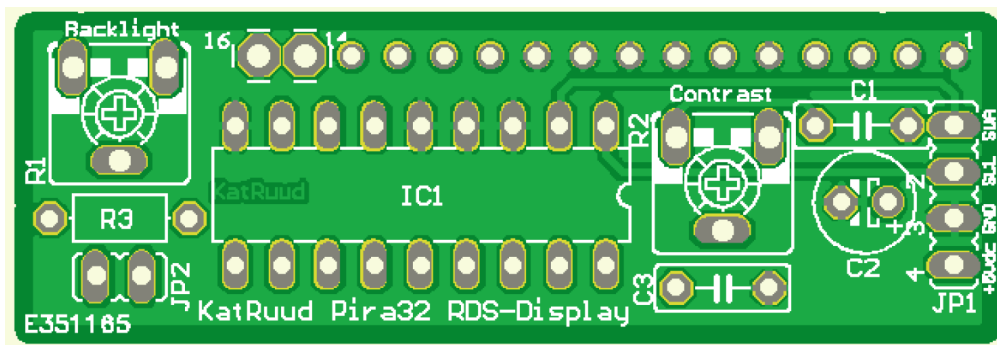


KatRuud / Pira32 RDS Display

Technische Handleiding

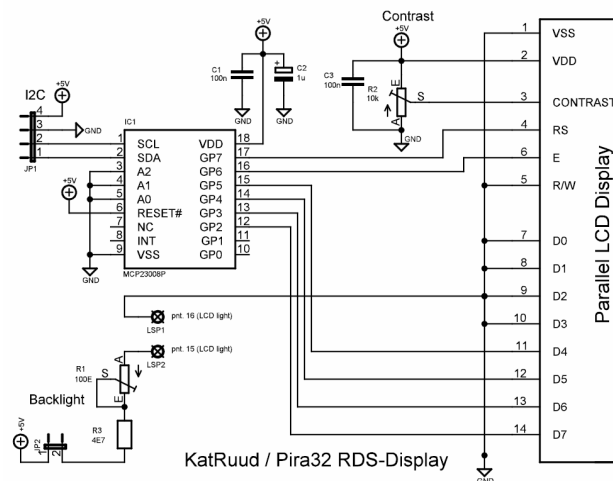


(Orgineel op <http://pira.cz/rds/p32lcd.pdf>)

1. Technische Specificaties.

Parameter	Value
Apparaat soort	Optionele LCD module voor de PIRA32 RDS Encoder
Display	Alfanumeriek 16 x 2 characters, met achtergrond verlichting
Zichtbare LCD afmetingen	Afhankelijk van gebruikt display
Communicatie bus	IIC 400 kHz
Firmware versie	vereist 1.5b of hoger
Voeding	5 Vdc (van RDS)
Opgenomen Stroom	Ca: 2mA, no Backlight, Ca: 15mA min Backlight, Ca: 130mA max Backlight

2. Schema.



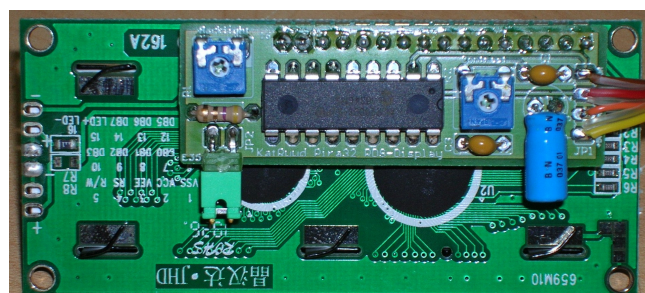
Afregelingen:

R1 – LCD Achtergrond verlichting, R2 – LCD contrast
 JP2 – Achtergrond verlichting aan/uit jumper

Aansluitingen:

LCD pin	Connected to	LCD pin	Connected to
1	Vss	9	DB2
2	Vcc	10	DB3
3	Vee	11	DB4
4	RS	12	DB5
5	R/W	13	DB6
6	E	14	DB7
7	DB0	15	LED+
8	DB1	16	LED-

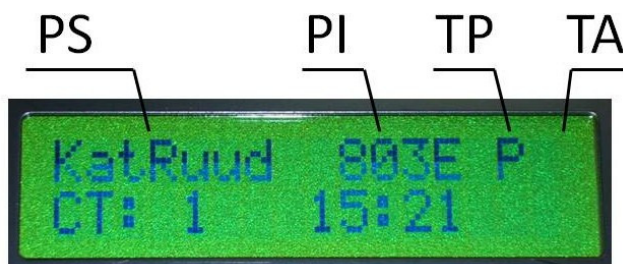
I2C Connector (JP1)	
1	SDA
2	SCL
3	GND
4	5Vdc



3. KatRuud Pira32 RDS uitgang op display.

Het LCD gebied is verdeeld in twee lijnen.

De eerste lijn laat de belangrijkste RDS diensten zien, dit zijn PS (incl. dynamisch), PI, TP and TA.



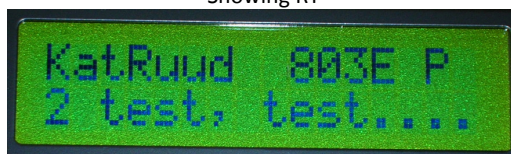
De tweede lijn laat de meest belangrijke status waarden en RDS diensten in een loop zien. Afhankelijk van de configuratie is het mogelijk dat sommige statussen niet getoond worden. Voorbeeld: als voor de bron voor de interne klok is gekozen voor de RDS draaggolf dan wordt de PILOT waarde in zijn geheel niet vertoond. Sommige voorvallen kunnen de volgorde aantasten. Bijvoorbeeld als de Radiotekst veranderd dan wordt dat in de volgende cyclus vertoont ongeacht de voorgaande volgorde waarde.

Order	Status value or RDS service	Meaning
1	RDSGEN	1 = RDS generator enabled, 0 = no RDS output.
2	(Reserved)	(This item is currently skipped.)
3	PROGRAM	Actual program bank selected.
4	PTY, MS, DI	Program Type code; Music/Speech; Decoder Identification code.
5	ADR	The RDS encoder address. If the unit is selected (listening for the ASCII commands), the character '*' is showed.
6	UECP	1 = The RDS encoder accepts both ASCII and UECP commands, 0 = the RDS encoder accepts ASCII commands only.
7	SITE	The RDS encoder site. Applies to UECP commands only. If SITE = 0, the unit accepts any site value within the UECP record.
8	NOHDR	1 = No header communication mode is active, 0 = standard communication mode.
9	SPEED	Actual RS232 port speed on which the control commands are expected.
10	PILOT	1 = pilot tone present, 0 = no pilot tone.
11	CT	1 = CT enabled, 0 = CT disabled; RDS encoder local time.
12	GRPSEQ	First 16 items of RDS group sequence.
13	RT	Actual Radiotext (sequence of 4 x 16 characters).

Opmerking:

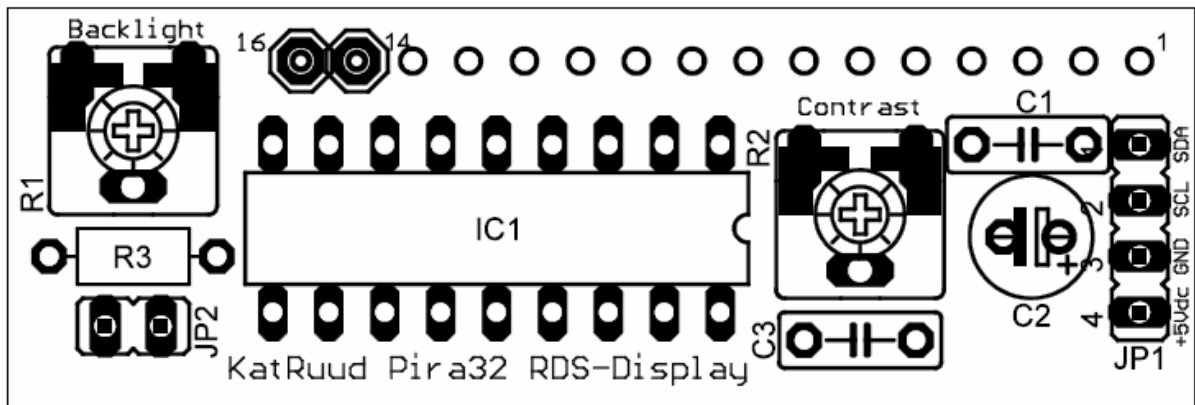
De KatRuud Pira32 RDS Display kan alleen gebruikt worden samen met de Pira32 RDS en niet met een ander soort RDS.

Showing RT



4. Aansluitingen KatRuud Pira32 RDS Display.

De Print layout en aansluitingen:



Backlight Adjust

Contrast Adjust



1. SDA
2. SCL
3. GND
4. +5Vdc

Backlight On/Off (jumper)

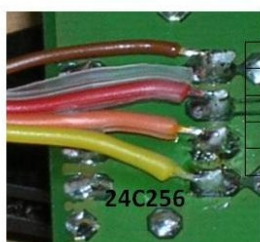
5. Verbinden met de Pira32 RDS.

De KatRuud Pira32 RDS Display kan aangesloten op iedere versie/uitvoering ongeacht merk/maker van de Pira32 RDS, de enigste voorwaarde is dat de gebruikte Firmware van de Pira32 versie 1.5b of hoger is.

Als er geen plug op de print aanwezig is dan moeten de draden op de print gesoldeerd worden.

I2C Connector	24C256 IC
1	SDA Pin 5
2	SCL Pin 6
3	GND Pin 7
4	5Vdc Pin 8

Connection to Pira32 RDS



24C256 IC	24C256 IC
5	SDA Pin 5
6	SCL Pin 6
7	GND Pin 7
8	5Vdc Pin 8

6. Foto's.

Hier zijn verschillende foto's van het display.



Prototype



Collection



PS

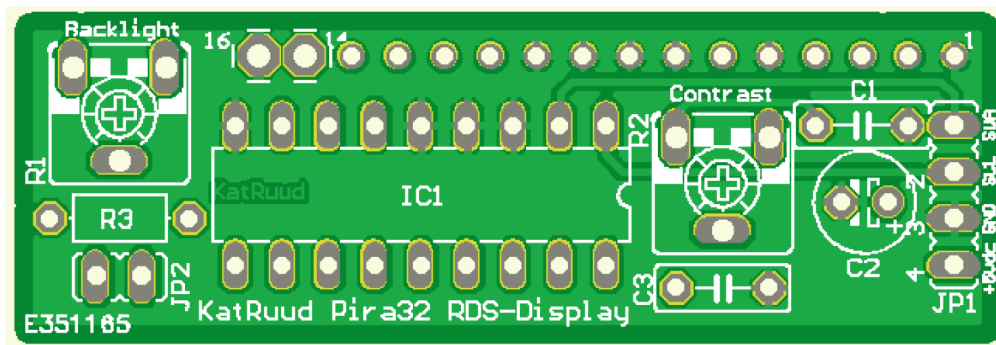
PI

TP

TA



KatRuud / Pira32 RDS Display Technical Manual

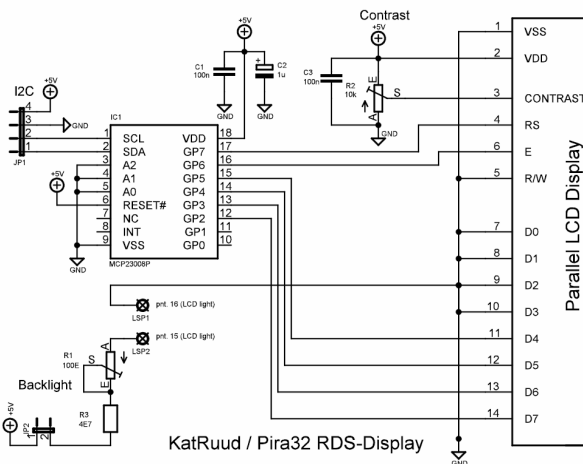


(Original at <http://pira.cz/rds/p32lcd.pdf>)

1. Technical Specifications.

Parameter	Value
Device kind	Optional LCD module for the PIRA32 RDS Encoder
Display unit	Alphanumerical 16 x 2 characters, with backlight
Active LCD area dimensions	Depends on display used
Communication bus	IIC 400 kHz
Firmware version	required 1.5b or later
Character set	See Annexes
Power supply	5 Vdc (from RDS)
Supply current	Ca: 2mA, no Backlight, Ca: 15mA min Backlight, Ca: 130mA max Backlight

2. Schematic Diagram.



Adjusting elements:

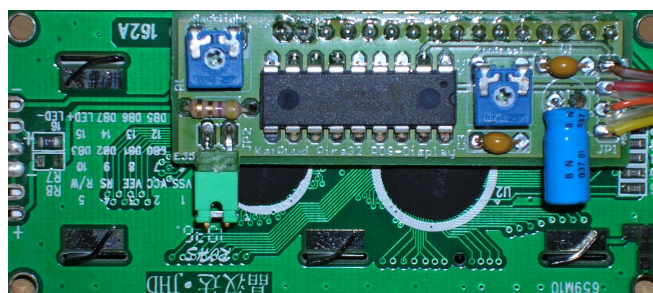
R1 – LCD Backlight, R2 – LCD contrast

JP2 – backlight on/off jumper

Connections:

LCD pin	Connected to	LCD pin	Connected to
1	Vss	9	DB2
2	Vcc	10	DB3
3	Vee	11	DB4
4	RS	12	DB5
5	R/W	13	DB6
6	E	14	DB7
7	DB0	15	LED+
8	DB1	16	LED-

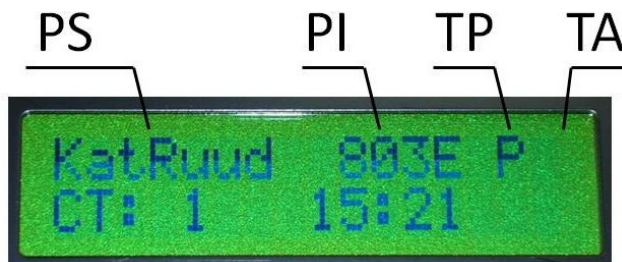
I2C Connector (JP1)	
1	SDA
2	SCL
3	GND
4	5Vdc



3. KatRuud Pira32 RDS Display Output.

The LCD area is divided into two lines.

The first line shows key RDS services that require quick access. These services are PS (incl. dynamic), PI, TP and TA.



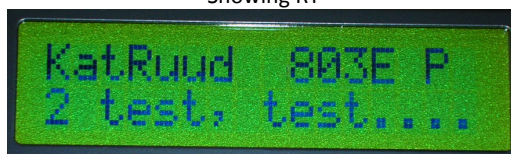
The second line shows the most important status values and RDS services in a loop. Depending on the configuration some values may be omitted. For example if the internal clock source is set for the RDS subcarrier, the PILOT value is not showed. Some events may affect the order. For example if Radiotext changes, it's showed in the next cycle regardless of previous order value.

Order	Status value or RDS service	Meaning
1	RDSGEN	1 = RDS generator enabled, 0 = no RDS output.
2	(Reserved)	(This item is currently skipped.)
3	PROGRAM	Actual program bank selected.
4	PTY, MS, DI	Program Type code; Music/Speech; Decoder Identification code.
5	ADR	The RDS encoder address. If the unit is selected (listening for the ASCII commands), the character '*' is showed.
6	UECP	1 = The RDS encoder accepts both ASCII and UECP commands, 0 = the RDS encoder accepts ASCII commands only.
7	SITE	The RDS encoder site. Applies to UECP commands only. If SITE = 0, the unit accepts any site value within the UECP record.
8	NOHDR	1 = No header communication mode is active, 0 = standard communication mode.
9	SPEED	Actual RS232 port speed on which the control commands are expected.
10	PILOT	1 = pilot tone present, 0 = no pilot tone.
11	CT	1 = CT enabled, 0 = CT disabled; RDS encoder local time.
12	GRPSEQ	First 16 items of RDS group sequence.
13	RT	Actual Radiotext (sequence of 4 x 16 characters).

Remarks:

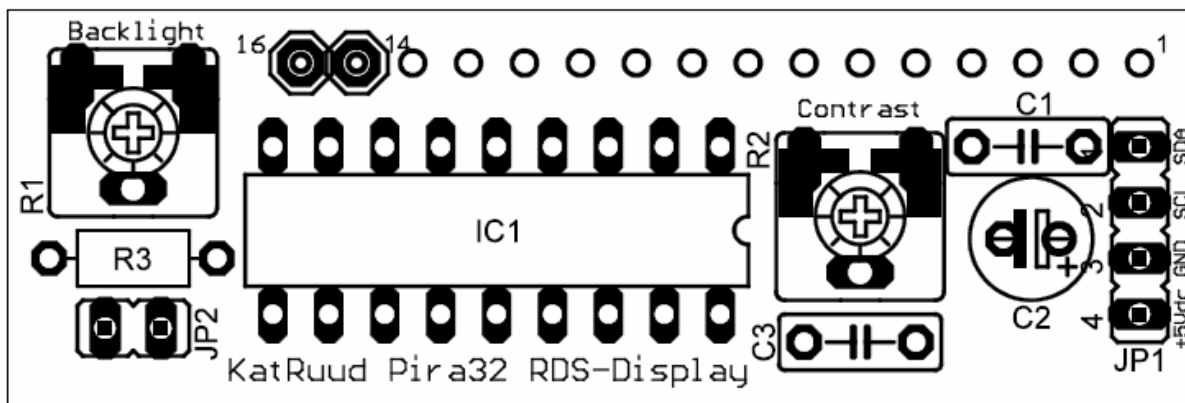
The KatRuud Pira32 RDS Display can only be used on the Pira32 RDS encoder and not on any other RDS.

Showing RT



4. Connections KatRuud Pira32 RDS Display.

The Board layout and connections:



Backlight Adjust

Contrast Adjust



1. SDA
2. SCL
3. GND
4. +5Vdc

Backlight On/Off (jumper)

5. Connections to Pira32 RDS.

The KatRuud Pira32 RDS Display can be connected to every version/model of the Pira32 RDS, the only condition is that the Firmware of the Pira32 is version 1.5B or higher.

If there is no connector on the board than solder the wires according to the table:

I2C Connector	24C256 IC
1	SDA Pin 5
2	SCL Pin 6
3	GND Pin 7
4	5Vdc Pin 8

Connection to Pira32 RDS



24C256 IC	24C256 IC
5	SDA Pin 5
6	SCL Pin 6
7	GND Pin 7
8	5Vdc Pin 8

6. Pictures.

Here are a few different pictures of the display.



Prototype



Collection



PS

PI

TP

TA

