


**Z367**
**Communication Interfaces**

- RS232
- RS485
- Ethernet

♦ 24 Month Warranty

- Alarm relay outputs - mains fail, DC circuit fault, BCT on/off
- Deep discharge and overload protection for battery
- Automatic temperature compensated output
- Automatic or manual battery condition test (BCT)
- LED flash codes for precise state indication
- Reverse battery polarity protection
- For use with external lead acid batteries
- Optional second DC output -#

**Communication options**

- SNMP / HTTP
- Modbus RTU
- IE` ASCII

**Communication options via Converter**

- Modbus RTU/TCP & SNMP + Digital inputs
- Modbus RTU
- SMS

**SPECIFICATIONS** All specifications are typical at nominal input, full load and at 20°C unless otherwise stated.

ELECTRICAL		No-Break™ FUNCTIONS AND ALARMS	
<b>Input voltage</b>	230VAC(180-265) 45-65Hz 115VAC (88- 32) 45-65Hz	<b>Battery charge current limit</b>	100% of PSU rated current unless specified on ordering
<b>Fusing / protection</b>	Input fuse & varistor Output fuse & ECB for battery circuit	<b>Reverse polarity protection</b>	Battery reverse connection will open internal fuse (and produce alarm)
<b>Isolation</b>	1KV DC input - output / earth	<b>Battery monitoring</b>	Detects for presence of battery on start up, then every 60 minutes when charge current < 200mA
<b>Efficiency</b>	≥ 85%	<b>Battery circuit protection</b>	Electronic circuit breaker (ECB) operates under the following conditions:
<b>Inrush current</b>	<30A, 1.8ms	- <b>low battery volts</b>	<ul style="list-style-type: none"> <li>• battery voltage drops to 1.67V/cell - auto reset on power on</li> </ul>
<b>Output power</b>	100W	- <b>overload</b>	<ul style="list-style-type: none"> <li>• &lt; 300ms for 1 bat &gt; 6 x I PSU rated , allows ~1.5x rated PSU current from battery without acting,</li> </ul>
<b>Output voltage</b>	13.8, 27.6, 34.5, 41.4, 55.2VDC	- <b>short circuit</b>	<ul style="list-style-type: none"> <li>• &lt; 2ms, backed up by fuse</li> </ul>
<b>Voltage adj. range</b>	85 - 105% of Vout	<b>LED indication</b>	Green: Power OK Green: Battery OK
<b>Temp. compensation</b>	Temperature sensor on 1.7m lead with adhesive pad: -4mV / °C / cell ±10%	<b>Alarms</b>	<ul style="list-style-type: none"> <li>• Power OK (Mains/PSU fail)</li> <li>• Battery System OK - alarms when battery voltage low (on mains fail) , battery missing, battery circuit wiring faulty, BCT fail (if enabled)</li> </ul>
<b>Current Limit</b>	<b>PSU:</b> 100% rated current <b>Battery:</b> 25-100% PSU current	<b>Alarm relay contacts</b>	C - NO - NC full changeover rated 30VDC,2A /110VDC,0.3A/125VAC,0.5A
<b>Line regulation</b>	<0.04% over AC input range	<b>Battery condition test (BCT)</b>	20 mins every 28 days (other options available) Scheduled BCT disabled at start up. BCT relay contact provided to control an external test load.
<b>Load regulation</b>	<0.5% open circuit to 100% load		
<b>Noise</b>	<0.3%		
<b>Transient response</b>	200mV over / undershoot, load step 20-100%, 400us settling time		
<b>Thermal protection</b>	Yes, self-resetting		
<b>Hold-up time</b>	15 - 20 ms (nom. - max. Vin) without battery		
STANDARDS		PHYSICAL	
<b>EMI</b>	to CISPR 22 / EN55022 class A, C-tick compliance	<b>Dimensions</b>	147W x 177D x 62H mm
<b>Safety</b>	to IEC950 / EN60950 / AS/NZS3260	<b>Weight</b>	0.95 Kg

19/08/2013

# 100 Watt No-Break™ DC charger for lead acid batteries

# SR100i

## STANDARD MODEL TABLE

MODELS	DC Output				
	Output (V)	PSU Rated (A)	Charge Limit (A) *1	Recomm. Load (A)	Peak load on power fail (A)
SR100i12	13.8	7.5	7.5	6.0	11
SR100i24	27.6	3.7	3.7	3.0	5.5
SR100i30	34.5	2.9	2.9	2.3	4.3
SR100i36	41.4	2.4	2.4	1.9	3.6
SR100i48	55.2	1.9	1.9	1.5	2.8



Optional second DC output versions (-#)

\*1 25% & 50% settings available

## ENVIRONMENTAL

<b>Operating temperature</b>	0 - 50 °C ambient at full load De-rate linearly >50 °C to no load @ 70 °C
<b>Storage temperature</b>	-10 to 85 °C ambient
<b>Humidity</b>	0 - 95% relative humidity non-condensing

## ACCESSORIES SUPPLIED

Mounting feet together with screws  
AC power cord 1.5m with IEC320 socket & AUS/NZ plug  
Mating screw terminal plug for DC output  
Mating screw terminal plug for alarms

## COMMUNICATIONS

**Communication Port** Choice of RS485, RS232, Ethernet (LAN)

**Output protocols**

- HTTP (web pages)
- SNMP
- Modbus RTU (serial)
- IE ASCII code

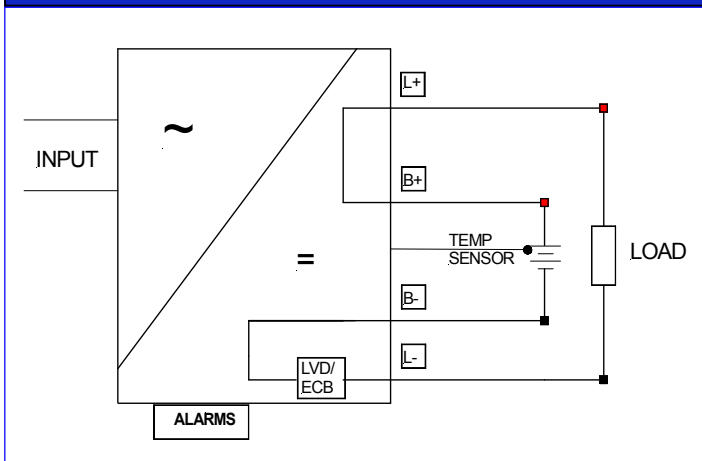
**Optional external protocol converters for RS485 versions**

- +**PROTOCONMB** - Modbus RTU with web pages

- +**PROTOCONMB-OE** with ethernet port - Modbus RTU, Modbus TCP/HTTP with web pages and digital I/O

- +**PROTOCONMB-GSM** using GSM via SMS or uSCADA software and digital I/O

## SCHEMATIC BLOCK DIAGRAM



## CABINET OPTIONS

**19" Rack Mount** 2U sub rack option: add **SR-RM2U**  
Optional V/I meter for subrack: **SR-METER**

**Wall Mount Enclosure** PSU may be fitted into enclosure with MCBs and terminals: add **SEC-SR**

## MODEL CODING AND SELECTION CHART

# SR100i 12 T X G 485 #

# = Additional Secondary DC output: **Blank** = no secondary output, **1** = 5V, etc. see table on next page for details of outputs available

Communications Interface Port	<b>485</b> = RS485 (ASCII) <b>485+</b> = RS485 (Modbus) <b>232</b> = RS232 (ASCII)
Input voltage and front panel standby switch	<b>LAN+</b> = Ethernet (SNMP) <b>LAN</b> = Ethernet (ASCII)
Output DC connector	<b>Blank</b> = 230V AC <b>J</b> = 88-135VDC
Temperature Compensation	<b>G</b> = 110V AC
DC output (nominal battery voltage)	<b>X</b> = Plug in /screw terminal block
Function	<b>T</b> = Yes <b>Blank</b> = No
Power	<b>12, 24, 30, 36, 48V</b>
	<b>i</b> = <b>No-Break DC UPS</b> with serial or ethernet communications port
	<b>100W</b>

## Communication Functions

### Alarms (all versions)

- Input power fail
- Failed BCT
- Battery missing
- Battery low (during power fail)

### Alarm Traps (SNMP versions)

- Battery over temperature
- Battery low temperature
- Overload
- Communications fail

### Command Functions

- Enable pre-programmed BCT
- Disable pre-programmed BCT
- Start BCT manually
- Stop BCT manually

### Monitored States (all versions)

- BCT in progress
- BCT passed
- Battery fully charged
- Output voltage
- Battery current
- PSU current
- Load current
- Battery temperature

### Monitored States (SNMP versions)

- Lowest temperature recorded
- Highest temperature recorded

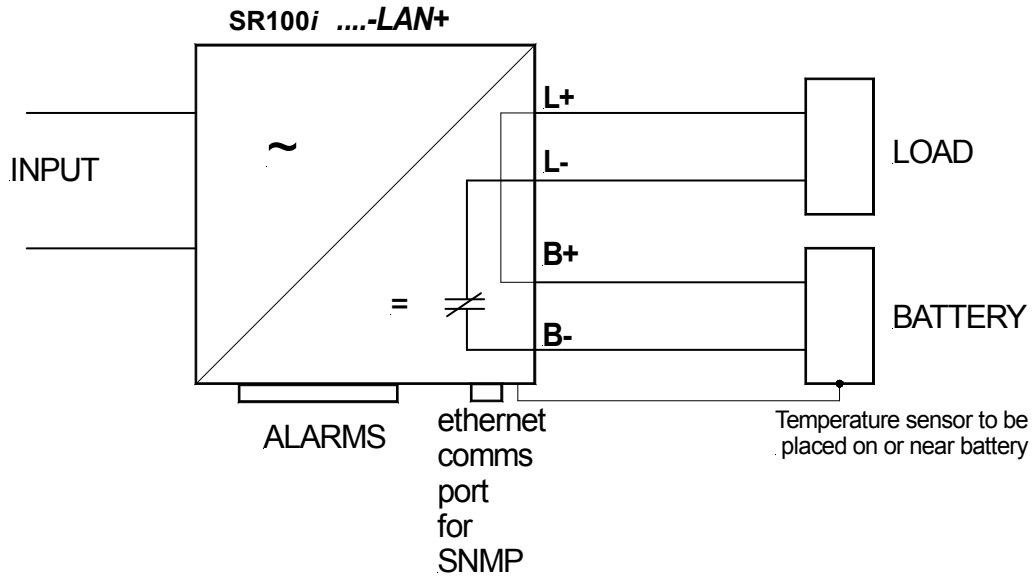
## Optional secondary outputs available

SR100 Voltage	Secondary voltage							
	1 = 5V	2 = 10V	3 = 12V	4 = 15V	5 = 24V	6 = 30V	7 = 48V	8 = 96V
12	48W	24W	48W	48W	24W	24W	12W	16W
24	48W	24W	48W	48W	80W	24W	12W	16W
30	48W	24W	48W	48W	80W	24W	12W	16W
36	48W	24W	48W	48W	80W	80W	12W	16W
48	48W	24W	48W	48W	80W	80W	12W	16W

# Typical Connection Diagrams

## 1. Ethernet/SNMP

L+, B+ are linked internally and labelled **COM**



### Monitoring & Control

SR100i24T

- **Monitoring & Control**
- Network Settings
- PSU Configuration
- SNMP Configuration
- Syslog Configuration
- Firmware Upgrade
- Contact Details

#### CONTROL

BCT Start

BCT Stop

Reset Temperature Log

Scheduled BCT Disabled

Enable Scheduled BCT

Disable Scheduled BCT

#### MONITORING

Power Supply Status:	Charge Cycle (Normal Operation)
Battery Status:	Battery Missing
Output Voltage:	27.6
Battery Current:	0.0
PSU Current:	0.0
Load Current:	0.0
Temperature:	17
Temperature Log Low:	14
Temperature Log High:	26
Estimated Battery Time Remaining:	N/A

Refresh Configuration

#### THRESHOLDS

(Please note that only integer values are accepted)

Temperature High Threshold (degC):

Temperature Low Threshold (degC):

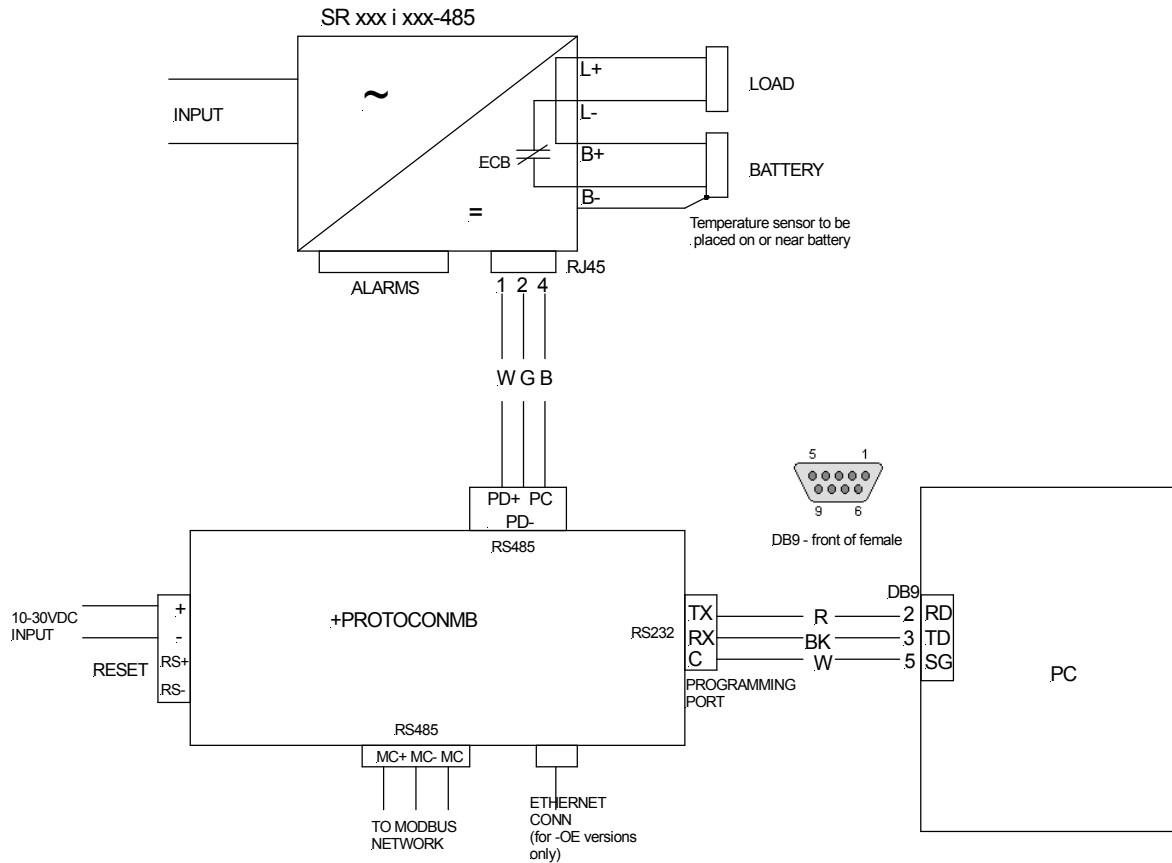
Over Voltage Threshold(V):

Load Current Threshold(A):

Threshold Update

# Typical Connection Diagrams

## 2. RS485/ Modbus (using external protocol converter)



**Power MBLink v1.2**  
**Innovative Energies - Power Supply - Modbus Interface Programmer**  
**Power MBLink Version 1.2**

Configuration | Configuration Instructions | Wiring Instructions | **Modbus Monitor** | Settings & Diagnostics

**Power Supply Variables**

Output Voltage: <b>27.7</b> Volts	Battery Current: <b>00.0</b> Amps	Power Supply Current: <b>01.5</b> Amps	Battery Temperature: <b>20.0</b> DegC
-----------------------------------	-----------------------------------	--	---------------------------------------

**Status**

Normal Operation	Battery Present	Battery OK (Pwr Fail)	Battery Charging
Batt. Condition Test	<b>BCT Enabled</b>	Retry BCT on Fail	Battery Discharging
Batt in Good Cond.		BCT Enable Ack	BCT Disable Ack
		BCT Start Ack	BCT Stop Ack

**Alarms**

Mains Failure	Possible M/PSU Fail	Batt in Bad Cond.	Comms to PSU Fail
Overload	System Down	<b>Battery Missing</b>	Battery Low
Poss: Batt Missing			

**Communication**

Address:

Single Update

Continuous Update

Stop Update

Watchdog:

**Battery Condition Test**

Start BCT

Stop BCT

BCT Enable

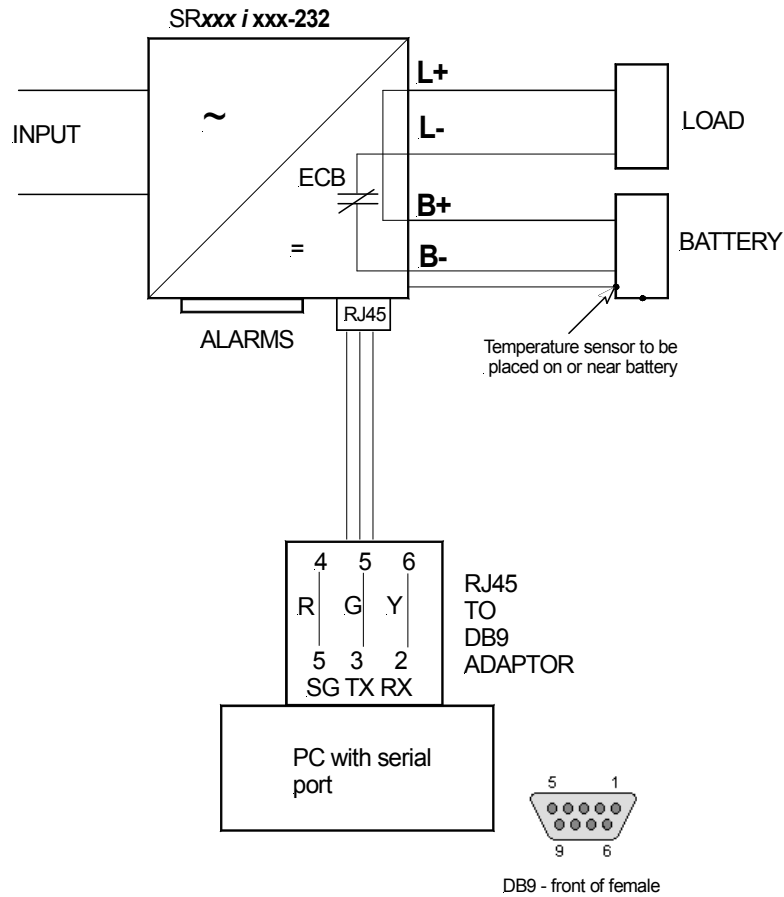
BCT Disable

**Notice**

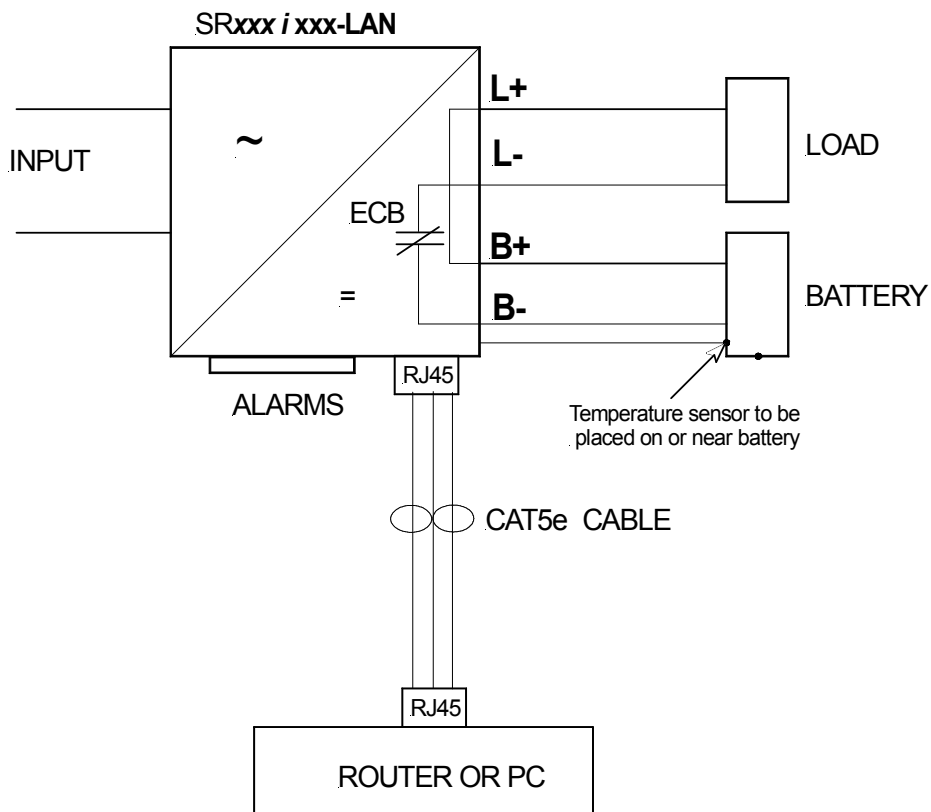
Code	Type	Description
03006	Notice	Updating Information From Device With Address 1

# Typical Connection Diagrams

## 3. RS232/ IE ASCII code

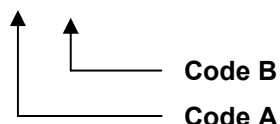


## 4. Ethernet/ IE ASCII code



## IE ASCII code

IEL NB5sys.V13 SR500i12T  
s/n: 0025 6666 BatDetect:060m  
Vpres(1):12.0V Vshutd(2):11.5V  
Vbatl(3):11.0V Vdisco(4):10.0V  
Bccl(ABC):100% BCT:020m Ret:Y  
Comms(MF):F CC:40m 23h 027d  
MfiBCT:090m  
- CC BM Vout:13.5V Ibat:-00.0A Ipsu:01.4A + 20C



### Code A

CC – charge cycle (normal operation)  
MF – mains fail (system on battery power)  
OL – system overloaded, output voltage is below Vpres setting  
BCT – battery condition test is in progress

### Code B

M? – possible mains fail, i.e. no mains detected but brown out timer not expired (30sec)  
m? – same as above, but has failed the previous BCT  
BP – battery present, system OK  
bP – same as above, but has failed the previous BCT  
B? – No battery charge current detected, up to the next scheduled battery detection, uncertainty about the presence of the battery exists.  
b? – same as above, but has failed the previous BCT  
BM - battery is missing, the battery detection routine did not find a battery to be present. This will also reset the 'battery condition not good' of a failed BCT.  
BO – battery is in 'OK' state during mains fail  
bO – same as above, but has failed the previous BCT  
BL – battery is in 'LOW' state during mains fail  
bL – same as above, but has failed the previous BCT  
SD – system will shut-down if no mains present and output voltage stays below Vdiscon for 30seconds.

### Displayed values following Code B

Vout = output voltage of PSU  
Ibat = charging current  
Ipsu = total output current  
+20°C = temperature measured by temp. sensor

## Power Supply/Charger Default Settings

---

<i>Parameter</i>	<i>Setting</i>				
<b>V nominal</b>	<b>12</b>	<b>24</b>	<b>30</b>	<b>36</b>	<b>48</b>
<b>BatDetect (mins)</b>	60	60	60	60	60
<b>Vpres:</b>	12.2	24.1	30.4	36.5	48.7
<b>Vbatl:</b>	11	22	27.5	33	44
<b>Vshutd:</b>	11.5	23	28.7	34.5	46
<b>Vdisco:</b>	10	20	25	30	40
<b>Bccl (%)</b>	100	100	100	100	100
<b>BCTim (mins)</b>	20	20	20	20	20
<b>CC Mins:</b>	40	40	40	40	40
<b>CC Hrs:</b>	23	23	23	23	23
<b>CC Days:</b>	27	27	27	27	27
<b>MfiBCT:</b>	30	30	30	30	30

**BatDetect:** Time between battery detections

**Vpres:** Voltage threshold for battery detection and BCT. Note that if the voltage drops to this level during a BCT the test is aborted and the **BAT LOW** alarm shows.

**Vshutd:** Internal voltage level of the power supply during battery detection and battery condition tests.

**Vbatl:** **BAT LOW** alarm voltage level

**Vdisco:** Voltage at which the load is disconnected from the battery during mains fail

**Bccl:** Battery charge current limit as percentage of the rated power supply current

**BCTim:** Length of battery condition test

**CC Mins:** Time in minutes between automatically scheduled BCTs

**CC Hrs:** Time in hours between automatically scheduled BCTs

**CC Days:** Time in days between automatically scheduled BCTs

Note: The total time interval between BCTs is the accumulation of the above three settings

**MFIBCT:** Time in minutes before the mains fail check during the BCT

**BCT** = battery condition test