



DATE: 12-1-2005  
REVISION: C  
W.O. No. 66862  
CUSTOMER: IRCON GmbH  
LOCATION: TAUNUSSTEIN  
LOCATION: GERMANY

**INFRARAIL SPECIAL NUMBER R721**

**PURPOSE AND DESCRIPTION:**

CUSTOMER REQUIRES A SPECIAL TEMPERATURE RANGE INFRARAIL SYSTEM WITH A SPECIAL OPTICAL RESOLUTION. IN ADDITION, THE CUSTOMER ALSO REQUIRES A FAULT CONDITION INDICATOR THAT WILL WARN THE USER WHEN THE SENSOR CABLE IS DISCONNECTED.

MODEL: DNE99-99C  
RANGE: 400 - 850 DEG. C  
OPTICAL RESOLUTION: D/50 WITH FIXED FOCUS AT 30"  
WAVELENGTH: 1.49 - 1.6 um

**GENERALITY OF APPLICATION AND RESTRICTRIONS:**

**RESTRICTIONS:**

SENSING HEAD AMBIENT TEMPERATURE RESTRICTED TO 0 TO 150 DEG. F (-17 TO 65 DEG. C) AND EMISSIVITY SETTING RESTRICTED TO 0.3 FOR THE FIRST 25 DEGREES OF THE TEMPERATURE SPAN.

UNRESTRICTED, SUITABLE FOR USE WITH ALL STANDARD OPTIONS.

WRITTEN BY: \_\_\_\_\_

*AMI DONADO*

AMI DONADO

APPROVED BY: \_\_\_\_\_

*AMI DONADO*

DATE: \_\_\_\_\_

*12-1-2005*

## INFRARAIL SPECIAL NUMBER R721 CONTINUED,

### PRODUCTION INSTRUCTIONS:

FOR THE ELECTRONICS MODULE, BUILD THE M1 MODULE PER BILL OF MATERIAL ON PAGE 3.

FOR THE SENSING HEAD, START WITH A MODEL DNE31-13C SENSOR AND MAKE THE FOLLOWING CHANGES:

#### **DETECTOR ASSEMBLY CHANGES: ( REF. ASSY. # C11209 ).**

1. INSTALL InGaAs DETECTOR P.N. **59094-2** IN LIEU OF THE STANDARD SILICON DETECTOR.
2. WIRE THE DETECTOR PER **DETAIL A** OF DRAWING No. **C-11207**.
3. INSTALL FILTER PART NUMBER **64055-2** ( 1.49 - 1.60  $\mu\text{m}$  ).

#### **SENSING HEAD ASSEMBLY CHANGES: ( REF. ASSY. # C11201 ).**

1. INSTALL DETECTOR FIELD STOP P.N. **45132-3** ( .044" I.D. ) IN PLACE OF STANDARD P.N. 451322.

### CALIBRATION INSTRUCTIONS:

PRE-CAL: PERFORM THE COMPUTERIZED LINEARIZER TEST PER STANDARD PROCEDURE.

iscFS = 4.4130 UA  
iscZS = 0.0175 UA

#### FINAL-CAL:

**!!! NOTE !!! CALIBRATION MUST MAKE THE MODIFICATIONS TO THE ELECTRONIC MODULE FOR THE SPECIAL FAULT INDICATION OPTION INCLUDED WITH THIS INSTRUMENT. THE MODIFICATIONS MUST BE COMPLETED BEFORE FINAL CALIBRATION IS DONE. FOLLOW THE INSTRUCTIONS ON PAGE 5 ATTACHED.**

CALIBRATE PER STANDARD PROCEDURE.

FOLLOW OUTPUT TABLE ON PAGE 4 ATTACHED.

TEST FAULT INDICATION FEATURE BY DISCONNECTING THE INTERCONNECTING CABLE FROM THE MODULE WHILE FOCUSED ON BLACK BODY. WHEN THIS IS DONE, THE ELECTRONIC MODULE OUTPUT SHOULD BE 20,000 Ma OR HIGHER. THIS HIGH OUTPUT WITH THE SENSOR DISCONNECTED PROVIDES THE CUSTOMER WITH A FAULT INDICATION SIGNAL TO WARN OF A DISCONNECTED SENSOR CABLE.

### MANUAL INSTRUCTIONS:

GENERIC INFRARAIL SERIES MANUAL.

INCLUDE THE RESTRICTIONS LISTED ON PAGE 1 OF THESE DETAIL SHEETS.

## INFRARAIL SPECIAL NUMBER R721 CONTINUED,

## BILL OF MATERIAL

MODULE M1 REFERENCE: DWG.NO.C11194

SYMBOL	PART NO.	DESCRIPTION		
R1	107323011	RESISTOR	732 Kohm	METAL FILM 1/4W 1%
R44	101872011	RESISTOR	18.7 Kohm	METAL FILM 1/4W 1%
R54	101213011	RESISTOR	121 Kohm	METAL FILM 1/4W 1%
R45	101472011	RESISTOR	14.7 Kohm	METAL FILM 1/4W 1%
R55	105762011	RESISTOR	57.6 Kohm	METAL FILM 1/4W 1%
R46	101002011	RESISTOR	10.0 Kohm	METAL FILM 1/4W 1%
R56	109312011	RESISTOR	93.1 Kohm	METAL FILM 1/4W 1%
R47	106491011	RESISTOR	6.49 Kohm	METAL FILM 1/4W 1%
R57	101543011	RESISTOR	154 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	101301011	RESISTOR	1.30 Kohm	METAL FILM 1/4W 1%
R60	108253011	RESISTOR	825 Kohm	METAL FILM 1/4W 1%
R51	107150011	RESISTOR	715 ohm	METAL FILM 1/4W 1%
R61	101544011	RESISTOR	1.54 Mohm	METAL FILM 1/4W 1%
R52	103740011	RESISTOR	374 ohm	METAL FILM 1/4W 1%
R53	103650011	RESISTOR	365 ohm	METAL FILM 1/4W 1%
R62	102944011	RESISTOR	2.94 Mohm	METAL FILM 1/4W 1%

DATE: 12-01-2005

REV.: C

INFRARAIL SPECIAL NUMBER R721  
TEMPERATURE RANGE: 400 TO 850 DEGREES C  
SPECTRUM: 1.49 TO 1.60 MICRONS

TEMPERATURE DEGREES C	SENSOR OUTPUT IN uAMPS	INDICATOR OUTPUT mAMPS
400.0	0.0175	4.000
425.0	0.0286	4.889
450.0	0.0454	5.778
475.0	0.0697	6.667
500.0	0.1041	7.556
525.0	0.1516	8.444
550.0	0.2160	9.333
575.0	0.3012	10.222
600.0	0.4122	11.111
625.0	0.5544	12.000
650.0	0.7338	12.889
675.0	0.9569	13.778
700.0	1.2311	14.667
725.0	1.5640	15.556
750.0	1.9639	16.444
775.0	2.4395	17.333
800.0	2.9999	18.222
825.0	3.6544	19.111
850.0	4.4130	20.000

## FAULT INDICATION MODIFICATIONS SPECIAL R721

REMOVE JUMBER JP1  
ON COMPONENT SIDE

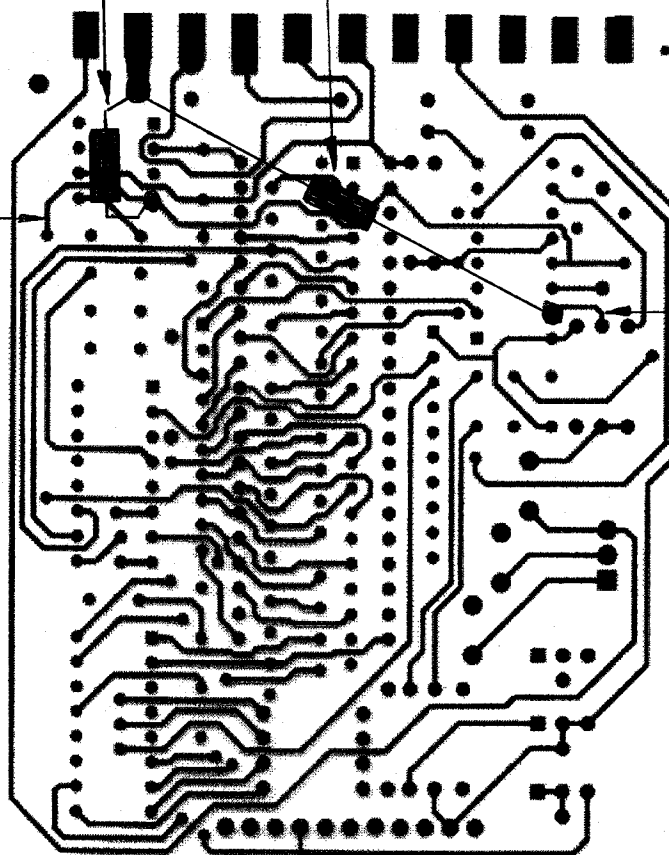
ADD RESISTOR 24.9 Kohm

ADD RESISTOR 274 Kohm

REFERENCE  
FOIL

REFERENCE  
FOIL

NOTE:  
ADD SHRINK  
TUBING TO 274K  
RESISTOR AND  
REMOVE LEADS  
FROM BOARD  
TO PREVENT  
SHORTS AND  
INTERFERENCE



FOIL SIDE, PCB P.N. 50249-3

SEE REV. C

A-D-12/1/05

PAGE 1 OF 5

DATE: 05-22-2001

REVISION: B

W.O. No. 66862

CUSTOMER: IRCON GmbH

LOCATION: TAUNUSSTEIN

LOCATION: GERMANY

## INFRARAIL SPECIAL NUMBER R721

### PURPOSE AND DESCRIPTION:

CUSTOMER REQUIRES A SPECIAL TEMPERATURE RANGE INFRARAIL SYSTEM WITH A SPECIAL OPTICAL RESOLUTION. IN ADDITION, THE CUSTOMER ALSO REQUIRES A FAULT CONDITION INDICATOR THAT WILL WARN THE USER WHEN THE SENSOR CABLE IS DISCONNECTED.

MODEL: DNE99-99C  
RANGE: 400 - 850 DEG. C  
OPTICAL RESOLUTION: D/50 WITH FIXED FOCUS AT 30"  
WAVELENGTH: 1.49 - 1.6 um

### GENERALITY OF APPLICATION AND RESTRICTRIONS:

#### RESTRICTIONS:

SENSING HEAD AMBIENT TEMPERATURE RESTRICTED TO 0 TO 150 DEG. F (-17 TO 65 DEG. C) AND EMISSIVITY SETTING RESTRICTED TO 0.3 FOR THE FIRST 25 DEGREES OF THE TEMPERATURE SPAN.

UNRESTRICTED, SUITABLE FOR USE WITH ALL STANDARD OPTIONS.

WRITTEN BY: \_\_\_\_\_

Ami DONADO

AMI DONADO

APPROVED BY: \_\_\_\_\_

Ami DONADO

DATE: \_\_\_\_\_

5-22-2001

**INFRARAIL SPECIAL NUMBER R721 CONTINUED,**

**PRODUCTION INSTRUCTIONS:**

FOR THE ELECTRONICS MODULE, BUILD THE M1 MODULE PER BILL OF MATERIAL ON PAGE 3.

FOR THE SENSING HEAD, START WITH A MODEL DNE31-13C SENSOR AND MAKE THE FOLLOWING CHANGES:

**DETECTOR ASSEMBLY CHANGES: ( REF. ASSY. # C11209 ).**

1. INSTALL InGaAs DETECTOR P.N. 59079-2 IN LIEU OF THE STANDARD SILICON DETECTOR.
2. WIRE THE DETECTOR PER DETAIL A OF DRAWING No. C-11207.
3. INSTALL FILTER PART NUMBER 64055-2 ( 1.49 - 1.60  $\mu\text{m}$  ).

**SENSING HEAD ASSEMBLY CHANGES: ( REF. ASSY. # C11201 ).**

1. INSTALL DETECTOR FIELD STOP P.N. 45132-3 ( .044" I.D. ) IN PLACE OF STANDARD P.N. 451322.

**CALIBRATION INSTRUCTIONS:**

PRE-CAL: PERFORM THE COMPUTERIZED LINEARIZER TEST PER STANDARD PROCEDURE.

IscFS = 4.4130 UA

IscZS = 0.0175 UA

**FINAL-CAL:**

**!!! NOTE !!!** CALIBRATION MUST MAKE THE MODIFICATIONS TO THE ELECTRONIC MODULE FOR THE SPECIAL FAULT INDICATION OPTION INCLUDED WITH THIS INSTRUMENT. THE MODIFICATIONS MUST BE COMPLETED BEFORE FINAL CALIBRATION IS DONE. FOLLOW THE INSTRUCTIONS ON PAGE 5 ATTACHED.

CALIBRATE PER STANDARD PROCEDURE.

FOLLOW OUTPUT TABLE ON PAGE 4 ATTACHED.

TEST FAULT INDICATION FEATURE BY DISCONNECTING THE INTERCONNECTING CABLE FROM THE MODULE WHILE FOCUSED ON BLACK BODY. WHEN THIS IS DONE, THE ELECTRONIC MODULE OUTPUT SHOULD BE 20.000 Ma OR HIGHER. THIS HIGH OUTPUT WITH THE SENSOR DISCONNECTED PROVIDES THE CUSTOMER WITH A FAULT INDICATION SIGNAL TO WARN OF A DISCONNECTED SENSOR CABLE.

**MANUAL INSTRUCTIONS:**

GENERIC INFRARAIL SERIES MANUAL.

INCLUDE THE RESTRICTIONS LISTED ON PAGE 1 OF THESE DETAIL SHEETS.

SEE REV B  
A.D. 5-22-2001

PAGE 1 OF 4  
DATE: 12-15-1998  
REVISION: A  
W.O. NO: 66862  
CUSTOMER: IRCON GMBH  
LOCATION: GERMANY

**INFRARAIL SPECIAL NUMBER R721**

**PURPOSE AND DESCRIPTION:**

CUSTOMER REQUIRES A INFRARAIL TEMPERATURE SYSTEM WITH A SPECIAL TEMPERATURE RANGE AND OPTICAL RESOLUTION. IN ADDITION, THE CUSTOMER ALSO REQUIRES A FAULT CONDITION INDICATOR THAT WILL WARN THE USER WHEN THE SENSOR CABLE IS DISCONNECTED.

MODEL: DNE99-99C  
RANGE: 400 - 850 DEG. C  
OPTICAL RESOLUTION: D/50 WITH FIXED FOCUS AT 30"  
WAVELENGTH: 1.49 - 1.6 um

**GENERALITY OF APPLICATION AND RESTRICTIONS:**

RESTRICTIONS: SENSING HEAD RESTRICTED TO AMBIENT TEMPERATURES OF 0° TO 150°F (-17° TO 65°C) AND AN EMISSIVITY SETTING OF 0.3 FOR THE FIRST 25°C OF THE TEMPERATURE SPAN.

UNRESTRICTED: SUITABLE FOR USE WITH ALL STANDARD OPTIONS.

WRITTEN BY: J. Pahn

APPROVED BY: J. Pahn DATE: 12-15-98

**INFRARAIL SPECIAL NUMBER R721**

REVISION:A  
DATE: 12-15-1998

**PRODUCTION INSTRUCTIONS:**

FOR THE ELECTRONICS MODULE, INSTALL M1 MODULE AS PER BILL OF MATERIAL ON PAGE 3.

FOR THE SENSING HEAD, START WITH A MODEL DNE31-13C SENSOR AND MAKE THE FOLLOWING CHANGES:

DETECTOR ASSEMBLY (C11209) CHANGES:

1. FOR THE DETECTOR , USE DETECTOR P.N. 590792 (InGaAs) IN PLACE OF SILICON DETECTOR.
2. WIRE THE DETECTOR PER **DETAIL A** OF DRAWING C-11207.
3. FOR THE FILTER USE P.N. 64055-2 (1.49 - 1.6 um).

FOR THE SENSING HEAD FINAL ASSEMBLY (C11201) , USE DETECTOR FIELD STOP P.N. 45132-3 (0.044 " I.D.) IN PLACE OF ITEM 1 P.N.451322 (.022 DIA.).

WHEN ASSEMBLY IS COMPLETED, DELIVER THE ELECTRONICS MODULE TO ENGINEERING FOR ADDITIONAL MODIFICATIONS.

**CALIBRATION INSTRUCTIONS:**

CALIBRATE AS PER STANDARD.

$I_{sc} @ T_{bb} 850^{\circ}C = 4.413 \mu A.$

TEST THE FAULT INDICATION FEATURE BY DISCONNECTING THE INTERCONNECTING CABLE FROM THE SENSOR WHILE FOCUSED ON A BLACKBODY. WHEN THIS IS DONE, THE ELECTRONICS MODULE OUTPUT SHOULD BE 20.00 mA. THIS HIGH OUTPUT WITH THE SENSOR DISCONNECTED, PROVIDES THE CUSTOMER WITH A FAULT INDICATION SIGNAL TO WARN OF A DISCONNECTED SENSOR CABLE.

**ENGINEERING INSTRUCTIONS:**

MODIFY THE ELECTRONICS MODULE PER AMMENDED DRAWING C-20211.

**MANUAL INSTRUCTIONS:**

GENERIC INFRARAIL SERIES MANUAL.

INFRARAIL SPECIAL NUMBER R721  
TEMPERATURE RANGE: 400 TO 850 DEGREES C  
SPECTRUM: 1.49 TO 1.60 MICRONS

TEMPERATURE DEGREES C	SENSOR OUTPUT IN uAMPS	INDICATOR OUTPUT mAMPS
400.0	0.0175	4.000
425.0	0.0286	4.889
450.0	0.0454	5.778
475.0	0.0697	6.667
500.0	0.1041	7.556
525.0	0.1516	8.444
550.0	0.2160	9.333
575.0	0.3012	10.222
600.0	0.4122	11.111
625.0	0.5544	12.000
650.0	0.7338	12.889
675.0	0.9569	13.778
700.0	1.2311	14.667
725.0	1.5640	15.556
750.0	1.9639	16.444
775.0	2.4395	17.333
800.0	2.9999	18.222
825.0	3.6544	19.111
850.0	4.4130	20.000

# Acknowledgment



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

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

SCHEDULED SHIPPING WEEK MONTH/DAY/YEAR  
ENDING 01/30/99

OUR ORDER NO. ORDER DATE MONTH/DAY/YEAR  
SA 066862/00 12/14/98

YOUR ORDER NO. D-6548

TERMS NET 30  
X OTHER NET 60

F.O.B. NILES, ILLINOIS  
X

CODE 726 .00 01/29/99

VIA MSAS PPD. COLL. X

SPECIAL SHIPPING INSTRUCTIONS

SOLD TO CUSTOMER NO. 008741

IRCON GMBH  
POSTFACH 1361, D-65221  
TAUNUSSTEIN, GRILLPARZERSTR 40  
GERMANY

SHIPPING ADDRESS TAX CODE  
NO TAX

INTROPA  
SPEDITIONSGESELLSCHAFT GMBH  
FRANKFURT AIRPORT  
ZUR VERFUEGUNG IRCONGMBH

2/14/98 PAGE 1

LINE NO.	PART NO.	QTY.	DESCRIPTION	UNIT MEAS	DISCOUNT %	PRICE EACH U.S. DOLLAR XXXXXXXXXX	AMOUNT U.S. DOLLAR XXXXXXXXXX
01		8	INFRARAIL TEMPERATURE SYSTEM MODEL DNE99-99C SERIAL NBR 002819 THRU 002826	EA		1316.80	10534.40
			CABLE(S) 4 MET. EA ( 4 MET. EA INCLUDED IN ABOVE)				
			PRODUCT MODIFICATION CHARGES			123.45	987.60
			***** * * SPECIAL Z999 <i>New Special Temp range</i> * ***** <i>400 to 850C with TAGAs</i> <i>in "E" head, D/50 Resolution</i>				
			!!!!!!!!!!WARNING!!!!!!!!!!!!				
			** SPL # TO BE DETERMINED **				
			** SEE ENGINEERING DEPT. **				
			SUB TOTALS				11522.00
			GRAND TOTAL				11522.00
			<i>30 inch focus plus</i> <i>Special fault condition</i> <i>indicator in special R200</i> <i>BIBB 12/15/98</i>				

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

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

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

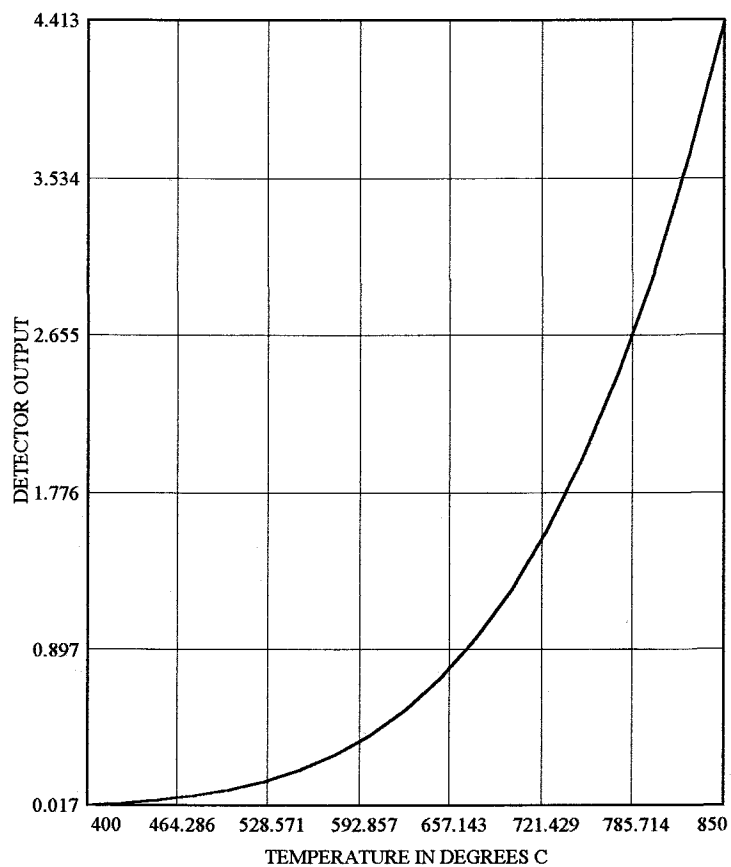
ORIGINAL

Part No. 020172 Rev C 12/95

*I<sub>sc</sub> μA*

TC OUTPUT(TC)

850	4.413
825	3.6546
800	3.0001
775	2.4398
750	1.9642
725	1.5643
700	1.2313
675	0.9571
650	0.7339
625	0.5545
600	0.4123
575	0.3013
550	0.216
525	0.1517
500	0.1041
475	0.0697
450	0.0454
425	0.0286
400	0.0175



INFRARAIL SPECIAL NUMBER R721  
TEMPERATURE RANGE: 400 TO 850 DEGREES C  
SPECTRUM: 1.49 TO 1.60 MICRONS

TEMPERATURE DEGREES C	SENSOR OUTPUT IN nAMPS	INDICATOR OUTPUT mAMPS
400.0	17.5279	4.000
425.0	28.7129	4.889
450.0	45.4617	5.778
475.0	69.8090	6.667
500.0	104.2709	7.556
525.0	151.8890	8.444
550.0	216.2677	9.333
575.0	301.6002	10.222
600.0	412.6867	11.111
625.0	554.9393	12.000
650.0	734.3792	12.889
675.0	957.6214	13.778
700.0	1231.8516	14.667
725.0	1564.7961	15.556
750.0	1964.6782	16.444
775.0	2440.1824	17.333
800.0	3000.3940	18.222
825.0	3654.7539	19.111
850.0	4413.0000	20.000

R721  
w/o 66865

## Section 1 — GENERAL INFORMATION

### 1.5 SPECIAL MODIFICATIONS

IRCON InfraRail Model DNE99-99C, Serial No's. 002819 through 002826 are modified for a special temperature range of 400° to 850°C, an optical resolution of D/50 with fixed 30" focus, a special fault alarm indicator, and a wavelength of 1.49 - 1.6  $\mu\text{m}$  per customer specifications.

The special fault indication provides for a current output from the signal processor which exceeds 20.00 mAdc any time the sensor is disconnected from the signal processor.

The following restrictions apply to this instrument:

- a) The sensing head ambient temperature is restricted to a maximum of 0 to 150°F (-17 to 65°C).
- b) Emissivity is restricted to 0.3 minimum for the first 25°C of the instrument's temperature span.

These modified instruments may be used with all standard InfraRail options and accessories.

Details of this modification are retained in IRCON Engineering Files as InfraRail Special No. R721.

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

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

**TO VIEW THE ORIGINAL  
DESIGN,**

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

## Modification Steps For R200

All modifications are done to the Preamp/Linearizer board.

1. Unsolder jumper JP1, make sure the hole going to the edge finger is open.
2. Add the 24.9K resistor to the solder-side per the picture. One end of the resistor goes into the solder hole at the edge finger. The other end goes to U1 pin 4.
3. Add the 274K resistor to the solder side per the picture. Use insulating sleeves on the resistor leads. Solder one end of the resistor to the 24.9K resistor at the edge finger. The other end goes to U7 pin 15.

NOTE: U7 is a 14-pin chip, but the socket on the board is 16-pin. The 274K resistor goes to pin 15 of the SOCKET, which is actually pin 13 of the CHIP.

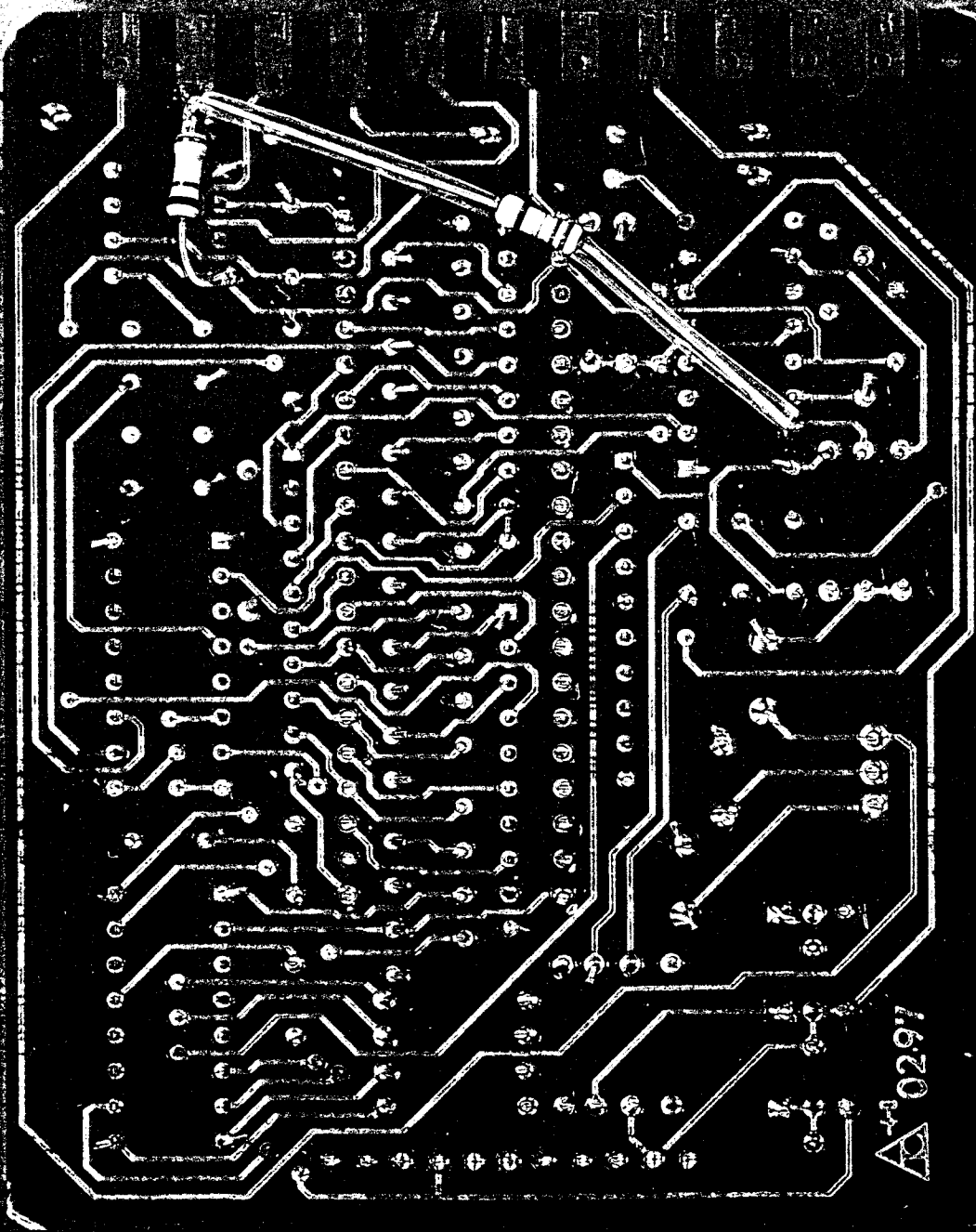
THERE IS VERY LITTLE CLEARANCE, SO MAKE SURE  
THE RESISTORS LAY FLAT AGAINST THE BOARD

4. Special R200 adds a small offset to the temperature signal, and some models will require a new value for R53 to compensate. Check the inside cover of the special file to see if a value is listed for the model you have. If it is not listed, then complete these modifications and try to calibrate the box. If you cannot get the calibration within the accuracy specification, then R53 should be changed. The new value for R53 is dependant on how bad the calibration is at zero, mid, and full-scale.
5. Calibrate the InfraRail box as standard. If you are injecting signals into the box, it will be necessary to add a jumper between terminals 2-3. This will simulate a head connected to the box.
6. Verify that the output exceeds 20mA with the sensor cable disconnected.

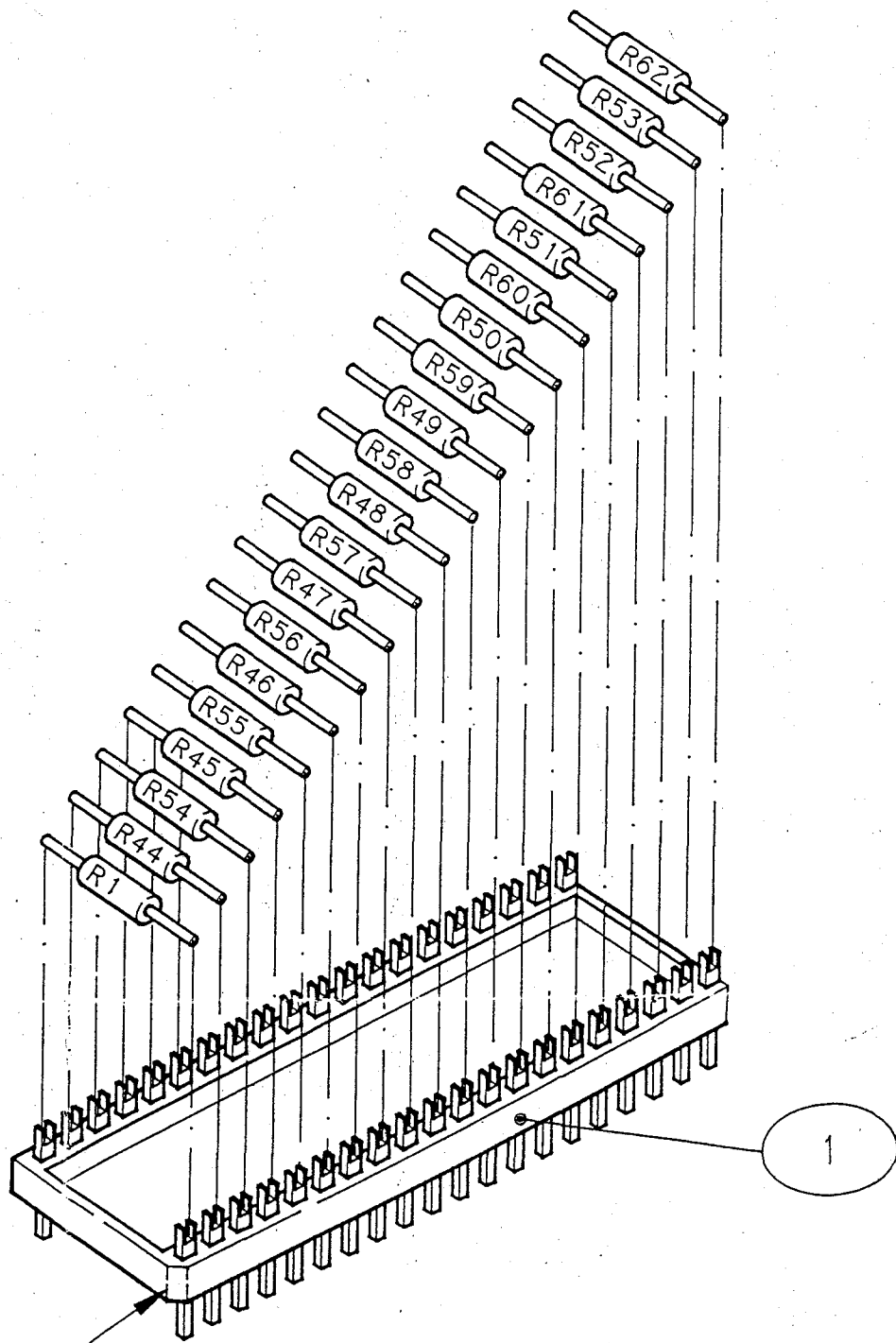
JPI

← 249K →

← 274K →



△ 0297



NOTE: CHAMFER EDGE

40 PIN DIP HEADER (ITEM 1).  
HEADS

Number :DN-HO#27739 - IRCON INFRARAIL IRT SO-LI: 89784\*1

Level	Part Number	Description	Quantity	UM	Alt.	MB X	ECO No.	ECO Date	Start Use	End Use
1	DNIDNE	DN PRICES	1.0000	EA		M P				
1	C11201	SENSING HEAD FINAL ASSEMB	1.0000	EA		M P				
2	451322	FIELD STOP .022DIA	1.0000	EA		B	3709	05-17-1996		
2	C11201/01	SEE EXTENDED DESCRIPTION	0.0000	EA		M				
2	990300005	RETAINING RING 7/16 OD,.2	1.0000	EA		B	3709	05-17-1996		
2	431442	DET. LOCATOR MOD2	1.0000	EA		B	3709	05-17-1996		
2	C11209	SH DETECTOR ASSEMBLY (E-S	1.0000	EA		M P	3709	05-17-1996		
3	L13354	SH DETECTOR ASSEMBLY E-SE	1.0000	EA		M P				
4	431432	DET. HOLDER MR20 SERIES	1.0000	EA		B	3770	08-21-1996		
4	640642	FILTER, BANDPASS	1.0000	EA		B	3770	08-21-1996		
4	590672	DET. SI VACTEC 21D459	1.0000	EA		B	3770	08-21-1996		
4	560372	CABLE PVC 1 COND SHIELD 2	3.0000	IN		B	3770	08-21-1996		
4	312430100	WIRE 24AWG BARE SOLID	1.0000	IN		B	3770	08-21-1996		
4	430292	CONN. GASKET 2000 SERIES	1.0000	EA		B	3770	08-21-1996		
4	575892	CONN. CIRC 3 RECPT 10SL-3	1.0000	EA		B	3770	08-21-1996		
4	490042	SPRING DETECTOR RETAINER	1.0000	EA		B	3770	08-21-1996		
4	630092	FOLDING MIRROR SH MROA SE	1.0000	EA		B	3770	08-21-1996		
4	490032	SPRING FOLDING MIRROR MOD	1.0000	EA		B	3770	08-21-1996		
4	200204130	SCREW #2-56 X 1/8 PH SLOT	1.0000	EA		B	3770	08-21-1996		
4	990100016	EPOXY HARDMAN #4001 3-5 M	1.0000	EA		B	3770	08-21-1996		
4	3214G00X0	TUBING #14 PVC CLEAR	1.0000	IN		B	3770	08-21-1996		
4	3208I1000	BLACK HEAT SHRINK TUBING	1.0000	IN		B				
2	447352	SENSOR, E-HEAD	1.0000	EA		B	3709	05-17-1996		
2	610432	EYE LENS FOR A HEAD	1.0000	EA		B	3709	05-17-1996		
2	990100002	EPOXY HARDMAN #4005 GEN P	1.0000	EA		B	3709	05-17-1996		
2	447372	FIELD STOP, .312 DIA	1.0000	EA		B	3709	05-17-1996		
2	447382	FIELD STOP, .437 DIA	1.0000	EA		B	3709	05-17-1996		
2	610402	LENS PLANO CONVEX 30" F/L	1.0000	EA		B	3709	05-17-1996		
2	431752	O RING 13/16 X 1/16 TH 70	1.0000	EA		B	3709	05-17-1996		
2	447362	LENS RING E-HEAD SENSOR	1.0000	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	220403200	WASHER #4 LOCK SPLIT RING	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	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	C11201/02	SEE EXTENDED DESCRIPTION	0.0000	EA		M				
2	443502	RETAINING NUT	1.0000	EA		B	3709	05-17-1996		
2	477142	LABEL, SERIAL NUMBER, SEN	1.0000	EA		B	3709	05-17-1996		
2	474772	LABEL GROUND WARNING	1.0000	EA		B	3709	05-17-1996		
2	T-C11201-1	DETERMINE IF CABLE IS REQ	0.0000	EA		B	3709	05-17-1996		
2	C11201/03	SEE EXTENDED DESCRIPTION	0.0000	EA		M				
2	999900013	CAP PLUG #SC-1-1/4	1.0000	EA		B	3709	05-17-1996		
2	990100028	SEALANT RTV SILICONE BLAC	1.0000	EA		B	3709	05-17-1996		
2	999900014	STEM BUMPER 3/8OD .275T	1.0000	EA		B	3709	05-17-1996		

*Before Changes  
(Keep As Reference)*



IRCON, INC T 847-967-5151  
 7300 North Natchez Ave T 800-323-7660  
 Niles, Illinois 60714 USA F 847-647-0948

# Acknowledgment

ORDER DATE: 28 NOV 2005  
 REV: DATE:

Customer No. 100426  
**SOLD TO**

IRCON B.V.  
 DATABANKWEG 6 C  
 3821 AL AMERSFOORT  
 THE NETHERLANDS

**SHIP TO**

IRCON B.V.  
 DATABANKWEG 6 C  
 3821 AL AMERSFOORT  
 THE NETHERLANDS

SPECIAL SHIPPING INSTRUCTIONS  
 REF: ON 40.176

OUR ORDER No.		YOUR PO No.		F.O.B.		TAX	
89784		1017		ORIGIN		Resale	
SHIP VIA		TERMS		DATE REQUESTED	SALES REPRESENTATIVE		
EXEL		0.00/0/180		12-09-05	1001 (100.00)		
LI	PART NO.	PRODUCT/DESCRIPTION	QTY	UNIT PRICE	DISC	NET PRICE	EXTENSION
1	DN-HO#27739 <i>w.o. # 20212</i>	DN_DNE31-13C <i>E99-99c</i> IRCON INFRARAIL IRT SENSING HEAD ONLY Consists of the following: 1.0000 - INFRARAIL HEAD ONLY 1.0000 - DN - E SERIES 1.0000 - D/100 RESOLUTION (E) 1.0000 - 800-1300C <i>Red Spz No R721</i> <i>Temp 400-850C</i> <i>D/50 Res</i>	1	363.61	0.0	363.61	363.61
2	MOD-CHARGES	MODIFICATION OF PRODUCT <i>+ cable Brak Alarm</i>	1	82.64	0.0	82.64	82.64
THIS ORDER IS ACCEPTED SUBJECT TO TERMS AND CONDITIONS SHOWN ON THIS AND THE REVERSE SIDE						<b>GRAND TOTAL</b>	ECU446.25

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: QNE3113C
- Standard Product List Price: \$ 450
- The product change requested would be: Reps R721  
400-850C, 2/50 cable break *Sales will attach specifics to this form.*
- The market is willing to pay \$950 for this product (total including standard price).
- What is engineering's expected time investment and cost: 1 HOUR Man Days  
\$ 100<sup>00</sup>
- 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 11/29/05  
W.O. #20212

➤ Sales can now quote this project for \$ \_\_\_\_\_ per unit.  
\_\_\_\_\_ 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 # 20212

Number :DN-HO#27739 - IRCON INFRARAIL IRT SO-LI: 89784\*1

Level	Part Number	Description	Quantity	UM	Alt	MB	X	ECO No.	ECO Date	Start Use	End Use
1	DN1DNE	DN PRICES	1.0000	EA		M	P				
1	OK C11201-R713	SENSING HEAD FINAL ASSY	1.0000	EA		M	P				
2	451323	FIELD STOP .044DIA	1.0000	EA		B		3709	05-17-1996		
2	C11201/01	SEE EXTENDED DESCRIPTION	0.0000	EA		M					
2	990300005	RETAINING RING 7/16 OD, .2	1.0000	EA		B		3709	05-17-1996		
2	431442	DET. LOCATOR MOD2	1.0000	EA		B		3709	05-17-1996		
2	C11209-R707	SH DETECTOR ASSEMBLY E HD	1.0000	EA		M	P	3709	05-17-1996		
3	LR721-D	DET ASSY FOR SPL# R721	1.0000	EA		M	P	3770	08-21-1996		
4	LR721-D/01	SEE EXTENDED DESCRIPTION	0.0000	EA		M	P				
4	431432	DET. HOLDER MR20 SERIES	1.0000	EA		B					
4	640552	FILTER, BANDPASS	1.0000	EA		B					
4	590942	DETECTOR InGaAs 1.6u	1.0000	EA		B					
4	LR721-D/02	SEE EXTENDED DESCRIPTION	0.0000	EA		M	P				
4	560372	CABLE PVC 1 COND SHIELD 2	3.0000	IN		B					
4	312430100	WIRE 24AWG BARE SOLID	1.0000	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	630092	FOLDING MIRROR SH MROA SE	1.0000	EA		B					
4	490032	SPRING FOLDING MIRROR MOD	1.0000	EA		B					
4	200204130	SCREW #2-56 X 1/8 PH SLOT	1.0000	EA		B					
4	990100016	EPOXY HARDMAN #4001 3-5 M	1.0000	EA		B					
4	3214G00X0	TUBING #14 PVC CLEAR	1.0000	IN		B					
2	447352	SENSOR, E-HEAD	1.0000	EA		B		3709	05-17-1996		
2	610432	EYE LENS FOR A HEAD	1.0000	EA		B		3709	05-17-1996		
2	990100002	EPOXY HARDMAN #4005 GEN P	1.0000	EA		B		3709	05-17-1996		
2	447372	FIELD STOP, .312 DIA	1.0000	EA		B		3709	05-17-1996		
2	447382	FIELD STOP, .437 DIA	1.0000	EA		B		3709	05-17-1996		
2	610402	LENS PLANO CONVEX 30" F/L	1.0000	EA		B		3709	05-17-1996		
2	431752	O RING 13/16 X 1/16 TH 70	1.0000	EA		B		3709	05-17-1996		
2	447362	LENS RING E-HEAD SENSOR	1.0000	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	220403200	WASHER #4 LOCK SPLIT RING	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	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	C11201/02	SEE EXTENDED DESCRIPTION	0.0000	EA		M					
2	443502	RETAINING NUT	1.0000	EA		B		3709	05-17-1996		
2	477142	LABEL, SERIAL NUMBER, SEN	1.0000	EA		B		3709	05-17-1996		
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R721 (Sensor Only)