# USER'S MANUAL

FOR

# DCD SOFTWARE - SPEED

FOR

## *ER300P-PRIDE*

## Class 0.2S

FOR

Neyveli Lignite Corporation

**LARSEN & TOUBRO LIMITED, MYSORE WORKS**

## INTRODUCTION
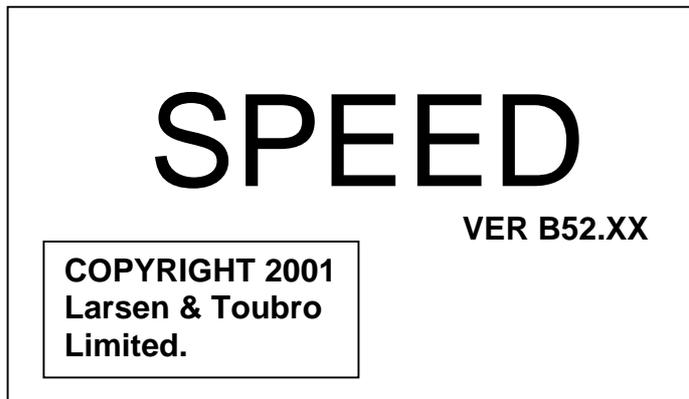
SPEED is application software intended for use with Electronic Trivector-Meter (TVM) and designed for use on ANALOGIC make of DCD. This software is MENU driven and self-explanatory.
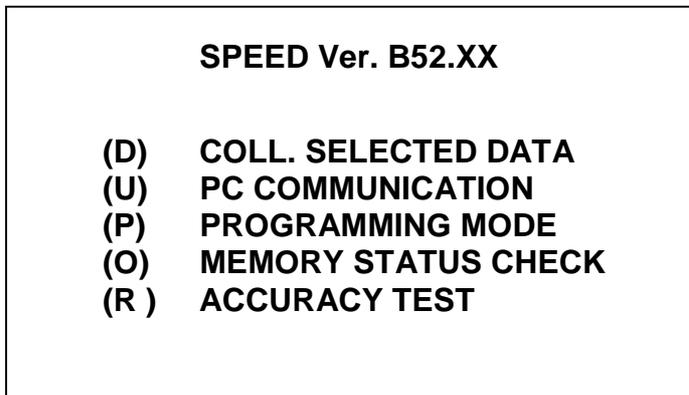
This user manual explains how to use SPEED software. The user is provided with a main menu through which all related operations could be conducted.

**How to run the program.**

- From the DOS Prompt, A: Drive of DCD, type "SPEED" and press Enter. This will display the following screen.

```
┌─────────────────────────────────────┐
│                                      │
│                                      │
│         SPEED                        │
│                      VER B52.XX      │
│   ┌──────────────────┐               │
│   │ COPYRIGHT 2001    │               │
│   │ Larsen & Toubro   │               │
│   │ Limited.          │               │
│   └──────────────────┘               │
│                                      │
└─────────────────────────────────────┘
```

The Version of the S/W is displayed as B52.XX as above. After this, the following main menu screen is displayed on the display with following options.

```
┌─────────────────────────────────────┐
│         SPEED Ver. B52.XX            │
│                                      │
│                                      │
│   (D)    COLL. SELECTED DATA         │
│   (U)    PC COMMUNICATION            │
│   (P)    PROGRAMMING MODE            │
│   (O)    MEMORY STATUS CHECK         │
│   (R )   ACCURACY TEST               │
│                                      │
│                                      │
└─────────────────────────────────────┘
```

- **Menu Item Selection.**

Menu Items can be selected by typing the **enclosed character** in the above screen.

## 1. (D) COLL. SELECTED DATA

Using this option, user can collect data from Electronic Trivector-Meter and store it in the DCD. Data integrity will be checked by calculating and verifying checksum as specified by the protocol IEC 1107.
If data checksum is matching with the calculated checksum, data will be stored in DCD, otherwise data will be discarded with the following message.

```
CHECKSUM ERROR

PRESS ENTER
```

All the data blocks collected from different meters will be collected into a common data file in DCD.

## 2. (U) PC COMMUNICATION

Using this option, user can transfer the collected data, from DCD to PC. Upon pressing (U) Key, the following screen will be displayed.

```
WAITING

FOR DATA REQUEST

FROM PC
```

Now the DCD will wait for data request from PC. If the DCD is connected with PC, user can request the DCD for data collection by sending a Data dump request command.

## 3. (P) PROGRAMMING MODE

Using this option, user can enter into a programming mode, where user can program the meter settings. User will be prompted to enter an authorization password, as follows, failing which access to the option will be denied.

```
ENTER PASSWORD



PRESS ENTER
```

After successful entry of password by user, following screen will appear.

```
(S) SET RTC
(M) METER SETTINGS
(A) ADVANCE RTC
(R) RETARD RTC
(C) CT RATIO
(P) PT RATIO
(X) TO MAIN MENU
```

If user selects the option (S) for Real Time Clock, S/W will read the present RTC time from TVM and display it as follows:

```
REAL TIME CLOCK

03/08/99  WED  15:30:00

PRESS ENTER
```

If user presses Enter key, user will be prompted to enter a new value of RTC as follows:

```
(N) NEW RTC VALUE

(S) SYNC RTC WITH MRI

(X) CANCEL & RETURN
```

If the user presses (N) the user is allowed to set a valid Time.

```
ENTER DATE/TIME AS
DD/MM/YY HH:MM:SS

[                    ]

PRESS ENTER
```

Next user will be prompted to enter the day name as follows:

```
ENTER DAY e.g. SUN

[        ]

PRESS ENTER
```

If the user specified value of RTC time is valid, S/W will program the Meter with the new value and display following message, otherwise an error message will be displayed.

```
RTC TIME CHANGED

PRESS ENTER
```

When (S) is pressed, it will set the time of MRI in the meter and following message will be displayed.

```
RTC TIME CHANGED

PRESS ENTER
```

On selection of METER SETTINGS option from the above menu, user will be prompted to confirm the selection with following screen:

```
METER ID : 001
METER BAUD : 9600
METER PARITY : NONE

PRESS ENTER TO SET
PRESS ESC  TO QUIT
```

If the user confirms by pressing Enter DCD will command the meter to change METER ID and if meter accepts the request successfully, following message will be displayed.

```
ENTER THE METER ID
(1-255)

PRESS ENTER
PRESS ESC  TO QUIT
```

Once a valid Meter ID is given, DCD requests to enter a valid Baud Rate.

```
SELECT BAUD FOR MODBUS
ENTER 1 FOR  300
ENTER 2 FOR  600
ENTER 3 FOR 1200
ENTER 4 FOR 2400
ENTER 5 FOR 4800
ENTER 6 FOR 9600
```

Once a valid Baud Rate is given, DCD requests to enter a valid Parity.

```
SELECT PARITY

ENTER 0 FOR NONE
ENTER 1 FOR ODD
ENTER 2 FOR EVEN
```

If all the entered Parameters are found valid the meter accepts the data, and displays this below given screen.

```
┌─────────────────────────────────┐
│                                 │
│                                 │
│      METER DATA CHANGED         │
│                                 │
│         PRESS ENTER             │
│                                 │
│                                 │
└─────────────────────────────────┘
```

On selection of Advance RTC option from the above menu, user will be prompted to confirm the selection with following screen:

```
┌─────────────────────────────────┐
│                                 │
│                                 │
│          ADVANCE  RTC  ?        │
│                                 │
│          CONFIRM ( Y / N )      │
│                                 │
│                                 │
└─────────────────────────────────┘
```

If the user confirms with 'Y', DCD will command the meter to advance the RTC and if meter accepts the request successfully, following message will be displayed.

```
┌─────────────────────────────────┐
│                                 │
│                                 │
│        RTC  TIME  ADVANCED      │
│                                 │
│           PRESS ENTER           │
│                                 │
│                                 │
└─────────────────────────────────┘
```

Similar messages will be displayed for the option "RETARD RTC", if selected by user.

If the RTC is already advanced by user within the lockout period range, starting backward from the moment user tries to advance RTC, following message will be displayed.

```
┌─────────────────────────────────┐
│                                 │
│                                 │
│        RTC  IS  IN  LOCKOUT     │
│                                 │
│           PRESS ENTER           │
│                                 │
│                                 │
└─────────────────────────────────┘
```

On selection of option (C), CT Ratio, present values of CT Ratio programmed in TVM will be read and displayed as follows:

```
CT PRIMARY        : 000001

CT SECONDARY   : 000001

        PRESS ENTER
```

If user presses Enter key to program new value of CT Ratio, following screen will be displayed.

```
ENTER CT PRIMARY
    (1-999999)


  PRESS ENTER
```

The range of the CT Primary is 1 to 999999 as displayed above. After this user will be prompted to enter the value of CT Secondary as follows:

```
ENTER CT SECONDARY
    (1-XXXXXX)


  PRESS ENTER
```

The range of CT Secondary is 1 to XXXXXX as displayed above where XXXXXX is the value of CT Primary selected by user. Next the S/W will program the TVM for new value of CT Ratio and display following message:

```
CT RATIO PROGRAMMED

  PRESS ENTER
```

For the option (P) PT Ratio, follow the same screen sequence as shown above for CT Ratio.

On selecting the option (X), To Main Menu, S/W will come out of "Programming Mode" and main menu screen will be displayed.

## 4. (O) MEMORY STATUS CHECK

Using this option, user can check for memory availability in DCD. This comprises of display of free memory available in terms of number of meters that can be stored (approximately), and

the number of already collected data blocks in DCD. The information will be displayed as follows:

```
┌─────────────────────────────────┐
│                                 │
│   SPACE  CHECK                  │
│                                 │
├─────────────────────────────────┤
│                                 │
│   METERS  COLLECTED :           │
│   5 METER (s)                   │
│                                 │
│   AVAILABLE  SPACE :            │
│   20 METER(s)                   │
│                                 │
└─────────────────────────────────┘
```

## 5.  (R)  ACCURACY TEST

Using this option, user can enter into an "ACCURACY MODE" with meter, where between the start instant and stop instant keyed in by user, the active and reactive energy values consumed by meter will be displayed in high precision mode. The first screen as soon as you select this option will be as follows:

```
┌─────────────────────────────────┐
│                                 │
│    FOR  ACCURACY  TEST          │
│                                 │
│    PRESS ENTER  TO  START       │
│                                 │
│     PRESS  ESC  TO  QUIT        │
│                                 │
└─────────────────────────────────┘
```

If the user presses Enter to start the test, DCD will command the meter to start recording the energies and prompt the user with the following message. The TIME string will display the elapsed time since the start of the test. The time is displayed in the format HH:MM:SS where HH=Hours, MM=Minutes and SS=Seconds.

```
┌─────────────────────────────────┐
│                                 │
│    TEST  GOING  ON . . .        │
│                                 │
│     TIME : 00:04:35             │
│                                 │
│    PRESS ENTER  TO  STOP        │
│    PRESS  ESC  TO  QUIT         │
│                                 │
└─────────────────────────────────┘
```

If the user presses Enter key to stop the test, DCD will read the energies recorded by the meter during the specified time period and display as follows:

```
┌─────────────────────────────────────┐
│            TEST  RESULTS            │
│     Wh :                            │
│     +1.200000                       │
│                                     │
│     VARH:                           │
│     +1.200000                       │
│                                     │
│     TIME :    00:05:00              │
│                                     │
└─────────────────────────────────────┘
```

Now the user can press either Esc or Enter key to return back to first menu of this option as displayed above. If user presses Esc key in the first menu of this option, DCD will return back to main menu of the S/W.

**NOTE:**

For exiting the software press "ESC" Key.