-1996		
4	103321011	RES. 3.32K OHM MF 1/4W 1%	1.0000	EA		B		3769	08-05-1996		
4	101820011	RES. 182 OHM MF 1/4W 1%	1.0000	EA		B		3769	08-05-1996		
4	104421011	RES. 4.42K OHM MF 1/4W 1%	1.0000	EA		B		3769	08-05-1996		
4	106654011	RES. 6.65M OHM MF 1/4W 1%	1.0000	EA		B		3769	08-05-1996		
4	104993011	RES. 499K OHM MF 1/4W 1%	1.0000	EA		B		3769	08-05-1996		
4	104021011	RES. 4.02K OHM MF 1/4W 1%	1.0000	EA		B		3769	08-05-1996		
4	105364011	RES. 5.36M OHM MF 1/4W 1%	2.0000	EA		B		3769	08-05-1996		
4	103480011	RES. 348 OHM MF 1/4W 1%	1.0000	EA		B		3769	08-05-1996		
4	100000990	JUMPER DUMMY RESISTOR	5.0000	EA		B		3769	08-05-1996		
4	101000011	RES. 100 OHM MF 1/4W 1%	1.0000	EA		B		3769	08-05-1996		
4	101003011	RES. 100K OHM MF 1/4W 1%	1.0000	EA		B		3769	08-05-1996		
4	101004011	RES. 1.00M OHM MF 1/4W 1%	4.0000	EA		B		3769	08-05-1996		
4	102003011	RES. 200K OHM MF 1/4W 1%	2.0000	EA		B		3769	08-05-1996		
4	104991011	RES. 4.99K OHM MF 1/4W 1%	1.0000	EA		B		3769	08-05-1996		
4	101503011	RES. 150K OHM MF 1/4W 1%	1.0000	EA		B					
4	530572	DIODE 1N4446 SWITCHING	2.0000	EA		B		4906	05-19-2003		
4	530532	DIODE FD300 GENERAL PURPO	1.0000	EA		B		3769	08-05-1996		
4	521852	CAP. 0.68 MFD 50V CERAMIC	1.0000	EA		B		3769	08-05-1996		
4	521972	CAP. .047 MFD 50V CER X7	1.0000	EA		B		3769	08-05-1996		
4	521072	CAP. 22MFD 16V TANT 10%	2.0000	EA		B		3769	08-05-1996		
4	551122	CHOKO 9250-122 1.2 UH, .1	2.0000	EA		B		3769	08-05-1996		
4	521902	CAP. NPO 1000pf 200V .2LS	1.0000	EA		B		3769	08-05-1996		

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Level	Part Number	Description	Quantity	UM	Alt	MB X	ECO No.	ECO Date	Start Use	End Use
4	521862	CAP. 3.3 MFD 50V CERAMC X	1.0000	EA		B	3769	08-05-1996		
4	521872	CAP. 1.0 MFD 50V CERAMIC	5.0000	EA		B	3769	08-05-1996		
4	522002	CAP. .01 MFD 200V CERAMIC	6.0000	EA		B	3769	08-05-1996		
4	531892	REG. LM317LZ +1.2/37V ADJ	1.0000	EA		B	3769	08-05-1996		
4	431902	BIVAR PERMO PAD 0.250 DIA	1.0000	EA		B	3769	08-05-1996		
4	530862	TRAN. 2N2222A NPN MED POW	1.0000	EA		B	3769	08-05-1996		
4	551152	INDUCTOR 100UH +/-10% IMS	2.0000	EA		B	3769	08-05-1996		
4	531882	DIODE LM385BZ-2.5 2.5V RE	6.0000	EA		B	3769	08-05-1996		
4	575602	CONN. HDR AMP STRAIGHT 5	1.0000	EA		B	3769	08-05-1996		
4	574592	CONN. HDR AMP STRAIGHT 4	1.0000	EA		B	3769	08-05-1996		
4	LDN200/04	SEE EXTENDED DESCRIPTION	0.0000	EA		M P				
4	572732	HEADER SNGL 36 PIN .1 CNT	11.0000	EA		B	3769	08-05-1996		
4	LDN200/05	SEE EXTENDED DESCRIPTION	0.0000	EA		M P				
2	C11186	PREAMP/ LINEARIZER PCB AS	1.0000	EA		M P	3671	04-08-1996		
3	C20211	SCHEMATIC: PREAMP/ LINEAR	1.0000	EA		M P	4785	03-05-2002		
3	LDN100	PREAMP/ LIN PCB ASSY INFR	1.0000	EA		M P	3659	04-12-1996		
4	502493	PCB DIN RAIL LINEARIZER	1.0000	EA		B	3767	08-07-1996		
4	LDN100/01	SEE EXTENDED DESCRIPTION	0.0000	EA		M P				
4	LDN100/02	SEE EXTENDED DESCRIPTION	0.0000	EA		M P				
4	532982	OP-AMP AD548CQ LOW PWR	1.0000	EA		B	3767	08-07-1996		
4	531862	OP-AMP LM346N PROGRAM QUA	3.0000	EA		B	3767	08-07-1996		
4	530532	DIODE FD300 GENERAL PURPO	16.0000	EA		B	3767	08-07-1996		
4	514632	RES. 330K NETWORK 10 PIN	2.0000	EA		B	3767	08-07-1996		
4	514642	RES. 330K NETWORK 10 PIN	2.0000	EA		B	3767	08-07-1996		
4	104533011	RES. 453K OHM MF 1/4W 1%	1.0000	EA		B	3767	08-07-1996		
4	1010R0011	RES. 10.0 OHM MF 1/4W 1%	1.0000	EA		B	3767	08-07-1996		
4	102743011	RES. 274K OHM MF 1/4W 1%	1.0000	EA		B	3767	08-07-1996		
4	102103011	RES. 210K OHM MF 1/4W 1%	1.0000	EA		B	3767	08-07-1996		
4	105364011	RES. 5.36M OHM MF 1/4W 1%	6.0000	EA		B	3767	08-07-1996		
4	101002011	RES. 10.0K OHM MF 1/4W 1%	1.0000	EA		B	3767	08-07-1996		
4	101003011	RES. 100K OHM MF 1/4W 1%	1.0000	EA		B	3767	08-07-1996		
4	102003011	RES. 200K OHM MF 1/4W 1%	2.0000	EA		B	3767	08-07-1996		
4	101000011	RES. 100 OHM MF 1/4W 1%	2.0000	EA		B	3767	08-07-1996		
4	100000990	JUMPER DUMMY RESISTOR	1.0000	EA		B	3767	08-07-1996		
4	551122	CHOKER 9250-122 1.2 UH, .1	1.0000	EA		B	3767	08-07-1996		
4	540412	FERRITE BEAD ON LEAD AXIA	3.0000	EA		B	3767	08-07-1996		
4	522002	CAP. .01 MFD 200V CERAMIC	7.0000	EA		B	3767	08-07-1996		
4	521902	CAP. NPO 1000pf 200V .2LS	2.0000	EA		B	3767	08-07-1996		
4	521932	CAP. 100 PF COG 200V	1.0000	EA		B	3767	08-07-1996		
4	521962	CAP. 10Pf NPO 200V .2LS	2.0000	EA		B	3767	08-07-1996		
4	514612	POT. 50K 25T 1/2W 10%	1.0000	EA		B	3767	08-07-1996		
4	514242	POT. 25K OHM 25T 1/2W 10%	1.0000	EA		B	3767	08-07-1996		
4	514622	POT. 100K 25T 1/2W 10%	1.0000	EA		B	3767	08-07-1996		
4	574922	CONN. HDR AMP STRAIGHT 3	1.0000	EA		B	3767	08-07-1996		
4	LDN100/03	SEE EXTENDED DESCRIPTION	0.0000	EA		M P				
4	574432	SOCKET 40 POS DIP .5HT EL	1.0000	EA		B	3767	08-07-1996		
4	LDN100/04	SEE EXTENDED DESCRIPTION	0.0000	EA		M P				
4	526002	CAP. SMC 330Pf NPO 50V 5%	1.0000	EA		B	3767	08-07-1996		
4	572732	HEADER SNGL 36 PIN .1 CNT	11.0000	EA		B	3767	08-07-1996		
4	LDN100/05	SEE EXTENDED DESCRIPTION	0.0000	EA		M P				
2	C11193	PCB INTERCONNECT ASSEMBLY	1.0000	EA		M P	3671	04-08-1996		
3	LDN300	PCB INTERCONN ASSY (INFRA	1.0000	EA		M P				
4	502533	PCB DIN RAIL POWER PEAK-P	1.0000	EA		B	3721	08-01-1996		
4	575922	CONN. FEMALE 11 POSITION	2.0000	EA		B	3721	08-01-1996		
2	477112	LABEL, COVER, DIN BOX	1.0000	EA		B	3671	04-08-1996		
2	C11190	DECAY RATE POT/ CONNECTOR	1.0000	EA		M P	3671	04-08-1996		
3	LDN003	DECAY RATE POT/ CONN. ASS	1.0000	EA		M P	4030	10-08-1997		
4	514592	POT. 50K OHM 1T 1/2W 10%	1.0000	EA		B				
4	LDN003/01	SEE EXTENDED DESCRIPTION	0.0000	EA		M 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/ CONN	1.0000	EA		M P	3671	04-08-1996		
3	LDN002	RESP. TIME POT/ CONN. ASS	1.0000	EA		M P				
4	514602	POT. 5M OHM 1T 1/2W 20% P	1.0000	EA		B				
4	302440000	WIRE 24AWG YEL/BLACK STRA	1.0000	IN		B				

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Level	Part Number	Description	Quantity	UM	Alt	MB	X	ECO No.	ECO Date	Start Use	End Use
4	302460000	WIRE 24AWG BLU/BLACK STRA	1.0000	IN							
4	302430000	WIRE 24AWG ORG/BLACK STRA	1.0000	IN							
4	574662	CONN. CONTACT 20-24 AWG C	3.0000	EA							
4	574682	CONN. HOUSING 4 POSITION-	1.0000	EA							
2	C11188	EMISSIVITY POT/ CONNECTOR	1.0000	EA		M	P	3671	04-08-1996		
3	LDN001	EMISSIVITY POT/ CONN. ASS	1.0000	EA		M	P	3767	08-07-1996		
4	513722	POT. 100K 2 DIGIT 1% DIGI	1.0000	EA		B		3767	08-07-1996		
4	30245X000	WIRE 24AWG GREEN STRANDED	1.0000	IN		B		3767	08-07-1996		
4	30249X000	WIRE 24AWG WHITE STRANDED	1.0000	IN		B		3767	08-07-1996		
4	30246X000	WIRE 24AWG BLUE STRANDED	1.0000	IN		B		3767	08-07-1996		
4	574662	CONN. CONTACT 20-24 AWG C	3.0000	EA		B		3767	08-07-1996		
4	574672	CONN. HOUSING 3 POSITION-	1.0000	EA		B		3767	08-07-1996		
4	477212	LABEL - CLEAR WINDOW	1.0000	EA		B		3767	08-07-1996		
2	575852	KNOB, 9MM COLLET TYPE,	2.0000	EA		B		3671	04-08-1996		
2	575872	POINTER, 9MM COLLET TYPE	2.0000	EA		B		3671	04-08-1996		
2	575862	CAP. 9MM COLLET TYPE KNOB	2.0000	EA		B		3671	04-08-1996		
2	C11194	MODULE ASSEMBLY - M1 - (I	1.0000	EA		M	P	3671	04-08-1996		
3	573912	HEADER 40 PIN DIP .6 CENT	1.0000	EA		B					
3	T-C11194-1	SELECT "M1" MODULE VALUES	0.0000	EA		B					
3	T-C11194-3	GT M1 MODULE VALUES	0.0000	EA		B					
2	575912	CONN. KEYING ELEMENT (DN-	2.0000	EA		B		3671	04-08-1996		
2	477132	LABEL, SERIAL NUMBER, DIN	1.0000	EA		B		3671	04-08-1996		
2	477122	LABEL, DIN BOX, INFRARAIL	1.0000	EA		B		3671	04-08-1996		
2	574082	TERM. BLOCK JUMPER QUICK	1.0000	EA		B		3671	04-08-1996		
2	LDNKIT	MTG CLIP KIT FOR INFRARAI	1.0000	EA		M	P	3671	04-08-1996		
3	990300010	CLIP MTG FOR DIN BOX	2.0000	EA		B		3694	04-17-1996		
3	LDNKIT/01	SEE EXTENDED DESCRIPTION	0.0000	EA		M	P				
2	477182	LABEL-CE MARK (PRODUCTS)	1.0000	EA		B		3671	04-08-1996		
1	B10927	FIBER OPTIC - LIGHT GUIDE	1.0000	EA		M	P				
2	T-B10927-1	SELECT (MOD+ R/V/W/2/6) F	0.0000	EA		B		2399	01-17-1990		
2	T-B10927-2	SELECT (MIR OR/20/60) FIB	0.0000	EA		B		2399	01-17-1990		
2	T-B10927-3	SELECT (SR SR-SERIES) FI	0.0000	EA		B		2399	01-17-1990		
2	T-B10927-4	SELECT (SA-SERIES) FIB. O	0.0000	EA		B		2399	01-17-1990		
2	T-B10927-5	SELECT (F-SERIES) (INFRARA	0.0000	EA		B		2399	01-17-1990		
2	T-B10927-6	SELECT (MOD3) FIB. OPT. L	0.0000	EA		B		2399	01-17-1990		
2	T-B10927-7	SELECT GT F/O LIGHT GUIDE	0.0000	EA		B					

For Special R733

Process: CRQ-R-09
19 MAY 2003

IRCON INC
Indented Configuration Bom

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Level	Part Number	Description	Quantity	UM	Alt	MB	X	ECO No.	ECO Date	Start Use	End Use
1	DN0DNFEA		1.0000	EA							
1	NL12006F	NEW 'N' # FOR L12006F	1.0000	EA							
2	L12006F	REIMAGE LENS 6-10" D/30-D	1.0000	EA							
3	453192	HOUSING OUTER REIMAGE MP/	1.0000	EA							
3	432502	O RING .547ID X .051THK B	2.0000	EA							
3	610782	LENS EQUIBICONVEX CAF2 OB	1.0000	EA							
3	445973	SPACER .165THK OBJECTIVE	1.0000	EA							
3	453222	RETAINER RING SPRING OBJ	1.0000	EA							
3	620222	WINDOW PROTECTIVE IR QUAR	1.0000	EA							
3	453172	RETAINER RING OBJECTIVE L	1.0000	EA							
3	453162	HOUSING REAR REIMAGE MP/M	1.0000	EA							
3	453232	FIELD STOP RECTANGULAR SL	1.0000	EA							
3	453134	CAN GLARE STOP .173D PAIN	2.0000	EA			X				
4	453133	CAN GLARE STOP RAW MP/MR/	2.0000	EA							
3	453142	APERTURE THREADED .255 ID	1.0000	EA							
3	20100674A	SCREW #10-32 X 3/16 SKT S	1.0000	EA							
3	475962	LABEL REIMAGE LENS EXT TI	1.0000	EA							
3	453202	NUT HEX 7/8-20 S/S	2.0000	EA							
3	432662	PLASTIC CAP/PLUG TAPPED	2.0000	EA							
3	411202	KEY HEX 3/32" SHORT ARM	1.0000	EA							
3	L12006F/01	SEE EXTENDED DESCRIPTION	0.0000	EA							
1	D11195	SH ASSEMBLY (F-SERIES) (IN	1.0000	EA							
2	454143	F-HEAD SENSOR	1.0000	EA				3709	05-17-1996		
2	640362	FILTER RG715	1.0000	EA				3709	05-17-1996		
2	990100034	ADHESIVE OPTICAL CEMENT S	1.0000	EA				3709	05-17-1996		
2	640462	FILTER BANDPASS 0.7-1.8U	1.0000	EA				3709	05-17-1996		
2	990100009	ADHESIVE CYANOACRYLATE BLK	1.0000	EA				3709	05-17-1996		
2	C112007	SH DETECTOR ASSEMBLY (F-S	1.0000	EA				3709	05-17-1996		
3	L13353	SH DETECTOR ASSY F-SERIES	1.0000	EA							
4	431452	DET. LOCATOR Z HEAD	1.0000	EA							
4	451382	LOCATING PIN FOR Z1	1.0000	EA							
4	590292	DET. VTB 6061 VACTEC Z/L	1.0000	EA							
4	560372	CABLE PVC 1 COND SHIELD 2	2.5000	IN							
4	430292	CONN. GASKET 2000 SERIES	1.0000	EA							
4	575892	CONN. CIRC 3 RECPT 10SL-3	1.0000	EA							
4	490042	SPRING DETECTOR RETAINER	1.0000	EA							
4	501822	PCB DETECTOR Z/L MOD2	1.0000	EA							
4	990100002	EPOXY HARDMAN #4005 GEN P	1.0000	EA							
4	312430100	WIRE 24AWG BARE SOLID	1.0000	IN							
4	320811000	BLACK HEAT SHRINK TUBING	1.0000	IN							
2	220403200	WASHER #4 LOCK SPLIT RING	4.0000	EA				3709	05-17-1996		
2	200412440	SCREW #4-40 X 3/8 FIL SLO	4.0000	EA				3709	05-17-1996		
2	454152	SCREW, ADJUSTMENT,	1.0000	EA				3709	05-17-1996		
2	433372	O RING 3/32 X 7/32 X 1/16	1.0000	EA				3709	05-17-1996		
2	20100874F	SCREW #10-32 X 1/4 SOCKET	1.0000	EA				3709	05-17-1996		
2	220602200	WASHER #6 LOCK EXT TOOTH	1.0000	EA				3709	05-17-1996		
2	200606040	SCREW #6-32 X 3/16 PH SLO	1.0000	EA				3709	05-17-1996		
2	474772	LABEL GROUND WARNING	1.0000	EA				3709	05-17-1996		
2	477142	LABEL, SERIAL NUMBER, SEN	1.0000	EA				3709	05-17-1996		
2	454242	NUT RETAINING S.S. E/F-HE	1.0000	EA				3709	05-17-1996		
2	T-D11195-1	SELECT FIBER OPTIC LIGHT	0.0000	EA				3709	05-17-1996		
2	T-D11195-3	F-SERIES (GT) FIB OPT	0.0000	EA							
2	ENGTEXT	ENG CONTROLLED TEXT	1.0000	EA							
2	999900013	CAP PLUG #SC-1-1/4	1.0000	EA				3709	05-17-1996		
2	990100028	SEALANT RTV SILICONE BLAC	1.0000	EA				3709	05-17-1996		
1	D11198	PVC (INT/EXT-E/F SERIES) (	1.0000	EA							
2	560052	CABLE PVC 2 COND 1100/200	1.0000	FT				3913	04-02-1997		
2	D11198/01	SEE EXTENDED DESCRIPTION	0.0000	EA							
2	D11198/02	SEE EXTENDED DESCRIPTION	0.0000	EA							
2	D11198/03	SEE EXTENDED DESCRIPTION	8.0000	EA							
2	575882	CONN. CIRC 10SL-3 BACKSHE	1.0000	EA				3913	04-02-1997		
2	3210G00X0	TUBING #10 PVC CLEAR	3.0000	IN				3913	04-02-1997		
2	3212G00X0	TUBING #12 PVC CLEAR	1.0000	IN				3913	04-02-1997		
2	575902	CONN. CIRC 10SL-3 STR PLU	1.0000	EA				3913	04-02-1997		
2	321611400	TUBING 1/4" SHRINKABLE BL	1.0000	IN				3913	04-02-1997		
2	990100027	ADHESIVE LOCTITE 272	1.0000	EA				3913	04-02-1997		
2	C-CABLE	DETERMINE CABLE LENGTH FR	1.0000	EA				M 3913	04-02-1997		
2	477202	LABEL INFRARAIL (2.0" X 0	1.0000	EA				B 3913	04-02-1997		

Before Changes
(Save for Reference)

Number :DN#16774 - IRCON INFRARAIL IRT SO-LI: 82747*1

Level	Part Number	Description	Quantity	UM	Alt.	MB X	ECO No.	ECO Date	Start Use	End Use
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-FFC25F	MODULE ASSEMBLY - M1 - (I	1.0000	EA		M P				
2	106343011	RES. 634K 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	101372011	RES. 13.7K OHM MF 1/4W 1%	1.0000	EA		B				
2	105622011	RES. 56.2K OHM MF 1/4W 1%	1.0000	EA		B				
2	109531011	RES. 9.53K OHM MF 1/4W 1%	1.0000	EA		B				
2	108662011	RES. 86.6K OHM MF 1/4W 1%	1.0000	EA		B				
2	106341011	RES. 6.34K OHM MF 1/4W 1%	1.0000	EA		B				
2	101373011	RES. 137K OHM MF 1/4W 1%	1.0000	EA		B				
2	104021011	RES. 4.02K OHM MF 1/4W 1%	1.0000	EA		B				
2	102153011	RES. 215K OHM MF 1/4W 1%	1.0000	EA		B				
2	102551011	RES. 2.55K OHM MF 1/4W 1%	1.0000	EA		B				
2	103743011	RES. 374K OHM MF 1/4W 1%	1.0000	EA		B				
2	101541011	RES. 1.54K OHM MF 1/4W 1%	1.0000	EA		B				
2	106193011	RES. 619K OHM MF 1/4W 1%	1.0000	EA		B				
2	109090011	RES. 909 OHM MF 1/4W 1%	1.0000	EA		B				
2	101074011	RES. 1.07M OHM MF 1/4W 1%	1.0000	EA		B				
2	105110011	RES. 511 OHM MF 1/4W 1%	1.0000	EA		B				
2	106190011	RES. 619 OHM MF 1/4W 1%	1.0000	EA		B				
2	101874011	RES. 1.87M OHM MF 1/4W 1%	1.0000	EA		B				
1	NL120FA5	NEW 'N'# FOR L120FA5	1.0000	EA		M P				
2	L120FA5	FIB. OPT. LIGHT GUIDE 10'	1.0000	EA		M P				
3	610732	FIB. OPT. 10FT R/OR/SR SE	1.0000	EA		B	3089	09-26-1994		
3	453112	NUT LOCKING FIB OPT LT GU	2.0000	EA		B	3089	09-26-1994		
3	410832	RETAINER RING C TYPE .5 D	2.0000	EA		B	3089	09-26-1994		
3	432542	IDENTIFICATION TIE FIBER	1.0000	EA		B	3089	09-26-1994		
3	475982	LABEL LIGHT GUIDE FIBER O	1.0000	EA		B	3089	09-26-1994		
3	999900009	CAP PROTECTIVE,VINYL WHIT	2.0000	EA		B	3089	09-26-1994		
1	D11191	INFRARAIL BOX ASSEMBLY	1.0000	EA		M P				
2	433332	ENCLOSURE, DIN BOX, MODIF	1.0000	EA		B	3671	04-08-1996		
2	C11187	POWER SUPPLY/ PEAK-PICKER	1.0000	EA		M P	3671	04-08-1996		
3	C20212	SCHEMATIC: POWER SUPPLY/	1.0000	EA		M P	4202	01-14-1999		
3	LDN200	PWR SUPPLY/ PP PCB ASSY	1.0000	EA		M P	4202	01-14-1999		
4	502505	PCB DIN RAIL POWER PEAK-P	1.0000	EA		B	3769	08-05-1996		
4	LDN200/01	SEE EXTENDED DESCRIPTION	0.0000	EA		M P				
4	533082	TRAN. MJE800 NPN - DARLIN	1.0000	EA		B	3769	08-05-1996		
4	LDN200/02	SEE EXTENDED DESCRIPTION	0.0000	EA		M P				
4	LDN200/03	SEE EXTENDED DESCRIPTION	0.0000	EA		M P				
4	530882	DIODE 1N4002 GP RECTIFIER	1.0000	EA		B	3769	08-05-1996		
4	532952	OP-AMP ULTRA LOW BIAS	2.0000	EA		B	3769	08-05-1996		
4	532322	IC 4053B ANALOG MUX/DEMUX	1.0000	EA		B	4842	07-31-2002		
4	531862	OP-AMP LM346N PROGRAM QUA	1.0000	EA		B	3769	08-05-1996		
4	102493011	RES. 249K OHM MF 1/4W 1%	1.0000	EA		B	3769	08-05-1996		
4	103321011	RES. 3.32K OHM MF 1/4W 1%	1.0000	EA		B	3769	08-05-1996		
4	101820011	RES. 182 OHM MF 1/4W 1%	1.0000	EA		B	3769	08-05-1996		
4	104421011	RES. 4.42K OHM MF 1/4W 1%	1.0000	EA		B	3769	08-05-1996		
4	106654011	RES. 6.65M OHM MF 1/4W 1%	1.0000	EA		B	3769	08-05-1996		
4	104993011	RES. 499K OHM MF 1/4W 1%	1.0000	EA		B	3769	08-05-1996		
4	104021011	RES. 4.02K OHM MF 1/4W 1%	1.0000	EA		B	3769	08-05-1996		
4	105364011	RES. 5.36M OHM MF 1/4W 1%	2.0000	EA		B	3769	08-05-1996		
4	103480011	RES. 348 OHM MF 1/4W 1%	1.0000	EA		B	3769	08-05-1996		
4	100000990	JUMPER DUMMY RESISTOR	5.0000	EA		B	3769	08-05-1996		
4	101000011	RES. 100 OHM MF 1/4W 1%	1.0000	EA		B	3769	08-05-1996		
4	101003011	RES. 100K OHM MF 1/4W 1%	1.0000	EA		B	3769	08-05-1996		
4	101004011	RES. 1.00M OHM MF 1/4W 1%	4.0000	EA		B	3769	08-05-1996		
4	102003011	RES. 200K OHM MF 1/4W 1%	2.0000	EA		B	3769	08-05-1996		
4	104991011	RES. 4.99K OHM MF 1/4W 1%	1.0000	EA		B	3769	08-05-1996		
4	101503011	RES. 150K OHM MF 1/4W 1%	1.0000	EA		B				
4	530572	DIODE 1N4446 SWITCHING	2.0000	EA		B	3769	08-05-1996		
4	530532	DIODE FD300 GENERAL PURPO	1.0000	EA		B	3769	08-05-1996		
4	521852	CAP. 0.68 MFD 50V CERAMIC	1.0000	EA		B	3769	08-05-1996		
4	521972	CAP. .047 MFD 50V CER X7	1.0000	EA		B	3769	08-05-1996		
4	521072	CAP. 22MFD 16V TANT 10%	2.0000	EA		B	3769	08-05-1996		
4	551122	CHOKER 9250-122 1.2 UH, .1	2.0000	EA		B	3769	08-05-1996		
4	521902	CAP. NPO 1000pf 200V .2LS	1.0000	EA		B	3769	08-05-1996		

Number :DN#16774 - IRCON INFRARAIL IRT SO-LI: 82747*1

Level	Part Number	Description	Quantity	UM	Alt	MB	X	ECO No.	ECO Date	Start Use	End Use
4	521862	CAP. 3.3 MFD 50V CERAMC X	1.0000	EA		B		3769	08-05-1996		
4	521872	CAP. 1.0 MFD 50V CERAMIC	5.0000	EA		B		3769	08-05-1996		
4	522002	CAP. .01 MFD 200V CERAMIC	6.0000	EA		B		3769	08-05-1996		
4	531892	REG. LM317LZ +1.2/37V ADJ	1.0000	EA		B		3769	08-05-1996		
4	431902	BIVAR PERMO PAD 0.250 DIA	1.0000	EA		B		3769	08-05-1996		
4	530862	TRAN. 2N2222A NPN MED POW	1.0000	EA		B		3769	08-05-1996		
4	551152	INDUCTOR 100UH +/-10% IMS	2.0000	EA		B		3769	08-05-1996		
4	531882	DIODE LM385BZ-2.5 2.5V RE	6.0000	EA		B		3769	08-05-1996		
4	575602	CONN. HDR AMP STRAIGHT 5	1.0000	EA		B		3769	08-05-1996		
4	574592	CONN. HDR AMP STRAIGHT 4	1.0000	EA		B		3769	08-05-1996		
4	LDN200/04	SEE EXTENDED DESCRIPTION	0.0000	EA		M	P				
4	572732	HEADER SNGL 36 PIN .1 CNT	11.0000	EA		B		3769	08-05-1996		
4	LDN200/05	SEE EXTENDED DESCRIPTION	0.0000	EA		M	P				
2	C11186	PREAMP/ LINEARIZER PCB AS	1.0000	EA		M	P	3671	04-08-1996		
3	C20211	SCHEMATIC: PREAMP/ LINEAR	1.0000	EA		M	P	4785	03-05-2002		
3	LDN100	PREAMP/ LIN PCB ASSY INFR	1.0000	EA		M	P	3659	04-12-1996		
4	502493	PCB DIN RAIL LINEARIZER	1.0000	EA		B		3767	08-07-1996		
4	LDN100/01	SEE EXTENDED DESCRIPTION	0.0000	EA		M	P				
4	LDN100/02	SEE EXTENDED DESCRIPTION	0.0000	EA		M	P				
4	532982	OP-AMP AD548CQ LOW PWR	1.0000	EA		B		3767	08-07-1996		
4	531862	OP-AMP LM346N PROGRAM QUA	3.0000	EA		B		3767	08-07-1996		
4	530532	DIODE FD300 GENERAL PURPO	16.0000	EA		B		3767	08-07-1996		
4	514632	RES. 330K NETWORK 10 PIN	2.0000	EA		B		3767	08-07-1996		
4	514642	RES. 330K NETWORK 10 PIN	2.0000	EA		B		3767	08-07-1996		
4	104533011	RES. 453K OHM MF 1/4W 1%	1.0000	EA		B		3767	08-07-1996		
4	1010R0011	RES. 10.0 OHM MF 1/4W 1%	1.0000	EA		B		3767	08-07-1996		
4	102743011	RES. 274K OHM MF 1/4W 1%	1.0000	EA		B		3767	08-07-1996		
4	102103011	RES. 210K OHM MF 1/4W 1%	1.0000	EA		B		3767	08-07-1996		
4	105364011	RES. 5.36M OHM MF 1/4W 1%	6.0000	EA		B		3767	08-07-1996		
4	101002011	RES. 10.0K OHM MF 1/4W 1%	1.0000	EA		B		3767	08-07-1996		
4	101003011	RES. 100K OHM MF 1/4W 1%	1.0000	EA		B		3767	08-07-1996		
4	102003011	RES. 200K OHM MF 1/4W 1%	2.0000	EA		B		3767	08-07-1996		
4	101000011	RES. 100 OHM MF 1/4W 1%	2.0000	EA		B		3767	08-07-1996		
4	100000990	JUMPER DUMMY RESISTOR	1.0000	EA		B		3767	08-07-1996		
4	551122	CHOKE 9250-122 1.2 UH, .1	1.0000	EA		B		3767	08-07-1996		
4	540412	FERRITE BEAD ON LEAD AXIA	3.0000	EA		B		3767	08-07-1996		
4	522002	CAP. .01 MFD 200V CERAMIC	7.0000	EA		B		3767	08-07-1996		
4	521902	CAP. NPO 1000pf 200V .2LS	2.0000	EA		B		3767	08-07-1996		
4	521932	CAP. 100 PF COG 200V	1.0000	EA		B		3767	08-07-1996		
4	521962	CAP. 10Pf NPO 200V .2LS	2.0000	EA		B		3767	08-07-1996		
4	514612	POT. 50K 25T 1/2W 10%	1.0000	EA		B		3767	08-07-1996		
4	514242	POT. 25K OHM 25T 1/2W 10%	1.0000	EA		B		3767	08-07-1996		
4	514622	POT. 100K 25T 1/2W 10%	1.0000	EA		B		3767	08-07-1996		
4	574922	CONN. HDR AMP STRAIGHT 3	1.0000	EA		B		3767	08-07-1996		
4	LDN100/03	SEE EXTENDED DESCRIPTION	0.0000	EA		M	P				
4	574432	SOCKET 40 POS DIP .5HT EL	1.0000	EA		B		3767	08-07-1996		
4	LDN100/04	SEE EXTENDED DESCRIPTION	0.0000	EA		M	P				
4	526002	CAP. SMC 330Pf NPO 50V 5%	1.0000	EA		B		3767	08-07-1996		
4	572732	HEADER SNGL 36 PIN .1 CNT	11.0000	EA		B		3767	08-07-1996		
4	LDN100/05	SEE EXTENDED DESCRIPTION	0.0000	EA		M	P				
2	C11193	PCB INTERCONNECT ASSEMBLY	1.0000	EA		M	P	3671	04-08-1996		
3	LDN300	PCB INTERCONN ASSY (INFRA	1.0000	EA		M	P				
4	502533	PCB DIN RAIL POWER PEAK-P	1.0000	EA		B		3721	08-01-1996		
4	575922	CONN. FEMALE 11 POSITION	2.0000	EA		B		3721	08-01-1996		
2	477112	LABEL, COVER, DIN BOX	1.0000	EA		B		3671	04-08-1996		
2	C11190	DECAY RATE POT/ CONNECTOR	1.0000	EA		M	P	3671	04-08-1996		
3	LDN003	DECAY RATE POT/ CONN. ASS	1.0000	EA		M	P	4030	10-08-1997		
4	514592	POT. 50K OHM 1T 1/2W 10%	1.0000	EA		B					
4	LDN003/01	SEE EXTENDED DESCRIPTION	0.0000	EA		M	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	04-08-1996		
3	LDN002	RESP. TIME POT/ CONN. ASS	1.0000	EA		M	P				
4	514602	POT. 5M OHM 1T 1/2W 20% P	1.0000	EA		B					
4	302440000	WIRE 24AWG YEL/BLACK STRA	1.0000	IN		B					

Number :DN#16774 - IRCON INFRARAIL IRT SO-LI: 82747*1

Level	Part Number	Description	Quantity	UM	Alt.	MB X	ECO No.	ECO Date	Start Use	End Use
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	04-08-1996		
3	LDN001	EMISSIVITY POT/ CONN. ASS	1.0000	EA		M P	3767	08-07-1996		
4	513722	POT. 100K 2 DIGIT 1% DIGI	1.0000	EA		B	3767	08-07-1996		
4	30245X000	WIRE 24AWG GREEN STRANDED	1.0000	IN		B	3767	08-07-1996		
4	30249X000	WIRE 24AWG WHITE STRANDED	1.0000	IN		B	3767	08-07-1996		
4	30246X000	WIRE 24AWG BLUE STRANDED	1.0000	IN		B	3767	08-07-1996		
4	574662	CONN. CONTACT 20-24 AWG C	3.0000	EA		B	3767	08-07-1996		
4	574672	CONN. HOUSING 3 POSITION-	1.0000	EA		B	3767	08-07-1996		
4	477212	LABEL - CLEAR WINDOW	1.0000	EA		B	3767	08-07-1996		
2	575852	KNOB, 9MM COLLET TYPE,	2.0000	EA		B	3671	04-08-1996		
2	575872	POINTER, 9MM COLLET TYPE	2.0000	EA		B	3671	04-08-1996		
2	575862	CAP. 9MM COLLET TYPE KNOB	2.0000	EA		B	3671	04-08-1996		
2	C11194	MODULE ASSEMBLY - M1 - (I	1.0000	EA		M P	3671	04-08-1996		
3	573912	HEADER 40 PIN DIP .6 CENT	1.0000	EA		B				
3	T-C11194-1	SELECT "M1" MODULE VALUES	0.0000	EA		B				
3	T-C11194-3	GT M1 MODULE VALUES	0.0000	EA		B				
2	575912	CONN. KEYING ELEMENT (DN-	2.0000	EA		B	3671	04-08-1996		
2	477132	LABEL, SERIAL NUMBER, DIN	1.0000	EA		B	3671	04-08-1996		
2	477122	LABEL, DIN BOX, INFRARAIL	1.0000	EA		B	3671	04-08-1996		
2	574082	TERM. BLOCK JUMPER QUICK	1.0000	EA		B	3671	04-08-1996		
2	LDNKIT	MTG CLIP KIT FOR INFRARAI	1.0000	EA		M P	3671	04-08-1996		
3	990300010	CLIP MTG FOR DIN BOX	2.0000	EA		B	3694	04-17-1996		
3	LDNKIT/01	SEE EXTENDED DESCRIPTION	0.0000	EA		M P				
2	477182	LABEL-CE MARK (PRODUCTS)	1.0000	EA		B	3671	04-08-1996		
1	B10927	FIBER OPTIC - LIGHT GUIDE	1.0000	EA		M P				
2	T-B10927-1	SELECT (MOD+ R/V/W/2/6) F	0.0000	EA		B	2399	01-17-1990		
2	T-B10927-2	SELECT (MIR OR/20/60) FIB	0.0000	EA		B	2399	01-17-1990		
2	T-B10927-3	SELECT (SR SR-SERIES) FI	0.0000	EA		B	2399	01-17-1990		
2	T-B10927-4	SELECT (SA-SERIES) FIB. O	0.0000	EA		B	2399	01-17-1990		
2	T-B10927-5	SELECT (F-SERIES) (INFRARA	0.0000	EA		B	2399	01-17-1990		
2	T-B10927-6	SELECT (MOD3) FIB. OPT. L	0.0000	EA		B	2399	01-17-1990		
2	T-B10927-7	SELECT GT F/O LIGHT GUIDE	0.0000	EA		B				

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. 019428
UNITROL ELECTRONIC
702 LANDWEHR ROAD
NORTHBROOK, IL 60062

SHIPPING ADDRESS TAX CODE NO TAX
UNITROL ELECTRONIC
702 LANDWEHR ROAD
NORTHBROOK, IL 60062

REQUEST DATE (MM-DD-YY) 05-30-03 PROMISE DATE (MM-DD-YY) 05-30-03
OUR ORDER NO. 82747 ORDER DATE (MM-DD-YY) 05-16-03
YOUR ORDER NO. 9817
TERMS 0.00/0/30
QUOTE #
F.O.B. ORIGIN
CODE 1162 (100.00)
VIA UPS
SPECIAL SHIPPING INSTRUCTIONS

99F

LI	PART NO.	DESCRIPTION	QTY	DSCNT %	UNIT PRICE	AMOUNT
1	DN#16774 <i>W.O.#13910</i>	DN_DNFFC-25F IRCON INFRARAIL IRT SYSTEM-COMplete Consists of the following: 1.0000 - INFRARAIL 1.0000 - DN - F SERIES 1.0000 - Std Cbl Lgth 12ft 1.0000 - D/30 X D/150 10FT FIB. OPT. 1.0000 - 1500 TO 2500F (C) 1.0000 - CLOSE FOCUS LENS DN_DNFFC-25F	1	0.00	2100.00	2100.00
						<i>Red 5 Spec No R 733</i>
						<i>Temp range 1100-2000 F</i>
						<i>pub 5/16</i>
THIS ORDER IS ACCEPTED SUBJECT TO TERMS AND CONDITIONS SHOWN ON THIS AND THE REVERSE SIDE					GRAND TOTAL	USD2,100.00

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

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



IRCON, INC.
7300 North Natchez Avenue
Niles, Illinois 60714 USA

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

ISO 9001/QS 9000 TE
Quality Systems Certified

Modified Standard Product
Data Form

A modified standard product is a product that is based on a standard product found in the most recent price list. The modifications maybe items such as; temperature ranges, output types, resolution, response time and optical issues. A modified standard product form is to be completed and submitted to Steve Schumm and Gene Kalley for review and approval based on the modification (which we have done before). If the modification has not been done before, the approval will require the entire senior management team's approval BEFORE QUOTING. A modified standard product if approved; this product will become a price listed standard product. We can then pay commission as outlined in our most recent contract.

- Standard Product is a Model Number: DNEFC-2CF
- Standard Product List Price: \$2100
- The product change requested would be: Resh R733
1100-2000F *Sales will attach specifics to this form.*
- The market is willing to pay \$2100 for this product (total including standard price).
- What is engineering's expected time investment and cost: 1 DAY Man Days
\$ 800⁰⁰
- What is production's expected purchasing and production time requirement: Days
- This new product has potential in the following application and estimated potential per year would be per year:

- This product will be not be quoted and produced as previously outlined.
- Agreed on this date of By production/purchasing
By engineering A. DONADO 5/19/03
- Sales can now quote this project for \$ per unit. W.O.# 13910
 lead time.

 Add to standard product list in literature (Maxine)
 Add to price list (Vern)
cc/ Greg P, Paul V, Regional Sales Staff Globally

**DRAWING(S) TOO LARGE
TO SCAN.**

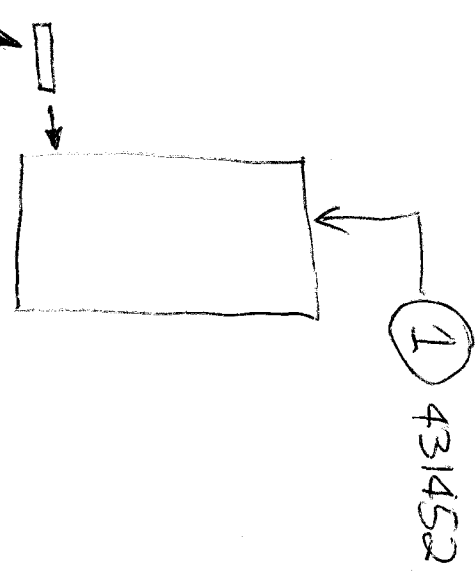
**TO VIEW THE ORIGINAL
DESIGN,**

**A REQUEST TO VIEW
PHYSICAL FILE
IS YOUR NEXT OPTION.**

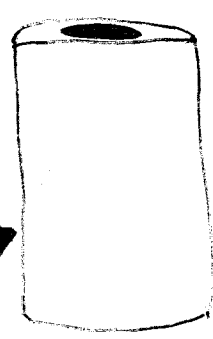
Detector Holder Assembly

SPECIAL R733

9/25/02 A.P.



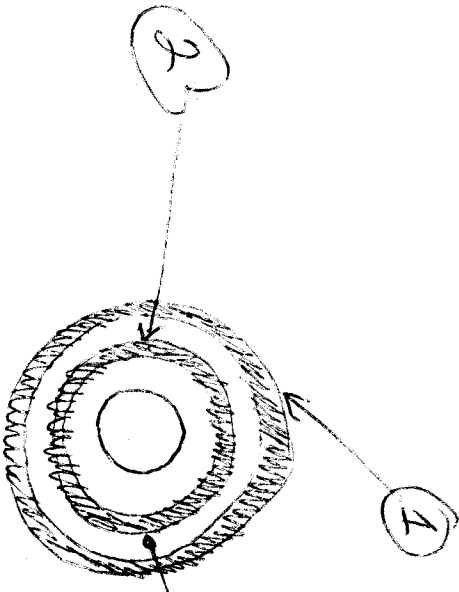
① 431452
 ② NOTE: PRESS FIT ITEM 2 (P.N. 451382) INTO ITEM 1



③ 433152

See Special
 R729 1.6µm
 D/50 Filter @ 30"
 5/19/03

WIRE PER C-11207
 ASSY. # C11209
 64055-2
 1.16µm



NOTE: ASSEMBLE ITEM 3 INTO ITEM 1 AND GLUE USING EPOXY W/ORD # 990100039. ALLOW TO DRY OVERNIGHT.

Detector Retainer = 431342

5/19/03



R733

S/O 86211

Section 1 — GENERAL INFORMATION

1.6 PRODUCT MODIFICATION

IRCON Fiber Optic InfraRail Model DNFFC-99F is modified for a special temperature range of 1100 to 2000°F; an optical resolution of D/30 by D/150, and a spectral response of 1.49 to 1.60 microns.

Note: The maximum sensor ambient temperature is restricted to 140 °F(60°C). Special components are used in the signal processor module, and the instrument has been factory calibrated for linear operation throughout the special temperature range.

This 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. R733.

NOTE: Ircon, Inc. is the sole owner in all respects of any product or software modification or design herein specified.



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**Modified Standard Product
 Data Form**

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- Standard Product is a Model Number: DNFFC-2SF
- Standard Product List Price: \$ 1700
- The product change requested would be: Reels R 733
- 1100-2000F Sales will attach specifics to this form.
- The market is willing to pay \$2000 for this product (total including standard price).
- What is engineering's expected time investment and cost: 1 HOUR Man Days
\$ 100⁰⁰
- What is production's expected purchasing and production time requirement: _____ Days
- This new product has potential in the following application and estimated potential per year would be _____ per year:

- This product will be not be _____ quoted and produced as previously outlined.
- Agreed on this date of _____ By production/purchasing _____
 By engineering A. DONADO 3/4/04
- Sales can now quote this project for \$ _____ per unit. w.o. #1569.1
 _____ lead time.

_____ Add to standard product list in literature (Maxine)
 _____ Add to price list (Vern)
 cc/ Greg P, Paul V, Regional Sales Staff Globally

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. 019428

UNITROL ELECTRONIC
702 LANDWEHR ROAD
NORTHBROOK, IL 60062

SHIPPING ADDRESS _____ TAX CODE NO TAX

UNITROL ELECTRONIC
702 LANDWEHR ROAD
NORTHBROOK, IL 60062

REQUEST DATE (MM-DD-YY) 03-10-04 PROMISE DATE (MM-DD-YY) 03-10-04

OUR ORDER NO. 84827 ORDER DATE (MM-DD-YY) 03-02-04

YOUR ORDER NO. 1585

TERMS 0.00/0/30

QUOTE # _____

F.O.B. ORIGIN

CODE 1162 (100.00)

VIA UPS

SPECIAL SHIPPING INSTRUCTIONS _____

99F

LI	PART NO.	DESCRIPTION	QTY	DSCNT %	UNIT PRICE	AMOUNT
1	DN#20128 <i>w.o.# 15691</i>	DN_DNFFC-25F IRCON INFRARAIL IRT SYSTEM-COMPLETE Consists of the following: 1.0000 - INFRARAIL 1.0000 - DN - F SERIES 1.0000 - Std Cbl Lgth 12ft 1.0000 - D/30 X D/150 10FT FIB. OPT.- 1.0000 - 1500 TO 2500F (C) . 1.0000 - CLOSE FOCUS LENS DN_DNFFC-25F <i>Rec'd Spec No R733 Temp range 1100-2000F P/H 1 1/2</i>	2	0.00	2100.00	4200.00
						<i>\$400</i>
THIS ORDER IS ACCEPTED SUBJECT TO TERMS AND CONDITIONS SHOWN ON THIS AND THE REVERSE SIDE					GRAND TOTAL	USD4,200.00

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

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

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. 019428

UNITROL ELECTRONIC
702 LANDWEHR ROAD
NORTHBROOK, IL 60062

SHIPPING ADDRESS _____ TAX CODE NO TAX

UNITROL ELECTRONIC
702 LANDWEHR ROAD
NORTHBROOK, IL 60062

REQUEST DATE (MM-DD-YY) 08-25-04 PROMISE DATE (MM-DD-YY) 08-25-04

OUR ORDER NO. 86211 ORDER DATE (MM-DD-YY) 08-23-04

YOUR ORDER NO. 2160

TERMS 0.00/0/30

QUOTE # _____

F.O.B. ORIGIN

CODE 1162 (100.00)

VIA PICK-UP

SPECIAL SHIPPING INSTRUCTIONS _____

995

LI	PART NO.	DESCRIPTION	QTY	DSCNT %	UNIT PRICE	AMOUNT
1	DN#22245 <i>W.O. # 16953</i>	DN_DNFFC-25F IRCON INFRARAIL IRT SYSTEM-COMplete Consists of the following: 1.0000 - INFRARAIL 1.0000 - DN - F SERIES 1.0000 - Std Cbl Lgth 12ft 1.0000 - D/30 X D/150 10FT FIB. OPT. 1.0000 - 1500 TO 2500F (C) 1.0000 - CLOSE FOCUS LENS DN_DNFFC-25F <i>Medo Spec No R733 Temp 1100-2000F</i>	1	0.00	2100.00	2100.00 <i>AKB 8/23</i>
THIS ORDER IS ACCEPTED SUBJECT TO TERMS AND CONDITIONS SHOWN ON THIS AND THE REVERSE SIDE						GRAND TOTAL USD2,100.00

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

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



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Modified Standard Product
Data Form

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- Standard Product is a Model Number: DNFPC-25P
- Standard Product List Price: \$1900
- The product change requested would be: Reds Spec NAK733
1100 + 2000 F Temp Sales will attach specifics to this form.
- The market is willing to pay: 2100 for this product (total including standard price).
- What is engineering's expected time investment and cost: 1 hour Man Days
\$ 100.00
- What is production's expected purchasing and production time requirement: Days
- This new product has potential in the following application and estimated potential per year would be per year:

➤ This product will be not be quoted and produced as previously outlined.

➤ Agreed on this date of By production/purchasing

By engineering A. DONADO 8/23/04

➤ Sales can now quote this project for \$ per unit. W.O.# 16953

 lead time.

 Add to standard product list in literature (Maxine)

 Add to price list (Vern)

cc/ Greg P, Paul V, Regional Sales Staff Globally

W.O.# 15691

Number :DN#20128 - IRCON INFRARAIL IRT SO-LI: 84827*1

Level	Part Number	Description	Quantity	UM	Alt	MB X	ECO No.	ECO Date	Start Use	End Use
1	DN0DNFFA		1.0000	EA		M P				
1	NL12006F	NEW 'N'# FOR L12006F	1.0000	EA		M P				
2	L12006F	REIMAGE LENS 6-10" D/30-D	1.0000	EA		M P				
3	453192	HOUSING OUTER REIMAGE MP/	1.0000	EA		B				
3	432502	O RING .547ID X .051THK B	2.0000	EA		B				
3	610782	LENS EQUIBICONVEX CAF2 OB	1.0000	EA		B				
3	445973	SPACER .165THK OBJECTIVE	1.0000	EA		B				
3	453222	RETAINER RING SPRING OBJ	1.0000	EA		B				
3	620222	WINDOW PROTECTIVE IR QUAR	1.0000	EA		B				
3	453172	RETAINER RING OBJECTIVE L	1.0000	EA		B				
3	453162	HOUSING REAR REIMAGE MP/M	1.0000	EA		B				
3	453232	FIELD STOP RECTANGULAR SL	1.0000	EA		B				
3	453134	CAN GLARE STOP .173D PAIN	2.0000	EA		M X 4970	12-10-2003			
4	453133	CAN GLARE STOP RAW MP/MR/	2.0000	EA		B				
3	453142	APERTURE THREADED .255 ID	1.0000	EA		B				
3	20100674A	SCREW #10-32 X 3/16 SKT S	1.0000	EA		B				
3	475962	LABEL REIMAGE LENS EXT TI	1.0000	EA		B				
3	453202	NUT HEX 7/8-20 S/S	2.0000	EA		B				
3	432662	PLASTIC CAP/PLUG TAPPED	2.0000	EA		B				
3	411202	KEY HEX 3/32" SHORT ARM	1.0000	EA		B				
3	L12006F/01	SEE EXTENDED DESCRIPTION	0.0000	EA		M P				
1	D11195-R733	SH ASSEMBLY, F-SERIES DIN	1.0000	EA		M P				
2	454143	F-HEAD SENSOR	1.0000	EA		B 3709	05-17-1996			
2	C11207-R733	DETECTOR ASSY. (1.6 MICRON	1.0000	EA		M P 3709	05-17-1996			
3	LDN106-R733	DETECTOR ASSY (1.6 MICRON	1.0000	EA		M P 3681	04-08-1996			
4	590942	DETECTOR InGaAs 1.6u	1.0000	EA		B				
4	560372	CABLE PVC 1 COND SHIELD 2	2.5000	IN		B 3681	04-08-1996			
4	990400001	BAG STATIC SHIELD 3X5 3M	1.0000	EA		B 3681	04-08-1996			
4	3214G00X0	TUBING #14 PVC CLEAR	1.0000	IN		B 3681	04-08-1996			
4	3208I1400	TUBING 1/8" SHRINKABLE BL	0.0000	IN		B				
3	L13353-R733	SH DETECTOR ASSY. F SERIE	1.0000	EA		M P				
4	431452	DET. LOCATOR Z HEAD	1.0000	EA		B				
4	451382	LOCATING PIN FOR Z1	1.0000	EA		B				
4	433152	HOLDER DET, FILTER & STOP	1.0000	EA		B				
4	433162	O RING .319ID X .028W 70	1.0000	EA		B				
4	431342	DET. RETAINER TO-5	1.0000	EA		B				
4	430292	CONN. GASKET 2000 SERIES	1.0000	EA		B				
4	575892	CONN. CIRC 3 RECPT 10SL-3	1.0000	EA		B				
4	490042	SPRING DETECTOR RETAINER	1.0000	EA		B				
4	990100002	EPOXY HARDMAN #4005 GEN P	1.0000	EA		B				
4	312430100	WIRE 24AWG BARE SOLID	1.0000	IN		B				
4	3208I1000	BLACK HEAT SHRINK TUBING	1.0000	IN		B				
3	T-C11207-X	FLOW TAG TEXT FOR DETECTO	0.0000	EA		B 3681	04-08-1996			
2	220403200	WASHER #4 LOCK SPLIT RING	4.0000	EA		B 3709	05-17-1996			
2	200412440	SCREW #4-40 X 3/8 FIL SLO	4.0000	EA		B 3709	05-17-1996			
2	454152	SCREW, ADJUSTMENT,	1.0000	EA		B 3709	05-17-1996			
2	433372	O RING 3/32 X 7/32 X 1/16	1.0000	EA		B 3709	05-17-1996			
2	20100874F	SCREW #10-32 X 1/4 SOCKET	1.0000	EA		B 3709	05-17-1996			
2	220602200	WASHER #6 LOCK EXT TOOTH	1.0000	EA		B 3709	05-17-1996			
2	200606040	SCREW #6-32 X 3/16 PH SLO	1.0000	EA		B 3709	05-17-1996			
2	474772	LABEL GROUND WARNING	1.0000	EA		B 3709	05-17-1996			
2	477142	LABEL, SERIAL NUMBER, SEN	1.0000	EA		B 3709	05-17-1996			
2	454242	NUT RETAINING S.S. E/F-HE	1.0000	EA		B 3709	05-17-1996			
2	T-D11195-1	SELECT FIBER OPTIC LIGHT	0.0000	EA		B 3709	05-17-1996			
2	T-D11195-3	F-SERIES (GT) FIB OPT	0.0000	EA		B				
2	ENGTEXT	ENG CONTROLLED TEXT	1.0000	EA		M P				
2	999900013	CAP PLUG #SC-1-1/4	1.0000	EA		B 3709	05-17-1996			
2	990100028	SEALANT RTV SILICONE BLAC	1.0000	EA		B 3709	05-17-1996			
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	04-02-1997			
2	D11198/01	SEE EXTENDED DESCRIPTION	0.0000	EA		M				
2	D11198/02	SEE EXTENDED DESCRIPTION	0.0000	EA		M				
2	D11198/03	SEE EXTENDED DESCRIPTION	8.0000	EA		M				
2	575882	CONN. CIRC 10SL-3 BACKSHE	1.0000	EA		B 3913	04-02-1997			
2	3210G00X0	TUBING #10 PVC CLEAR	3.0000	IN		B 3913	04-02-1997			
2	3212G00X0	TUBING #12 PVC CLEAR	1.0000	IN		B 3913	04-02-1997			
2	575902	CONN. CIRC 10SL-3 STR PLU	1.0000	EA		B 3913	04-02-1997			
2	3216I1400	TUBING 1/4" SHRINKABLE BL	1.0000	IN		B 3913	04-02-1997			

R733

Number :DN#20128 - IRCON INFRARAIL IRT SO-LI: 84827*1

Level	Part Number	Description	Quantity	UM	Alt	MB X	ECO No.	ECO Date	Start Use	End Use
2	990100027	ADHESIVE LOCTITE 272	1.0000	EA		B	3913	04-02-1997		
2	C-CABLE	DETERMINE CABLE LENGTH FR	1.0000	EA		M P	3913	04-02-1997		
2	477202	LABEL INFRARAIL (2.0" X 0	1.0000	EA		B	3913	04-02-1997		
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-R733	MODULE ASSEMBLY-M1-(DINRA	1.0000	EA		M P				
2	106343011	RES. 634K OHM MF 1/4W 1%	1.0000	EA		B				
2	101872011	RES. 18.7K OHM MF 1/4W 1%	1.0000	EA		B				
2	101503011	RES. 150K OHM MF 1/4W 1%	1.0000	EA		B				
2	101132011	RES. 11.3K OHM MF 1/4W 1%	1.0000	EA		B				
2	104642011	RES. 46.4K OHM MF 1/4W 1%	1.0000	EA		B				
2	109091011	RES. 9.09K OHM MF 1/4W 1%	1.0000	EA		B				
2	106492011	RES. 64.9K OHM MF 1/4W 1%	1.0000	EA		B				
2	106651011	RES. 6.65K OHM MF 1/4W 1%	1.0000	EA		B				
2	109312011	RES. 93.1K OHM MF 1/4W 1%	1.0000	EA		B				
2	104871011	RES. 4.87K OHM MF 1/4W 1%	1.0000	EA		B				
2	101373011	RES. 137K OHM MF 1/4W 1%	1.0000	EA		B				
2	103401011	RES. 3.40K OHM MF 1/4W 1%	1.0000	EA		B				
2	102003011	RES. 200K OHM MF 1/4W 1%	1.0000	EA		B				
2	102321011	RES. 2.32K OHM MF 1/4W 1%	1.0000	EA		B				
2	103013011	RES. 301K OHM MF 1/4W 1%	1.0000	EA		B				
2	101541011	RES. 1.54K OHM MF 1/4W 1%	1.0000	EA		B				
2	104643011	RES. 464K OHM MF 1/4W 1%	1.0000	EA		B				
2	101001011	RES. 1.00K OHM MF 1/4W 1%	1.0000	EA		B				
2	101581011	RES. 1.58K OHM MF 1/4W 1%	1.0000	EA		B				
2	107323011	RES. 732K OHM MF 1/4W 1%	1.0000	EA		B				
1	NL120FA1	NEW 'N'# FOR L120FA1	1.0000	EA		M P				
2	L120FA1	FIB. OPT. 1.6 MICRON 10FT	1.0000	EA		M P				
3	610941	FIB. OPT. 1.6 MICRON 10'	1.0000	EA		B	3501	02-14-1996		
3	453112	NUT LOCKING FIB OPT LT GU	2.0000	EA		B	3501	02-14-1996		
3	410832	RETAINER RING C TYPE .5 D	2.0000	EA		B	3501	02-14-1996		
3	432542	IDENTIFICATION TIE FIBER	1.0000	EA		B	3501	02-14-1996		
3	475982	LABEL LIGHT GUIDE FIBER O	1.0000	EA		B	3501	02-14-1996		
3	999900009	CAP PROTECTIVE,VINYL WHIT	2.0000	EA		B	3501	02-14-1996		
1	D11191	INFRARAIL BOX ASSEMBLY	1.0000	EA		M P				
2	433332	ENCLOSURE, DIN BOX, MODIF	1.0000	EA		B	3671	04-08-1996		
2	C11187	POWER SUPPLY/ PEAK-PICKER	1.0000	EA		M P	3671	04-08-1996		
3	C20212	SCHEMATIC: POWER SUPPLY/	1.0000	EA		M P	4202	01-14-1999		
3	LDN200	PWR SUPPLY/ PP PCB ASSY	1.0000	EA		M P	4202	01-14-1999		
4	502505	PCB DIN RAIL POWER PEAK-P	1.0000	EA		B	3769	08-05-1996		
4	LDN200/01	SEE EXTENDED DESCRIPTION	0.0000	EA		M P				
4	533082	TRAN. MJE800 NPN - DARLIN	1.0000	EA		B	3769	08-05-1996		
4	LDN200/02	SEE EXTENDED DESCRIPTION	0.0000	EA		M P				
4	LDN200/03	SEE EXTENDED DESCRIPTION	0.0000	EA		M P				
4	530882	DIODE 1N4002 GP RECTIFIER	1.0000	EA		B	3769	08-05-1996		
4	532952	OP-AMP ULTRA LOW BIAS	2.0000	EA		B	3769	08-05-1996		
4	532322	IC 4053B ANALOG MUX/DEMUX	1.0000	EA		B	4842	07-31-2002		
4	531862	OP-AMP LM346N PROGRAM QUA	1.0000	EA		B	3769	08-05-1996		
4	102493011	RES. 249K OHM MF 1/4W 1%	1.0000	EA		B	3769	08-05-1996		
4	103321011	RES. 3.32K OHM MF 1/4W 1%	1.0000	EA		B	3769	08-05-1996		
4	101820011	RES. 182 OHM MF 1/4W 1%	1.0000	EA		B	3769	08-05-1996		
4	104421011	RES. 4.42K OHM MF 1/4W 1%	1.0000	EA		B	3769	08-05-1996		
4	106654011	RES. 6.65M OHM MF 1/4W 1%	1.0000	EA		B	3769	08-05-1996		
4	104993011	RES. 499K OHM MF 1/4W 1%	1.0000	EA		B	3769	08-05-1996		
4	104021011	RES. 4.02K OHM MF 1/4W 1%	1.0000	EA		B	3769	08-05-1996		
4	105364011	RES. 5.36M OHM MF 1/4W 1%	2.0000	EA		B	3769	08-05-1996		
4	103480011	RES. 348 OHM MF 1/4W 1%	1.0000	EA		B	3769	08-05-1996		
4	100000990	JUMPER DUMMY RESISTOR	5.0000	EA		B	3769	08-05-1996		
4	101000011	RES. 100 OHM MF 1/4W 1%	1.0000	EA		B	3769	08-05-1996		
4	101003011	RES. 100K OHM MF 1/4W 1%	1.0000	EA		B	3769	08-05-1996		
4	101004011	RES. 1.00M OHM MF 1/4W 1%	4.0000	EA		B	3769	08-05-1996		
4	102003011	RES. 200K OHM MF 1/4W 1%	2.0000	EA		B	3769	08-05-1996		
4	104991011	RES. 4.99K OHM MF 1/4W 1%	1.0000	EA		B	3769	08-05-1996		
4	101503011	RES. 150K OHM MF 1/4W 1%	1.0000	EA		B				
4	530572	DIODE 1N4446 SWITCHING	2.0000	EA		B	4906	05-19-2003		
4	530532	DIODE FD300 GENERAL PURPO	1.0000	EA		B	3769	08-05-1996		
4	521852	CAP. 0.68 MFD 50V CERAMIC	1.0000	EA		B	3769	08-05-1996		
4	521972	CAP. .047 MFD 50V CER X7	1.0000	EA		B	3769	08-05-1996		

Number :DN#20128 - IRCON INFRARAIL IRT SO-LI: 84827*1

Level	Part Number	Description	Quantity	UM	Alt	MB X	ECO No.	ECO Date	Start Use	End Use
4	521072	CAP. 22MFD 16V TANT 10%	2.0000	EA		B	3769	08-05-1996		
4	551122	CHOKO 9250-122 1.2 UH, .1	2.0000	EA		B	3769	08-05-1996		
4	521902	CAP. NPO 1000pf 200V .2LS	1.0000	EA		B	3769	08-05-1996		
4	521862	CAP. 3.3 MFD 50V CERAMC X	1.0000	EA		B	3769	08-05-1996		
4	521872	CAP. 1.0 MFD 50V CERAMIC	5.0000	EA		B	3769	08-05-1996		
4	522002	CAP. .01 MFD 200V CERAMIC	6.0000	EA		B	3769	08-05-1996		
4	531892	REG. LM317LZ +1.2/37V ADJ	1.0000	EA		B	3769	08-05-1996		
4	431902	BIVAR PERMO PAD 0.250 DIA	1.0000	EA		B	3769	08-05-1996		
4	530862	TRAN. 2N2222A NPN MED POW	1.0000	EA		B	3769	08-05-1996		
4	551152	INDUCTOR 100UH +/-10% IMS	2.0000	EA		B	3769	08-05-1996		
4	531882	DIODE LM385BZ-2.5 2.5V RE	6.0000	EA		B	3769	08-05-1996		
4	575602	CONN. HDR AMP STRAIGHT 5	1.0000	EA		B	3769	08-05-1996		
4	574592	CONN. HDR AMP STRAIGHT 4	1.0000	EA		B	3769	08-05-1996		
4	LDN200/04	SEE EXTENDED DESCRIPTION	0.0000	EA		M P				
4	572732	HEADER SNGL 36 PIN .1 CNT	11.0000	EA		B	3769	08-05-1996		
4	LDN200/05	SEE EXTENDED DESCRIPTION	0.0000	EA		M P				
2	C11186	PREAMP/ LINEARIZER PCB AS	1.0000	EA		M P	3671	04-08-1996		
3	C20211	SCHEMATIC: PREAMP/ LINEAR	1.0000	EA		M P	4785	03-05-2002		
3	LDN100	PREAMP/ LIN PCB ASSY INFR	1.0000	EA		M P	3659	04-12-1996		
4	502493	PCB DIN RAIL LINEARIZER	1.0000	EA		B	3767	08-07-1996		
4	LDN100/01	SEE EXTENDED DESCRIPTION	0.0000	EA		M P				
4	LDN100/02	SEE EXTENDED DESCRIPTION	0.0000	EA		M P				
4	532982	OP-AMP AD548CQ LOW PWR	1.0000	EA		B	3767	08-07-1996		
4	531862	OP-AMP LM346N PROGRAM QUA	3.0000	EA		B	3767	08-07-1996		
4	530532	DIODE FD300 GENERAL PURPO	16.0000	EA		B	3767	08-07-1996		
4	514632	RES. 330K NETWORK 10 PIN	2.0000	EA		B	3767	08-07-1996		
4	514642	RES. 330K NETWORK 10 PIN	2.0000	EA		B	3767	08-07-1996		
4	104533011	RES. 453K OHM MF 1/4W 1%	1.0000	EA		B	3767	08-07-1996		
4	1010R0011	RES. 10.0 OHM MF 1/4W 1%	1.0000	EA		B	3767	08-07-1996		
4	102743011	RES. 274K OHM MF 1/4W 1%	1.0000	EA		B	3767	08-07-1996		
4	102103011	RES. 210K OHM MF 1/4W 1%	1.0000	EA		B	3767	08-07-1996		
4	105364011	RES. 5.36M OHM MF 1/4W 1%	6.0000	EA		B	3767	08-07-1996		
4	101002011	RES. 10.0K OHM MF 1/4W 1%	1.0000	EA		B	3767	08-07-1996		
4	101003011	RES. 100K OHM MF 1/4W 1%	1.0000	EA		B	3767	08-07-1996		
4	102003011	RES. 200K OHM MF 1/4W 1%	2.0000	EA		B	3767	08-07-1996		
4	101000011	RES. 100 OHM MF 1/4W 1%	2.0000	EA		B	3767	08-07-1996		
4	100000990	JUMPER DUMMY RESISTOR	1.0000	EA		B	3767	08-07-1996		
4	551122	CHOKO 9250-122 1.2 UH, .1	1.0000	EA		B	3767	08-07-1996		
4	540412	FERRITE BEAD ON LEAD AXIA	3.0000	EA		B	3767	08-07-1996		
4	522002	CAP. .01 MFD 200V CERAMIC	7.0000	EA		B	3767	08-07-1996		
4	521902	CAP. NPO 1000pf 200V .2LS	2.0000	EA		B	3767	08-07-1996		
4	521932	CAP. 100 PF COG 200V	1.0000	EA		B	3767	08-07-1996		
4	521962	CAP. 10Pf NPO 200V .2LS	2.0000	EA		B	3767	08-07-1996		
4	514612	POT. 50K 25T 1/2W 10%	1.0000	EA		B	3767	08-07-1996		
4	514242	POT. 25K OHM 25T 1/2W 10%	1.0000	EA		B	3767	08-07-1996		
4	514622	POT. 100K 25T 1/2W 10%	1.0000	EA		B	3767	08-07-1996		
4	574922	CONN. HDR AMP STRAIGHT 3	1.0000	EA		B	3767	08-07-1996		
4	LDN100/03	SEE EXTENDED DESCRIPTION	0.0000	EA		M P				
4	574432	SOCKET 40 POS DIP .5HT EL	1.0000	EA		B	3767	08-07-1996		
4	LDN100/04	SEE EXTENDED DESCRIPTION	0.0000	EA		M P				
4	526002	CAP. SMC 330Pf NPO 50V 5%	1.0000	EA		B	3767	08-07-1996		
4	572732	HEADER SNGL 36 PIN .1 CNT	11.0000	EA		B	3767	08-07-1996		
4	LDN100/05	SEE EXTENDED DESCRIPTION	0.0000	EA		M P				
2	C11193	PCB INTERCONNECT ASSEMBLY	1.0000	EA		M P	3671	04-08-1996		
3	LDN300	PCB INTERCONN ASSY (INFRA	1.0000	EA		M P				
4	502533	PCB DIN RAIL POWER PEAK-P	1.0000	EA		B	3721	08-01-1996		
4	575922	CONN. FEMALE 11 POSITION	2.0000	EA		B	3721	08-01-1996		
2	477112	LABEL, COVER, DIN BOX	1.0000	EA		B	4909	06-11-2003		
2	C11190	DECAY RATE POT/ CONNECTOR	1.0000	EA		M P	3671	04-08-1996		
3	LDN003	DECAY RATE POT/ CONN. ASS	1.0000	EA		M P	4030	10-08-1997		
4	514592	POT. 50K OHM 1T 1/2W 10%	1.0000	EA		B				
4	LDN003/01	SEE EXTENDED DESCRIPTION	0.0000	EA		M 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	04-08-1996		

Number :DN#20128 - IRCON INFRARAIL IRT SO-LI: 84827*1

Level	Part Number	Description	Quantity	UM	Alt	MB X	ECO No.	ECO Date	Start Use	End Use
				UM						
3	LDN002	RESP. TIME POT/ CONN. ASS	1.0000	EA		M P				
4	514602	POT. 5M OHM 1T 1/2W 20% 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	04-08-1996		
3	LDN001	EMISSIVITY POT/ CONN. ASS	1.0000	EA		M P	3767	08-07-1996		
4	513722	POT. 100K 2 DIGIT 1% DIGI	1.0000	EA		B	3767	08-07-1996		
4	30245X000	WIRE 24AWG GREEN STRANDED	1.0000	IN		B	3767	08-07-1996		
4	30249X000	WIRE 24AWG WHITE STRANDED	1.0000	IN		B	3767	08-07-1996		
4	30246X000	WIRE 24AWG BLUE STRANDED	1.0000	IN		B	3767	08-07-1996		
4	574662	CONN. CONTACT 20-24 AWG C	3.0000	EA		B	3767	08-07-1996		
4	574672	CONN. HOUSING 3 POSITION-	1.0000	EA		B	3767	08-07-1996		
4	477212	LABEL - CLEAR WINDOW	1.0000	EA		B	3767	08-07-1996		
2	575852	KNOB, 9MM COLLET TYPE,	2.0000	EA		B	3671	04-08-1996		
2	575872	POINTER, 9MM COLLET TYPE	2.0000	EA		B	3671	04-08-1996		
2	575862	CAP. 9MM COLLET TYPE KNOB	2.0000	EA		B	3671	04-08-1996		
2	C11194	MODULE ASSEMBLY - M1 - (I	1.0000	EA		M P	3671	04-08-1996		
3	573912	HEADER 40 PIN DIP .6 CENT	1.0000	EA		B				
3	T-C11194-1	SELECT "M1" MODULE VALUES	0.0000	EA		B				
3	T-C11194-3	GT M1 MODULE VALUES	0.0000	EA		B				
2	575912	CONN. KEYING ELEMENT (DN-	2.0000	EA		B	3671	04-08-1996		
2	477132	LABEL, SERIAL NUMBER, DIN	1.0000	EA		B	3671	04-08-1996		
2	477122	LABEL, DIN BOX, INFRARAIL	1.0000	EA		B	3671	04-08-1996		
2	574082	TERM. BLOCK JUMPER QUICK	1.0000	EA		B	3671	04-08-1996		
2	LDNKIT	MTG CLIP KIT FOR INFRARAI	1.0000	EA		M P	3671	04-08-1996		
3	990300010	CLIP MTG FOR DIN BOX	2.0000	EA		B	3694	04-17-1996		
3	LDNKIT/01	SEE EXTENDED DESCRIPTION	0.0000	EA		M P				
2	477182	LABEL-CE MARK (PRODUCTS)	1.0000	EA		B	3671	04-08-1996		
1	B10927	FIBER OPTIC - LIGHT GUIDE	1.0000	EA		M P				
2	T-B10927-1	SELECT (MOD+ R/V/W/2/6) F	0.0000	EA		B	2399	01-17-1990		
2	T-B10927-2	SELECT (MIR OR/20/60) FIB	0.0000	EA		B	2399	01-17-1990		
2	T-B10927-3	SELECT (SR SR-SERIES) FI	0.0000	EA		B	2399	01-17-1990		
2	T-B10927-4	SELECT (SA-SERIES) FIB. O	0.0000	EA		B	2399	01-17-1990		
2	T-B10927-5	SELECT (F-SERIES) (INFRARA	0.0000	EA		B	2399	01-17-1990		
2	T-B10927-6	SELECT (MOD3) FIB. OPT. L	0.0000	EA		B	2399	01-17-1990		
2	T-B10927-7	SELECT GT F/O LIGHT GUIDE	0.0000	EA		B				

**DRAWING(S) TOO LARGE
TO SCAN.**

**TO VIEW THE ORIGINAL
DESIGN,**

**A REQUEST TO VIEW
PHYSICAL FILE
IS YOUR NEXT OPTION.**

W.O. #16953

Number :DN#22245 - IRCON INFRARAIL IRT SO-LI: 86211*1

Level	Part Number	Description	Quantity	UM	Alt	MB X	ECO No.	ECO Date	Start Use	End Use
1	DN0DNFFA		1.0000	EA		M P				
1	NL12006F	NEW 'N'# FOR L12006F	1.0000	EA		M P				
2	L12006F	REIMAGE LENS 6-10" D/30-D	1.0000	EA		M P				
3	453192	HOUSING OUTER REIMAGE MP/	1.0000	EA		B				
3	432502	O RING .547ID X .051THK B	2.0000	EA		B				
3	610782	LENS EQUIBICONVEX CAF2 OB	1.0000	EA		B				
3	445973	SPACER .165THK OBJECTIVE	1.0000	EA		B				
3	453222	RETAINER RING SPRING OBJ	1.0000	EA		B				
3	620222	WINDOW PROTECTIVE IR QUAR	1.0000	EA		B				
3	453172	RETAINER RING OBJECTIVE L	1.0000	EA		B				
3	453162	HOUSING REAR REIMAGE MP/M	1.0000	EA		B				
3	453232	FIELD STOP RECTANGULAR SL	1.0000	EA		B				
3	453134	CAN GLARE STOP .173D PAIN	2.0000	EA		M X	4970	12-10-2003		
4	453133	CAN GLARE STOP RAW MP/MR/	2.0000	EA		B				
3	453142	APERTURE THREADED .255 ID	1.0000	EA		B				
3	20100674A	SCREW #10-32 X 3/16 SKT S	1.0000	EA		B				
3	475962	LABEL REIMAGE LENS EXT TI	1.0000	EA		B				
3	453202	NUT HEX 7/8-20 S/S	2.0000	EA		B				
3	432662	PLASTIC CAP/PLUG TAPPED	2.0000	EA		B				
3	411202	KEY HEX 3/32" SHORT ARM	1.0000	EA		B				
3	L12006F/01	SEE EXTENDED DESCRIPTION	0.0000	EA		M P				
1	D11195-R733	SH ASSEMBLY, F-SERIES DIN	1.0000	EA		M P				
2	454143	F-HEAD SENSOR	1.0000	EA		B	3709	05-17-1996		
2	C11207-R733	DETECTOR ASSY. (1.6 MICRON	1.0000	EA		M P	3709	05-17-1996		
3	LDN106-R733	DETECTOR ASSY (1.6 MICRON	1.0000	EA		M P	3681	04-08-1996		
4	590942	DETECTOR InGaAs 1.6u	1.0000	EA		B				
4	560372	CABLE PVC 1 COND SHIELD 2	2.5000	IN		B	3681	04-08-1996		
4	990400001	BAG STATIC SHIELD 3X5 3M	1.0000	EA		B	3681	04-08-1996		
4	3214G00X0	TUBING #14 PVC CLEAR	1.0000	IN		B	3681	04-08-1996		
4	3208I1400	TUBING 1/8" SHRINKABLE BL	0.0000	IN		B				
3	L13353-R733	SH DETECTOR ASSY. F SERIE	1.0000	EA		M P				
4	431452	DET. LOCATOR Z HEAD	1.0000	EA		B				
4	451382	LOCATING PIN FOR Z1	1.0000	EA		B				
4	433152	HOLDER DET, FILTER & STOP	1.0000	EA		B				
4	433162	O RING .319ID X .028W 70	1.0000	EA		B				
4	431342	DET. RETAINER TO-5	1.0000	EA		B				
4	430292	CONN. GASKET 2000 SERIES	1.0000	EA		B				
4	575892	CONN. CIRC 3 RECPT 10SL-3	1.0000	EA		B				
4	490042	SPRING DETECTOR RETAINER	1.0000	EA		B				
4	990100002	EPOXY HARDMAN #4005 GEN P	1.0000	EA		B				
4	312430100	WIRE 24AWG BARE SOLID	1.0000	IN		B				
4	3208I1000	BLACK HEAT SHRINK TUBING	1.0000	IN		B				
3	T-C11207-X	FLOW TAG TEXT FOR DETECTO	0.0000	EA		B	3681	04-08-1996		
2	220403200	WASHER #4 LOCK SPLIT RING	4.0000	EA		B	3709	05-17-1996		
2	200412440	SCREW #4-40 X 3/8 FIL SLO	4.0000	EA		B	3709	05-17-1996		
2	454152	SCREW, ADJUSTMENT,	1.0000	EA		B	3709	05-17-1996		
2	433372	O RING 3/32 X 7/32 X 1/16	1.0000	EA		B	3709	05-17-1996		
2	20100874F	SCREW #10-32 X 1/4 SOCKET	1.0000	EA		B	3709	05-17-1996		
2	220602200	WASHER #6 LOCK EXT TOOTH	1.0000	EA		B	3709	05-17-1996		
2	200606040	SCREW #6-32 X 3/16 PH SLO	1.0000	EA		B	3709	05-17-1996		
2	474772	LABEL GROUND WARNING	1.0000	EA		B	3709	05-17-1996		
2	477142	LABEL, SERIAL NUMBER, SEN	1.0000	EA		B	3709	05-17-1996		
2	454242	NUT RETAINING S.S. E/F-HE	1.0000	EA		B	3709	05-17-1996		
2	T-D11195-1	SELECT FIBER OPTIC LIGHT	0.0000	EA		B	3709	05-17-1996		
2	T-D11195-3	F-SERIES (GT) FIB OPT	0.0000	EA		B				
2	ENGTEXT	ENG CONTROLLED TEXT	1.0000	EA		M P				
2	999900013	CAP PLUG #SC-1-1/4	1.0000	EA		B	3709	05-17-1996		
2	990100028	SEALANT RTV SILICONE BLAC	1.0000	EA		B	3709	05-17-1996		
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	04-02-1997		
2	D11198/01	SEE EXTENDED DESCRIPTION	0.0000	EA		M				
2	D11198/02	SEE EXTENDED DESCRIPTION	0.0000	EA		M				
2	D11198/03	SEE EXTENDED DESCRIPTION	8.0000	EA		M				
2	575882	CONN. CIRC 10SL-3 BACKSHE	1.0000	EA		B	3913	04-02-1997		
2	3210G00X0	TUBING #10 PVC CLEAR	3.0000	IN		B	3913	04-02-1997		
2	3212G00X0	TUBING #12 PVC CLEAR	1.0000	IN		B	3913	04-02-1997		
2	575902	CONN. CIRC 10SL-3 STR PLU	1.0000	EA		B	3913	04-02-1997		
2	3216I1400	TUBING 1/4" SHRINKABLE BL	1.0000	IN		B	3913	04-02-1997		

R733

Number :DN#22245 - IRCON INFRARAIL IRT SO-LI: 86211*1

Level	Part Number	Description	Quantity	UM	Alt	MB X	ECO No.	ECO Date	Start Use	End Use
2	990100027	ADHESIVE LOCTITE 272	1.0000	EA		B	3913	04-02-1997		
2	C-CABLE	DETERMINE CABLE LENGTH FR	1.0000	EA		M P	3913	04-02-1997		
2	477202	LABEL INFRARAIL (2.0" X 0	1.0000	EA		B	3913	04-02-1997		
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-R733	MODULE ASSEMBLY-M1-(DINRA	1.0000	EA		M P				
2	106343011	RES. 634K OHM MF 1/4W 1%	1.0000	EA		B				
2	101872011	RES. 18.7K OHM MF 1/4W 1%	1.0000	EA		B				
2	101503011	RES. 150K OHM MF 1/4W 1%	1.0000	EA		B				
2	101132011	RES. 11.3K OHM MF 1/4W 1%	1.0000	EA		B				
2	104642011	RES. 46.4K OHM MF 1/4W 1%	1.0000	EA		B				
2	109091011	RES. 9.09K OHM MF 1/4W 1%	1.0000	EA		B				
2	106492011	RES. 64.9K OHM MF 1/4W 1%	1.0000	EA		B				
2	106651011	RES. 6.65K OHM MF 1/4W 1%	1.0000	EA		B				
2	109312011	RES. 93.1K OHM MF 1/4W 1%	1.0000	EA		B				
2	104871011	RES. 4.87K OHM MF 1/4W 1%	1.0000	EA		B				
2	101373011	RES. 137K OHM MF 1/4W 1%	1.0000	EA		B				
2	103401011	RES. 3.40K OHM MF 1/4W 1%	1.0000	EA		B				
2	102003011	RES. 200K OHM MF 1/4W 1%	1.0000	EA		B				
2	102321011	RES. 2.32K OHM MF 1/4W 1%	1.0000	EA		B				
2	103013011	RES. 301K OHM MF 1/4W 1%	1.0000	EA		B				
2	101541011	RES. 1.54K OHM MF 1/4W 1%	1.0000	EA		B				
2	104643011	RES. 464K OHM MF 1/4W 1%	1.0000	EA		B				
2	101001011	RES. 1.00K OHM MF 1/4W 1%	1.0000	EA		B				
2	101581011	RES. 1.58K OHM MF 1/4W 1%	1.0000	EA		B				
2	107323011	RES. 732K OHM MF 1/4W 1%	1.0000	EA		B				
1	NL120FA5	NEW 'N'# FOR L120FA5	1.0000	EA		M P				
2	L120FA5	FIB. OPT. LIGHT GUIDE 10'	1.0000	EA		M P				
3	610732	FIB. OPT. 10FT R/OR/SR SE	1.0000	EA		B	3089	09-26-1994		
3	453112	NUT LOCKING FIB OPT LT GU	2.0000	EA		B	3089	09-26-1994		
3	410832	RETAINER RING C TYPE .5 D	2.0000	EA		B	3089	09-26-1994		
3	432542	IDENTIFICATION TIE FIBER	1.0000	EA		B	3089	09-26-1994		
3	475982	LABEL LIGHT GUIDE FIBER O	1.0000	EA		B	3089	09-26-1994		
3	999900009	CAP PROTECTIVE,VINYL WHIT	2.0000	EA		B	3089	09-26-1994		
1	D11191	INFRARAIL BOX ASSEMBLY	1.0000	EA		M P				
2	433332	ENCLOSURE, DIN BOX, MODIF	1.0000	EA		B	3671	04-08-1996		
2	C11187	POWER SUPPLY/ PEAK-PICKER	1.0000	EA		M P	3671	04-08-1996		
3	C20212	SCHEMATIC: POWER SUPPLY/	1.0000	EA		M P	4202	01-14-1999		
3	LDN200	PWR SUPPLY/ PP PCB ASSY	1.0000	EA		M P	4202	01-14-1999		
4	502505	PCB DIN RAIL POWER PEAK-P	1.0000	EA		B	3769	08-05-1996		
4	LDN200/01	SEE EXTENDED DESCRIPTION	0.0000	EA		M P				
4	533082	TRAN. MJE800 NPN - DARLIN	1.0000	EA		B	3769	08-05-1996		
4	LDN200/02	SEE EXTENDED DESCRIPTION	0.0000	EA		M P				
4	LDN200/03	SEE EXTENDED DESCRIPTION	0.0000	EA		M P				
4	530882	DIODE 1N4002 GP RECTIFIER	1.0000	EA		B	3769	08-05-1996		
4	532952	OP-AMP ULTRA LOW BIAS	2.0000	EA		B	3769	08-05-1996		
4	532322	IC 4053B ANALOG MUX/DEMUX	1.0000	EA		B	4842	07-31-2002		
4	531862	OP-AMP LM346N PROGRAM QUA	1.0000	EA		B	3769	08-05-1996		
4	102493011	RES. 249K OHM MF 1/4W 1%	1.0000	EA		B	3769	08-05-1996		
4	103321011	RES. 3.32K OHM MF 1/4W 1%	1.0000	EA		B	3769	08-05-1996		
4	101820011	RES. 182 OHM MF 1/4W 1%	1.0000	EA		B	3769	08-05-1996		
4	104421011	RES. 4.42K OHM MF 1/4W 1%	1.0000	EA		B	3769	08-05-1996		
4	106654011	RES. 6.65M OHM MF 1/4W 1%	1.0000	EA		B	3769	08-05-1996		
4	104993011	RES. 499K OHM MF 1/4W 1%	1.0000	EA		B	3769	08-05-1996		
4	104021011	RES. 4.02K OHM MF 1/4W 1%	1.0000	EA		B	3769	08-05-1996		
4	105364011	RES. 5.36M OHM MF 1/4W 1%	2.0000	EA		B	3769	08-05-1996		
4	103480011	RES. 348 OHM MF 1/4W 1%	1.0000	EA		B	3769	08-05-1996		
4	100000990	JUMPER DUMMY RESISTOR	5.0000	EA		B	3769	08-05-1996		
4	101000011	RES. 100 OHM MF 1/4W 1%	1.0000	EA		B	3769	08-05-1996		
4	101003011	RES. 100K OHM MF 1/4W 1%	1.0000	EA		B	3769	08-05-1996		
4	101004011	RES. 1.00M OHM MF 1/4W 1%	4.0000	EA		B	3769	08-05-1996		
4	102003011	RES. 200K OHM MF 1/4W 1%	2.0000	EA		B	3769	08-05-1996		
4	104991011	RES. 4.99K OHM MF 1/4W 1%	1.0000	EA		B	3769	08-05-1996		
4	101503011	RES. 150K OHM MF 1/4W 1%	1.0000	EA		B				
4	530572	DIODE 1N4446 SWITCHING	2.0000	EA		B	4906	05-19-2003		
4	530532	DIODE FD300 GENERAL PURPO	1.0000	EA		B	3769	08-05-1996		
4	521852	CAP. 0.68 MFD 50V CERAMIC	1.0000	EA		B	3769	08-05-1996		
4	521972	CAP. .047 MFD 50V CER X7	1.0000	EA		B	3769	08-05-1996		

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Level	Part Number	Description	Quantity	UM	Alt	MB X	ECO No.	ECO Date	Start Use	End Use
4	521072	CAP. 22MFD 16V TANT 10%	2.0000	EA		B	3769	08-05-1996		
4	551122	CHOK 9250-122 1.2 UH, .1	2.0000	EA		B	3769	08-05-1996		
4	521902	CAP. NPO 1000pf 200V .2LS	1.0000	EA		B	3769	08-05-1996		
4	521862	CAP. 3.3 MFD 50V CERAMC X	1.0000	EA		B	3769	08-05-1996		
4	521872	CAP. 1.0 MFD 50V CERAMIC	5.0000	EA		B	3769	08-05-1996		
4	522002	CAP. .01 MFD 200V CERAMIC	6.0000	EA		B	3769	08-05-1996		
4	531892	REG. LM317LZ +1.2/37V ADJ	1.0000	EA		B	3769	08-05-1996		
4	431902	BIVAR PERMO PAD 0.250 DIA	1.0000	EA		B	3769	08-05-1996		
4	530862	TRAN. 2N2222A NPN MED POW	1.0000	EA		B	3769	08-05-1996		
4	551152	INDUCTOR 100UH +/-10% IMS	2.0000	EA		B	3769	08-05-1996		
4	531882	DIODE LM385BZ-2.5 2.5V RE	6.0000	EA		B	3769	08-05-1996		
4	575602	CONN. HDR AMP STRAIGHT 5	1.0000	EA		B	3769	08-05-1996		
4	574592	CONN. HDR AMP STRAIGHT 4	1.0000	EA		B	3769	08-05-1996		
4	LDN200/04	SEE EXTENDED DESCRIPTION	0.0000	EA		M P				
4	572732	HEADER SNGL 36 PIN .1 CNT	11.0000	EA		B	3769	08-05-1996		
4	LDN200/05	SEE EXTENDED DESCRIPTION	0.0000	EA		M P				
2	C11186	PREAMP/ LINEARIZER PCB AS	1.0000	EA		M P	3671	04-08-1996		
3	C20211	SCHEMATIC: PREAMP/ LINEAR	1.0000	EA		M P	4785	03-05-2002		
3	LDN100	PREAMP/ LIN PCB ASSY INFR	1.0000	EA		M P	3659	04-12-1996		
4	502493	PCB DIN RAIL LINEARIZER	1.0000	EA		B	3767	08-07-1996		
4	LDN100/01	SEE EXTENDED DESCRIPTION	0.0000	EA		M P				
4	LDN100/02	SEE EXTENDED DESCRIPTION	0.0000	EA		M P				
4	532982	OP-AMP AD548CQ LOW PWR	1.0000	EA		B	3767	08-07-1996		
4	531862	OP-AMP LM346N PROGRAM QUA	3.0000	EA		B	3767	08-07-1996		
4	530532	DIODE FD300 GENERAL PURPO	16.0000	EA		B	3767	08-07-1996		
4	514632	RES. 330K NETWORK 10 PIN	2.0000	EA		B	3767	08-07-1996		
4	514642	RES. 330K NETWORK 10 PIN	2.0000	EA		B	3767	08-07-1996		
4	104533011	RES. 453K OHM MF 1/4W 1%	1.0000	EA		B	3767	08-07-1996		
4	1010R0011	RES. 10.0 OHM MF 1/4W 1%	1.0000	EA		B	3767	08-07-1996		
4	102743011	RES. 274K OHM MF 1/4W 1%	1.0000	EA		B	3767	08-07-1996		
4	102103011	RES. 210K OHM MF 1/4W 1%	1.0000	EA		B	3767	08-07-1996		
4	105364011	RES. 5.36M OHM MF 1/4W 1%	6.0000	EA		B	3767	08-07-1996		
4	101002011	RES. 10.0K OHM MF 1/4W 1%	1.0000	EA		B	3767	08-07-1996		
4	101003011	RES. 100K OHM MF 1/4W 1%	1.0000	EA		B	3767	08-07-1996		
4	102003011	RES. 200K OHM MF 1/4W 1%	2.0000	EA		B	3767	08-07-1996		
4	101000011	RES. 100 OHM MF 1/4W 1%	2.0000	EA		B	3767	08-07-1996		
4	100000990	JUMPER DUMMY RESISTOR	1.0000	EA		B	3767	08-07-1996		
4	551122	CHOK 9250-122 1.2 UH, .1	1.0000	EA		B	3767	08-07-1996		
4	540412	FERRITE BEAD ON LEAD AXIA	3.0000	EA		B	3767	08-07-1996		
4	522002	CAP. .01 MFD 200V CERAMIC	7.0000	EA		B	3767	08-07-1996		
4	521902	CAP. NPO 1000pf 200V .2LS	2.0000	EA		B	3767	08-07-1996		
4	521932	CAP. 100 PF COG 200V	1.0000	EA		B	3767	08-07-1996		
4	521962	CAP. 10Pf NPO 200V .2LS	2.0000	EA		B	3767	08-07-1996		
4	514612	POT. 50K 25T 1/2W 10%	1.0000	EA		B	3767	08-07-1996		
4	514242	POT. 25K OHM 25T 1/2W 10%	1.0000	EA		B	3767	08-07-1996		
4	514622	POT. 100K 25T 1/2W 10%	1.0000	EA		B	3767	08-07-1996		
4	574922	CONN. HDR AMP STRAIGHT 3	1.0000	EA		B	3767	08-07-1996		
4	LDN100/03	SEE EXTENDED DESCRIPTION	0.0000	EA		M P				
4	574432	SOCKET 40 POS DIP .5HT EL	1.0000	EA		B	3767	08-07-1996		
4	LDN100/04	SEE EXTENDED DESCRIPTION	0.0000	EA		M P				
4	526002	CAP. SMC 330Pf NPO 50V 5%	1.0000	EA		B	3767	08-07-1996		
4	572732	HEADER SNGL 36 PIN .1 CNT	11.0000	EA		B	3767	08-07-1996		
4	LDN100/05	SEE EXTENDED DESCRIPTION	0.0000	EA		M P				
2	C11193	PCB INTERCONNECT ASSEMBLY	1.0000	EA		M P	3671	04-08-1996		
3	LDN300	PCB INTERCONN ASSY (INFRA	1.0000	EA		M P				
4	502533	PCB DIN RAIL POWER PEAK-P	1.0000	EA		B	3721	08-01-1996		
4	575922	CONN. FEMALE 11 POSITION	2.0000	EA		B	3721	08-01-1996		
2	477112	LABEL, COVER, DIN BOX	1.0000	EA		B	4909	06-11-2003		
2	C11190	DECAY RATE POT/ CONNECTOR	1.0000	EA		M P	3671	04-08-1996		
3	LDN003	DECAY RATE POT/ CONN. ASS	1.0000	EA		M P	4030	10-08-1997		
4	514592	POT. 50K OHM 1T 1/2W 10%	1.0000	EA		B				
4	LDN003/01	SEE EXTENDED DESCRIPTION	0.0000	EA		M 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	04-08-1996		

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Level	Part Number	Description	Quantity	UM	Alt	MB	X	ECO No.	ECO Date	Start Use	End Use
3	LDN002	RESP. TIME POT/ CONN. ASS	1.0000	EA		M	P				
4	514602	POT. 5M OHM 1T 1/2W 20% 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	04-08-1996		
3	LDN001	EMISSIVITY POT/ CONN. ASS	1.0000	EA		M	P	3767	08-07-1996		
4	513722	POT. 100K 2 DIGIT 1% DIGI	1.0000	EA		B		3767	08-07-1996		
4	30245X000	WIRE 24AWG GREEN STRANDED	1.0000	IN		B		3767	08-07-1996		
4	30249X000	WIRE 24AWG WHITE STRANDED	1.0000	IN		B		3767	08-07-1996		
4	30246X000	WIRE 24AWG BLUE STRANDED	1.0000	IN		B		3767	08-07-1996		
4	574662	CONN. CONTACT 20-24 AWG C	3.0000	EA		B		3767	08-07-1996		
4	574672	CONN. HOUSING 3 POSITION-	1.0000	EA		B		3767	08-07-1996		
4	477212	LABEL - CLEAR WINDOW	1.0000	EA		B		3767	08-07-1996		
2	575852	KNOB, 9MM COLLET TYPE,	2.0000	EA		B		3671	04-08-1996		
2	575872	POINTER, 9MM COLLET TYPE	2.0000	EA		B		3671	04-08-1996		
2	575862	CAP. 9MM COLLET TYPE KNOB	2.0000	EA		B		3671	04-08-1996		
2	C11194	MODULE ASSEMBLY - M1 - (I	1.0000	EA		M	P	3671	04-08-1996		
3	573912	HEADER 40 PIN DIP .6 CENT	1.0000	EA		B					
3	T-C11194-1	SELECT "M1" MODULE VALUES	0.0000	EA		B					
3	T-C11194-3	GT M1 MODULE VALUES	0.0000	EA		B					
2	575912	CONN. KEYING ELEMENT (DN-	2.0000	EA		B		3671	04-08-1996		
2	477132	LABEL, SERIAL NUMBER, DIN	1.0000	EA		B		3671	04-08-1996		
2	477122	LABEL, DIN BOX, INFRARAIL	1.0000	EA		B		3671	04-08-1996		
2	574082	TERM. BLOCK JUMPER QUICK	1.0000	EA		B		3671	04-08-1996		
2	LDNKIT	MTG CLIP KIT FOR INFRARAI	1.0000	EA		M	P	3671	04-08-1996		
3	990300010	CLIP MTG FOR DIN BOX	2.0000	EA		B		3694	04-17-1996		
3	LDNKIT/01	SEE EXTENDED DESCRIPTION	0.0000	EA		M	P				
2	477182	LABEL-CE MARK (PRODUCTS)	1.0000	EA		B		3671	04-08-1996		
1	B10927	FIBER OPTIC - LIGHT GUIDE	1.0000	EA		M	P				
2	T-B10927-1	SELECT (MOD+ R/V/W/2/6) F	0.0000	EA		B		2399	01-17-1990		
2	T-B10927-2	SELECT (MIR OR/20/60) FIB	0.0000	EA		B		2399	01-17-1990		
2	T-B10927-3	SELECT (SR SR-SERIES) FI	0.0000	EA		B		2399	01-17-1990		
2	T-B10927-4	SELECT (SA-SERIES) FIB. O	0.0000	EA		B		2399	01-17-1990		
2	T-B10927-5	SELECT (F-SERIES) (INFRARA	0.0000	EA		B		2399	01-17-1990		
2	T-B10927-6	SELECT (MOD3) FIB. OPT. L	0.0000	EA		B		2399	01-17-1990		
2	T-B10927-7	SELECT GT F/O LIGHT GUIDE	0.0000	EA		B					

R733

S/O 84827

Section 1 — GENERAL INFORMATION

1.6 PRODUCT MODIFICATION

IRCON Fiber Optic InfraRail Model DNFFC-99F is modified for a special temperature range of 1100 to 2000°F; an optical resolution of D/30 by D/150, and a spectral response of 1.49 to 1.60 microns.

Note: The maximum sensor ambient temperature is restricted to 140 °F(60°C). Special components are used in the signal processor module, and the instrument has been factory calibrated for linear operation throughout the special temperature range.

This 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. R733.

NOTE: Ircon, Inc. is the sole owner in all respects of any product or software modification or design herein specified.