

Redundant Communication Interface Unit 133-RCU



FEATURES

- Hot standby and redundancy
- Configured for redundant operation to provide uninterrupted data to control room
- Real-time, on-line, indication of level in mm and temperature in °C (with tank number) for up to 32 tanks
- Accepts inputs from SBEM Smart Tank Data Transmitter and Servo Gauge
- Indication of alarm and diagnostic data
- Indication of interface level and density (in case of Servo Gauge)
- Direct printing of tank data at pre-programmed interval
- Keys for full operator access to Servo Gauge functions, including calibration
- Direct MODBUS output for up to 3 hosts
- User programmable alarms for 4 levels and 1 temperature alarm per tank
- □ Leak alarm with programmable rate

INTRODUCTION

The Redundant Communication Interface Unit, 133-RCU is the upgraded version of the proven and reliable Communication Interface Unit, CIU 133-550 (LF-133-0807) which forms an interface between the tank gauging instruments in the field and computer systems in the tank farm control systems. The 133-RCU with its redundancy feature provides continuous and uninterrupted data from the field to the control room computers.

When used in a dual configuration, one 133-RCU may be configured as a "HOT STANDBY".

The main task of 133-RCU is scanning and data acquisition from all tank gauges. Up to 32 tanks can be connected to one 133-RCU.

It also functions as a stand alone unit for real time monitoring of tank level, temperature, interface level and density.

Level, temperature and alarm data with date & time can be directly printed on a printer.

In-built audio visual alarm annunciator provides annunciation of 4 level and 1 temperature alarm per tank.

In-built keyboard provides operator interface for all functions of Servo Gauge and for programming of alarms, date / time and auto printing intervals.

CONSTRUCTION

Housed in a 19" full rack (card frame) it consists of following cards

- 1. CPU + Serial output card (with RTC & NOV RAM)
- 2. Power supply unit
- 3. Mother bus
- 4. Keyboard and display interface card

Additional slots are available for alarm / current output cards. These circuits are modular to ease installation, maintenance & upgradation.

OPERATION

ASCII coded tank data from instruments is decoded and displayed on in-built display.

Level, temperature, interface level, density, alarm status & diagnostics are transmitted to computer on RS 232C port in ASCII for monitoring, logging & report generation.

Keyboard facilitates the operator to select a particular tank for display & full function control of Servo Gauges including calibration from the control room.

Alarm, date / time & auto printing intervals are easily programmed by operator on the keyboard the display prompts the operator to input information.

ACCESSORIES

1. CIU to printer connector (15M long) - standard (This connection requires a serial interface card in the printer.)

 Radar Gauge Adapter (RGA) - optional For converting signal from Radar Gauges of other makes and interfacing them with SBEM CIU and TIMS.



SPECIFICATIONS

CIRCUITRY

| Microprocessor based | | |
|----------------------|---|-------------------|
| CPU | : | Z-80, 4 MHz |
| RAM | : | 8K Battery backed |
| RTC | : | In-built |

LEVEL AND TEMPERATURE INDICATION

| ASCII coded signal from/to SBEM |
|-----------------------------------|
| Smart Tank Data Transmitter |
| and Servo Gauge 2 way / 2 wire |
| RS 485 bus |
| 11 digit, 1/2" high 7 segment LED |
| to simultaneously display |
| CIU connection no. (2 digit) |
| Level in mm (5 digit) |
| Temperature in °C (4 digit) |
| Indication of interface level and |
| density (in case of Servo Gauge) |
| Less than 2 seconds |
| |

COMMUNICATION

| With STDT & / or | : | On RS 485 port |
|------------------|---|---------------------------|
| Servo Gauge | | Baud rate 1200 (standard) |
| | | 2400 (optional) |
| With computer* | : | On RS 232C port |
| | | Baud rate 2400 (standard) |
| | | 4800 (optional) |
| With printer* | : | On RS 232C port |
| | | Baud rate 1200 (fixed) |

Distance between two 133-RCUs must be < 500mm

PROGRAMMING AND OPERATOR INTERFACE

In-built keyboard with 13 keys for operator interface - to select tank no. for tank data display and programme alarms, date / time, auto printing time interval.

7 additional keys provide operator full access to the Servo Gauge functions.

ALARM ANNUNCIATION (IN-BUILT)

| Level alarms | : Programmable 4 alarms per tank - LL, L, H and HH |
|-------------------|---|
| Temperature alarm | : Programmable 1 alarm per tank - TH |
| Leak alarm | : Programmable rate |

Alarm annunciated on display - display flashes showing tank no. and alarm type. On acknowledging alarm through keyboard, display returns to normal tank data display. Alarm values are stored in non-volatile RAM.

POWER SUPPLY

110/230 VAC, $\pm\,10\%,\,50$ Hz, 1 $\,$, 67 VA

CABLING

From STDT & / or Servo Gauges in field to ITU in control room.

| Up to ' | 16 transmitte | rs can be | looped | on single | cable | loop. |
|---------|---------------|-----------|--------|-----------------------|---------|-------|
| Power | (110 VAC) | : 2 core, | 1.5 mm | n ² copper | / 2.5 r | nm² |
| | | Copper | | | | |

| Signal (RS 485) | : 2 core (1 twisted pair) | | | | |
|-----------------|-----------------------------------|--|--|--|--|
| | 1 mm ² Copper | | | | |
| | Rmax 200 1 F | | | | |
| | Cmax 1 F | | | | |
| Distance | : Up to 1200 Mtrs. (More distance | | | | |
| | possible with Line Drivers) | | | | |

PROTECTION

Opto isolators provide galvanic isolation between input / output terminals and internal circuitry. Surge protection using Metal Oxide Varistors.

SELF DIAGNOSTICS

In-built on-line diagnostics checks transmitted signals and displays error messages. Off-line diagnostics checks internal circuitry. Surge protection using Metal Oxide Varistors.

ENVIRONMENT

Ambient operating $: 0 \text{ to } + 50^{\circ} \text{ C}$ temperature Relative Humidity : 95% maximum, non-condensing

MOUNTING & ENCLOSURE (Optional)

Table top / flush panel mounting, enclosure 19" full rack - IP 30 $\,$

ORDERING INFORMATION



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