LAMPIRAN

LISTING PROGRAM

```
/*****************************************************
This program was produced by the
CodeWizardAVR V2.03.4 Standard
Automatic Program Generator
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Project :
Version :
Date    : 5/20/2017
Author  :
Company :
Comments:


Chip type           : ATmega16
Program type        : Application
Clock frequency     : 11.059200 MHz
Memory model        : Small
External RAM size   : 0
Data Stack size     : 256
*****************************************************/

#include <mega16.h>
#include <stdio.h>
#include <delay.h>
#include <stdlib.h>
// Alphanumeric LCD Module functions
#asm
  .equ __lcd_port=0x1B ;PORTA
#endasm
#include <lcd.h>
char buff[33];
char code[8];
eeprom char member_1[8];
char indikator=0;
char terdaftar=0,belum_terdaftar=0;
char  open_keypad=0;
char  new_id=0,kalibrasi=0;
eeprom char input_saldo,tambah_saldo,saldo_awal;

eeprom float saldo;
eeprom float harga;
```

```
eeprom float satuan;
float simpan;
float beli,jual;
char array[10];
char info_saldo=0,transaksi=0;
unsigned int counter=0,timer=0;
int start=0,stop=0;
int proses=0,banding=0;

unsigned char buf[33];
eeprom char pointer0,pointer1,pointer2,pointer3,pointer4,pointer5;
char nilai[6];
char poin;
int i,j,k;

#define RXB8 1
#define TXB8 0
#define UPE 2
#define OVR 3
#define FE 4
#define UDRE 5
#define RXC 7

#define FRAMING_ERROR (1<<FE)
#define PARITY_ERROR (1<<UPE)
#define DATA_OVERRUN (1<<OVR)
#define DATA_REGISTER_EMPTY (1<<UDRE)
#define RX_COMPLETE (1<<RXC)

// USART Receiver buffer
#define RX_BUFFER_SIZE 8
char rx_buffer[RX_BUFFER_SIZE];

#if RX_BUFFER_SIZE<256
unsigned char rx_wr_index,rx_rd_index,rx_counter;
#else
unsigned int rx_wr_index,rx_rd_index,rx_counter;
#endif

// This flag is set on USART Receiver buffer overflow
bit rx_buffer_overflow;

// USART Receiver interrupt service routine
interrupt [USART_RXC] void usart_rx_isr(void)
{
char status,data;
for(k=0;k<8;k++)
```

```
{
status=UCSRA;
data=UDR;
if ((status & (FRAMING_ERROR | PARITY_ERROR |
DATA_OVERRUN))==0)
  {
  rx_buffer[rx_wr_index]=data;
  if (++rx_wr_index == RX_BUFFER_SIZE) rx_wr_index=0;
  if (++rx_counter == RX_BUFFER_SIZE)
    {
    rx_counter=0;
    rx_buffer_overflow=1;
    };
  };
  sprintf(buff,"%d",data);
  lcd_gotoxy(k,1);
  lcd_puts(buff);
  code[k+1]=data;
  delay_ms(1);
  indikator=1;
  }
}

#ifndef _DEBUG_TERMINAL_IO_
// Get a character from the USART Receiver buffer
#define _ALTERNATE_GETCHAR_
#pragma used+
char getchar(void)
{
char data;
while (rx_counter==0);
data=rx_buffer[rx_rd_index];
if (++rx_rd_index == RX_BUFFER_SIZE) rx_rd_index=0;
#asm("cli")
--rx_counter;
#asm("sei")
return data;
}
#pragma used-
#endif

// Standard Input/Output functions
#include <stdio.h>
void bunyi_buzzer()
{
PORTD.7=1;
delay_ms(200);
```

```
PORTD.7=0;
delay_ms(100);
}

void scand_keypad()
{
char keluar=0;
   do
   {
PORTC = 0b11101111;
delay_ms(30);
if (PINC.0 == 0) {bunyi_buzzer();}
if (PINC.1 == 0) {bunyi_buzzer();}
if (PINC.2 == 0) {poin=0;array[i]=0;bunyi_buzzer();keluar=1;}
if (PINC.3 == 0) {bunyi_buzzer();}

PORTC = 0b11011111;
delay_ms(30);
if (PINC.0 == 0) {i=22;bunyi_buzzer();keluar=1;}
if (PINC.1 == 0) {poin=9;array[i]=9;bunyi_buzzer();keluar=1;}
if (PINC.2 == 0) {poin=8;array[i]=8;bunyi_buzzer();keluar=1;}
if (PINC.3 == 0) {poin=7;array[i]=7;bunyi_buzzer();keluar=1;}

PORTC = 0b10111111;
delay_ms(30);
if (PINC.0 == 0) {bunyi_buzzer();}
if (PINC.1 == 0) {poin=6;array[i]=6;bunyi_buzzer();keluar=1;}
if (PINC.2 == 0) {poin=5;array[i]=5;bunyi_buzzer();keluar=1;}
if (PINC.3 == 0) {poin=4;array[i]=4;bunyi_buzzer();keluar=1;}

PORTC = 0b01111111;
delay_ms(30);
if (PINC.0 == 0) {bunyi_buzzer();}
if (PINC.1 == 0) {poin=3;array[i]=3;bunyi_buzzer();keluar=1;}
if (PINC.2 == 0) {poin=2;array[i]=2;bunyi_buzzer();keluar=1;}
if (PINC.3 == 0) {poin=1;array[i]=1;bunyi_buzzer();keluar=1;}
}

while (keluar ==0);
}
// Declare your global variables here

void main(void)
{
// Declare your local variables here

// Input/Output Ports initialization
```

```
// Port A initialization
// Func7=In Func6=In Func5=In Func4=In Func3=In Func2=In Func1=In Func0=In
// State7=T State6=T State5=T State4=T State3=T State2=T State1=T State0=T
PORTA=0x00;
DDRA=0x00;

// Port B initialization
// Func7=In Func6=In Func5=In Func4=In Func3=Out Func2=Out Func1=Out Func0=Out
// State7=T State6=T State5=T State4=T State3=0 State2=0 State1=0 State0=0
PORTB=0x00;
DDRB=0x0F;

// Port C initialization
// Func7=Out Func6=Out Func5=Out Func4=Out Func3=In Func2=In Func1=In Func0=In
// State7=0 State6=0 State5=0 State4=0 State3=P State2=P State1=P State0=P
PORTC=0x0F;
DDRC=0xF0;

// Port D initialization
// Func7=Out Func6=Out Func5=Out Func4=In Func3=In Func2=In Func1=In Func0=In
// State7=0 State6=0 State5=0 State4=P State3=P State2=P State1=T State0=T
PORTD=0x1C;
DDRD=0xE0;

// Timer/Counter 0 initialization
// Clock source: System Clock
// Clock value: Timer 0 Stopped
// Mode: Normal top=FFh
// OC0 output: Disconnected
TCCR0=0x00;
TCNT0=0x00;
OCR0=0x00;

// Timer/Counter 1 initialization
// Clock source: System Clock
// Clock value: Timer 1 Stopped
// Mode: Normal top=FFFFh
// OC1A output: Discon.
// OC1B output: Discon.
// Noise Canceler: Off
// Input Capture on Falling Edge
// Timer 1 Overflow Interrupt: Off
// Input Capture Interrupt: Off
```

```
// Compare A Match Interrupt: Off
// Compare B Match Interrupt: Off
TCCR1A=0x00;
TCCR1B=0x00;
TCNT1H=0x00;
TCNT1L=0x00;
ICR1H=0x00;
ICR1L=0x00;
OCR1AH=0x00;
OCR1AL=0x00;
OCR1BH=0x00;
OCR1BL=0x00;

// Timer/Counter 2 initialization
// Clock source: System Clock
// Clock value: Timer 2 Stopped
// Mode: Normal top=FFh
// OC2 output: Disconnected
ASSR=0x00;
TCCR2=0x00;
TCNT2=0x00;
OCR2=0x00;

// External Interrupt(s) initialization
// INT0: Off
// INT1: Off
// INT2: Off
MCUCR=0x00;
MCUCSR=0x00;

// Timer(s)/Counter(s) Interrupt(s) initialization
TIMSK=0x00;

// USART initialization
// Communication Parameters: 8 Data, 1 Stop, No Parity
// USART Receiver: On
// USART Transmitter: On
// USART Mode: Asynchronous
// USART Baud Rate: 9600
UCSRA=0x00;
UCSRB=0x98;
UCSRC=0x86;
UBRRH=0x00;
UBRRL=0x47;

// Analog Comparator initialization
// Analog Comparator: Off
```

```
// Analog Comparator Input Capture by Timer/Counter 1: Off
ACSR=0x80;
SFIOR=0x00;

// LCD module initialization
lcd_init(16);
lcd_gotoxy(0,0);
lcd_putsf(" SKRIPSI WIYOTO ");
lcd_gotoxy(0,1);
lcd_putsf("   TAHUN 2017   ");
delay_ms(30000);

lcd_clear();
nilai[0] = pointer0;
nilai[1] = pointer1;
nilai[2] = pointer2;
nilai[3] = pointer3;
nilai[4] = pointer4;
nilai[5] = pointer5;
if ((nilai[0] == 0xff) && (nilai[1] == 0xff) && (nilai[2] == 0xff) && (nilai[3] ==
0xff) && (nilai[4] == 0xff) && (nilai[5] == 0xff))
     {
     lcd_gotoxy(0,0);
     lcd_putsf(" Password Mesin ");
     lcd_gotoxy(5,1);
     delay_ms(500);
     j=5;
     for (i=0;i<6;i++)
      {
        do {
          scand_keypad();delay_ms(500);
        } while (poin>9);
       sprintf(buf,"%x",poin);
       lcd_puts(buf);
       nilai[j-i]=poin;
       }
   pointer0 = nilai[0];
   pointer1 = nilai[1];
   pointer2 = nilai[2];
   pointer3 = nilai[3];
   pointer4 = nilai[4];
   pointer5 = nilai[5];

   nilai[0]=10;
   nilai[1]=10;
    }
```

```
lcd_clear();
// Global enable interrupts
#asm("sei")

while (1)
      {
      // Place your code here
      lcd_gotoxy(0,0);
      lcd_putsf(" Masukkan Kartu ");

      while(indikator==1)
      {

if((member_1[1]==code[1])&&(member_1[2]==code[2])&&(member_1[3]==cod
e[3]))
      {
      lcd_gotoxy(0,0);
      lcd_putsf("ID terdaftar    ");
      delay_ms(2000);
      lcd_clear();
      terdaftar=1;
      }

if((member_1[1]!=code[1])&&(member_1[2]!=code[2])&&(member_1[3]!=code[
3]))
      {
      lcd_gotoxy(0,0);
      lcd_putsf("ID blm terdaftar");
      delay_ms(2000);
      lcd_gotoxy(0,0);
      lcd_putsf("Hub.pemilik toko");
      delay_ms(2000);
      lcd_clear();
      }
      indikator=0;
      }

      PORTC = 0b01111111;
      delay_ms(30);
      if (PINC.0 == 0) {belum_terdaftar=1;lcd_clear();}

      while(belum_terdaftar==1)
      {
      lcd_gotoxy(0,0);
      lcd_putsf(" Password Mesin ");
      lcd_gotoxy(5,1);
      delay_ms(500);
```

```
    j=5;
      for (i=0;i<6;i++)
      {
        do {
        scand_keypad();delay_ms(500);
        } while (poin>9);
        sprintf(buf,"%x",poin);
        lcd_puts(buf);
        nilai[j-i]=poin;
      }

    if ((nilai[0] == pointer0) && (nilai[1] == pointer1) && (nilai[2] == pointer2)
&& (nilai[3] == pointer3) && (nilai[4] == pointer4) && (nilai[5] == pointer5))
       {
       lcd_gotoxy(0,1);
       lcd_putsf("  Open  Lock  ");
       delay_ms(2000);
       lcd_clear();
       open_keypad=10;
       }
     else
       {
       lcd_gotoxy(0,1);
       lcd_putsf(" Password Error ");
       delay_ms(2000);
       lcd_clear();
       }

       while(open_keypad==10)
       {
       lcd_gotoxy(0,0);
       lcd_putsf("NewID[A] Kalb[D]");
       lcd_gotoxy(0,1);
       lcd_putsf("Saldo[B] Exit[C]");

       PORTC = 0b01111111;
       delay_ms(30);
       if (PINC.0 == 0) {new_id=1;lcd_clear();}

       PORTC = 0b10111111;
       delay_ms(30);
       if (PINC.0 == 0) {saldo_awal=10;tambah_saldo=50;lcd_clear();}

       PORTC = 0b11011111;
       delay_ms(30);
       if (PINC.0 == 0) {open_keypad=0;belum_terdaftar=0;lcd_clear();}
```

```
PORTC = 0b11101111;
delay_ms(30);
if (PINC.0 == 0) {kalibrasi=1;lcd_clear();}
//=================================================
while(new_id==1)
{
lcd_gotoxy(0,0);
lcd_putsf("  New ID Member  ");
lcd_gotoxy(13,1);
lcd_putsf("[B]");
member_1[1]=code[1];
member_1[2]=code[2];
member_1[3]=code[3];

PORTC = 0b10111111;
delay_ms(30);
if (PINC.0 == 0) {bunyi_buzzer();code[1]=0xff;code[2]=0xff;code[3]=0xff;belum_terdaftar=0;new_id=0;lcd_clear();}
indikator=0;
}
//=================================================
while(saldo_awal==10)
{
while(input_saldo==0xff)
{
lcd_gotoxy(0,0);
lcd_putsf("  Input  Saldo  ");
lcd_gotoxy(0,1);
lcd_putsf("Rp.");
lcd_gotoxy(13,1);
lcd_putsf("[C]");

lcd_gotoxy(3,1);
nilai[0]=0xff;
nilai[1]=0xff;
nilai[2]=0xff;
nilai[3]=0xff;
nilai[4]=0xff;
nilai[5]=0xff;

 delay_ms(500);
 j=5;
for (i=0;i<6;i++)
{
   do {
   scand_keypad();delay_ms(500);
```

```
   if (i==0){saldo=array[i];}
   if (i>=1 && i<=8)
     {
     saldo=(saldo*10)+array[i];
     }
   } while (poin>9);
   sprintf(buf,"%x",poin);
   lcd_puts(buf);
   nilai[j-i]=poin;
}
input_saldo=50;
tambah_saldo=100;
belum_terdaftar=0;
saldo_awal=50;
lcd_clear();
}

while(tambah_saldo==50)
{
lcd_gotoxy(0,0);
lcd_putsf("  Tambah Saldo  ");
simpan=saldo;
lcd_gotoxy(0,1);
lcd_putsf("Rp.");
lcd_gotoxy(13,1);
lcd_putsf("[C]");

lcd_gotoxy(3,1);
nilai[0]=0xff;
nilai[1]=0xff;
nilai[2]=0xff;
nilai[3]=0xff;
nilai[4]=0xff;
nilai[5]=0xff;

 delay_ms(500);
 j=5;
for (i=0;i<6;i++)
{
   do {
   scand_keypad();delay_ms(500);
   if (i==0){saldo=array[i];}
   if (i>=1 && i<=8)
     {
     saldo=(saldo*10)+array[i];
     }
   } while (poin>9);
```

```
        sprintf(buf,"%x",poin);
        lcd_puts(buf);
        nilai[j-i]=poin;
      }
      saldo=(saldo+simpan);
      tambah_saldo=10;
      belum_terdaftar=0;
      saldo_awal=50;
      lcd_clear();
      }

      }

      //================================================
      while(kalibrasi==1)
      {
      lcd_gotoxy(0,0);
      lcd_putsf("[A]Start [B]Stop");
      PORTC = 0b01111111;
      delay_ms(30);
      if (PINC.0 == 0) {start=1;counter=0;}
      while(start==1)
      {
      PORTB.0=1;//VALVE BUKA
      counter++;
      delay_ms(50);
      sprintf(buff,"%d",counter);
      lcd_gotoxy(0,1);
      lcd_puts(buff);

      PORTC = 0b10111111;
      delay_ms(30);
      if (PINC.0 == 0) {PORTB.0=0;stop=1;start=0;lcd_clear();} //VALVE
TUTUP
      }
      while(stop==1)
      {
      sprintf(buff,"%d",counter);
      lcd_gotoxy(12,1);
      lcd_puts(buff);
      lcd_gotoxy(13,0);
      lcd_putsf("[C]");

      lcd_gotoxy(0,0);
      lcd_putsf("Rp.");
      lcd_gotoxy(3,0);
      delay_ms(500);
```

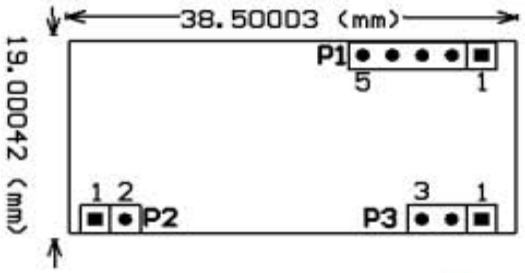
```
 j=5;
 for (i=0;i<6;i++)
 {
    do {
    scand_keypad();delay_ms(500);
    if (i==0){harga=array[i];sprintf(buf,"%x",array[i]);lcd_puts(buf);}
    if (i>=1 && i<=8)
     {
     harga=(harga*10)+array[i];
     sprintf(buf,"%x",array[i]);
     lcd_puts(buf);
     }
    } while (poin>9);

 }
 satuan=(harga/counter);
 sprintf(buff,"Rp.%0.2f",satuan);
 lcd_gotoxy(0,1);
 lcd_puts(buff);
 delay_ms(5000);
 stop=0;kalibrasi=0; counter=0;lcd_clear();
 }

 }

 }
}

while(terdaftar==1)
{
lcd_gotoxy(0,0);
lcd_putsf("Info Saldo[A]   ");
lcd_gotoxy(0,1);
lcd_putsf("Transaksi [B][D]");
 PORTC = 0b01111111;
 delay_ms(30);
 if (PINC.0 == 0) {info_saldo=1;lcd_clear();}
 PORTC = 0b10111111;
 delay_ms(30);
 if (PINC.0 == 0) {transaksi=1;lcd_clear();}
 PORTC = 0b11101111;
 delay_ms(30);
 if (PINC.0 == 0) {terdaftar=0;lcd_clear();}

while(info_saldo==1)
{
lcd_gotoxy(0,0);
```

```
lcd_putsf("Saldo Anda:     ");
lcd_gotoxy(13,0);
lcd_putsf("[C]");

sprintf(buff,"Rp.%0.2f",saldo);
lcd_gotoxy(0,1);
lcd_puts(buff);
//ftoa(saldo,0,buff);
//lcd_gotoxy(0,1);
//lcd_puts(buff);
PORTC = 0b11011111;
 delay_ms(30);
 if (PINC.0 == 0) {info_saldo=0;}
}

while(transaksi==1)
{
 lcd_gotoxy(0,0);
 lcd_putsf("Rp.");
 lcd_gotoxy(13,1);
 lcd_putsf("[C]");
 lcd_gotoxy(3,0);
 delay_ms(500);
 counter=0;
  j=5;
 for (i=0;i<6;i++)
 {
    do {
    scand_keypad();delay_ms(500);
    if (i==0){beli=array[i];sprintf(buf,"%x",array[i]);lcd_puts(buf);}
    if (i>=1 && i<=8)
      {
      beli=(beli*10)+array[i];
      sprintf(buf,"%x",array[i]);
      lcd_puts(buf);
      }
    } while (poin>9);
    banding=1;
 }
 while(banding==1)
 {
 if(saldo>=beli){proses=1;banding=0;counter=0;}
 else
 {
 lcd_clear();
 proses=0;
 lcd_gotoxy(0,0);
```

```
        lcd_putsf("MAAF SALDO  ANDA");
        lcd_gotoxy(0,1);
        lcd_putsf("TIDAK  MENCUKUPI");
        delay_ms(5000);
        transaksi=0;
        banding=0;
        }
        }
        while(proses==1)
        {
        //timer=(beli/satuan);
        PORTB.0=1; // VALVE BUKA
        counter++;
        delay_ms(50);
        jual=(satuan*counter);
        sprintf(buff,"Rp.%0.2f",jual);
        lcd_gotoxy(0,1);
        lcd_puts(buff);
        sprintf(buff,"%d",counter);
        lcd_gotoxy(12,0);
        lcd_puts(buff);
        delay_ms(30);

   if(jual>=beli){PORTB.0=0;saldo=(saldo-
beli);proses=0;delay_ms(8000);transaksi=0;lcd_clear();} // VALVE TUTUP
        }
      }

      }

      };
}
```

DATA SHEET SENSOR

RDM630 Specification



1. Pin Definition (WEIGAND):

P1:

PIN1	DATA0
PIN2	DATA1
PIN3	
PIN4	GND
PIN5	+5V(DC)

P2:

PIN1	ANT1
PIN2	ANT2

P3:

PIN1	LED
PIN2	+5V(DC)
PIN3	GND

2. Pin definition (TTL interface RS232 data format):

P1:

PIN1	TX
PIN2	RX
PIN3	
PIN4	GND
PIN5	+5V(DC)

P2:

PIN1	ANT1
PIN2	ANT2

P3:

PIN1	LED
PIN2	+5V(DC)
PIN3	GND

Specification and Parameter:

Frequency	125KHz
Baud Rate	9600 (TTL Electricity Level RS232 format)
interface	Weigang26 Or TTL Electricity Level RS232 format
Power supply	DC 5V (±5%)
Current	< 50Ma
Operating range	>50mm (Depend on Card/Tag shape, manufacturer)
Expand I/O port	N/A
Indication light	N/A
Working temperature	-10℃ ~+70℃
Storage temperature	-20℃ ~+80℃
Max. humidity	Relative humidity 0 ~ 95%
Size	38.5mm×19mm×9mm

Aqua Tech Trading Corporation Limited

Aqua Tech Trading Corp. Ltd, located in Chongqing, China, which is focused on developing, manufacturing and distributing water valves and associated water used equipments.

We are a rapidly expanding company perceived as a growing force in the area of fluid control, we attribute our success to extensive product knowledge, our understanding of and responsiveness to market requirements and the value we place on excellent customer service.

Aqua Valves have been widely used in agriculture, water supply, water control and water purification industries.

The following products are our solenoid valves.

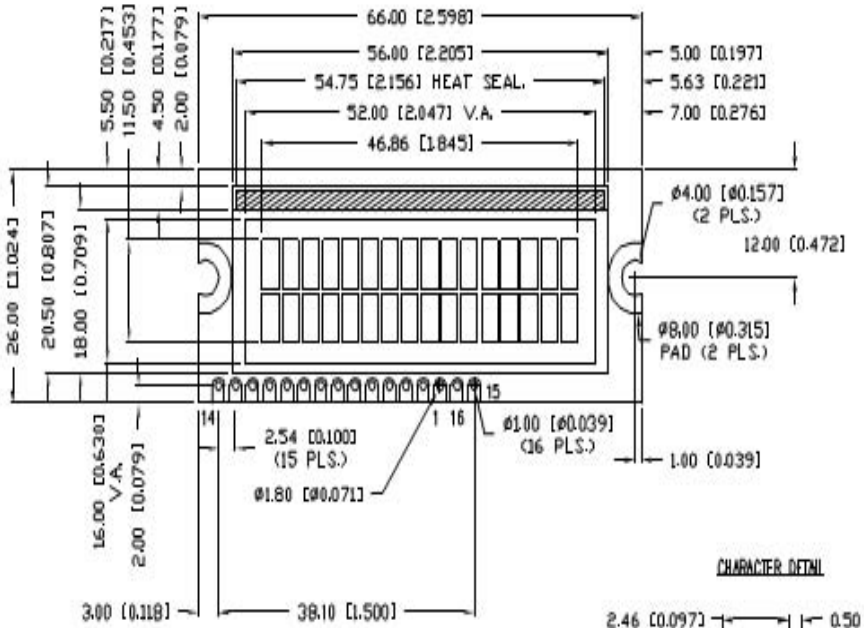
Model No.	AQT15S	**Model No.**	AQT15SC
Thread Size	1/2" BSP inlet and outlet	**Thread Size**	1/2" BSP inlet and outlet
Material	PET	**Material**	PET
Working Temp	0-40℃	**Working Temp**	0-40℃
Working Pressure	0.02~0.8MPa	**Working Pressure**	0.02~0.8MPa
Voltage	DC12V,DC24V,AC220V	**Voltage**	AC/DC 6/9/12/24/36110/220V
Voltage Range	15%	**Voltage Range**	15%
Style	Closed Valve	**Style**	Closed Valve
Working Environment	Water, Gas and Oil	**Working Environment**	Water, Gas and Oil
Lifespan	More than 200,000 times	**Lifespan**	More than 200,000 times
Certification	CQC/CE	**Certification**	CQC/CE

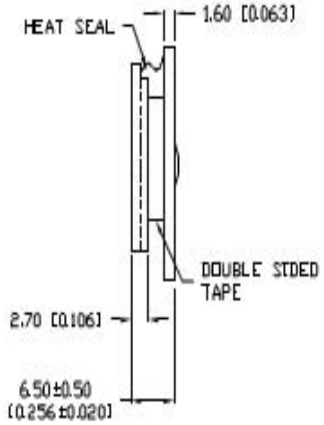
Usage:

Suit for many kinds of washing machine, drinking water machine, sanitary equipment, water heater, etc. Our products have paased CQC and CE. And it meets the requirement of WEEE and ROhS.

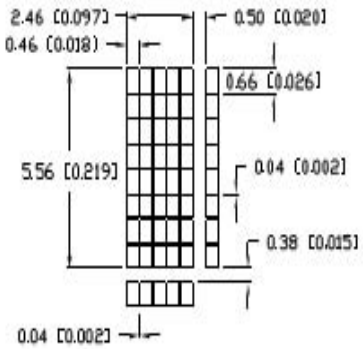
UNCONTROLLED DOCUMENT

REV.	PART NUMBER
	LCM-S01602DTR/M





CHARACTER DETAIL



UNCONTROLLED DOCUMENT

UNLESS OTHERWISE SPECIFIED TOLERANCES FOR DECIMAL PRECISION ARE: X=±1 (±0.039), X.X=±0.5 (±0.020), X.XX=±0.25 (±0.010), X.XXX=±0.127 (±0.005). LEAD SIZE=±0.05 (±0.002), LEAD LENGTH=±0.75 (±0.030). MIN= DECIMAL PRECISION -0.00 MAX.= +0.00 -DECIMAL PRECISION

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	LCM-S01602DTR/M	THE INFORMATION CONTAINED IN THIS DOCUMENT IS THE PROPERTY OF LUMEX INC. EXCEPT AS SPECIFICALLY AUTHORIZED IN WRITING BY LUMEX INC., THE HOLDER OF THIS DOCUMENT SHALL KEEP ALL INFORMATION CONTAINED HEREIN CONFIDENTIAL AND SHALL PROTECT SAME IN WHOLE OR IN PART FROM DISCLOSURE AND DISSEMINATION TO ALL THIRD PARTIES.					
16 x 2 CHARACTER LCD MODULE, TN, REFLECTIVE. 1/16 DUTY, 1/5 BIAS.		RELIABILITY NOTE OUR MANY YEARS OF EXPERIENCE DATA ACCUMULATION INDICATE THAT SOLDER HEAT IS A MAJOR CAUSE OF EARLY AND FUTURE FAILURE. PLEASE PAY ATTENTION TO YOUR SOLDERING PROCESS.	DRAWN BY: CT	CHECKED BY:	APPROVED BY:	DATE: 9.11.02 PAGE: 1 OF 2 SCALE: N/A	

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4x4 Matrix Membrane Keypad (#27899)

This 16-button keypad provides a useful human interface component for microcontroller projects. Convenient adhesive backing provides a simple way to mount the keypad in a variety of applications.

Features

- Ultra-thin design
- Adhesive backing
- Excellent price/performance ratio
- Easy interface to any microcontroller
- Example programs provided for the BASIC Stamp 2 and Propeller P8X32A microcontrollers

Key Specifications

- Maximum Rating: 24 VDC, 30 mA
- Interface: 8-pin access to 4x4 matrix
- Operating temperature: 32 to 122 °F (0 to 50°C)
- Dimensions:
  Keypad, 2.7 x 3.0 in (6.9 x 7.6 cm)
  Cable: 0.78 x 3.5 in (2.0 x 8.8 cm)

Application Ideas

- Security systems
- Menu selection
- Data entry for embedded systems