



Technical Manual MONITORS TYPE 635 & 636

Doc. Ref CD2004M

This manual applies to 635 units of Mod status 4 and 636 units of Mod status 5 (Refer also to System Manual CD2010)





of Conformity

USA & Canada RDP Electrosense Inc.

2216 Pottstown Pike

Pottstown, PA 19465 U.S.A. Tel (610) 469-0850 Fax (610) 469-0852 E-mail info@rdpe.com www.rdpe.com All other countries RDP Electronics Ltd

Grove Street, Heath Town, Wolverhampton, WV10 0PY United Kingdom

Tel: +44 (0) 1902 457512

E-mail: <u>sales@rdpe.com</u> <u>www.rdpe.com</u>

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1. INTRODUCTION

The 635 and 636 are instruments in the 600 series of modules providing the function of channel selector and monitor. They can be plugged into any position of the system backplane which completes the interface with other modules such as 611, 615, 621, 628, 681, etc.

The 4½ digit LED display covers the signal range of ±10v with a ±19999 count display and a selectable decimal point position.

Up to 12 modules may be monitored which, with additional A/B selection, provides a 24-channel display facility (12 channel with 615, 628). The transducer excitation level of the amplifiers can also be displayed and an external logic signal may be applied to hold any displayed value.

The 636 also provides indication of peak, trough (max/min) and TIR stored signals with either pushbutton or logic reset control.

1.1 BEFORE POWERING-UP CHECK...

- 1.1.1 The supply voltage is correct to suit the 631/632 unit fitted and input range selected.
- 1.1.2 The various plug-in modules are in the correct positions in the housing.
- 1.1.3 The input and output plugs are in the correct sockets. Note that on the housing back-plane all input sockets and all output sockets are of the same type. (605/6/7 systems only.)
- 1.1.4 That each amplifier module has a unique address. (Refer to Amplifier Module Manuals)

NOTE: Ensure system is switched OFF when removing or replacing modules in rack. Failure to do so may cause damage to modules.

1.2 Information on Conformity to EC Directives.

This module is not CE marked because it is intended for use as a component of a larger system. RDP CE mark full modular 600 systems that includes a 60X housing and a 63X power supply where the system is fully populated with either 600 series amplifier/display modules or blank panels.

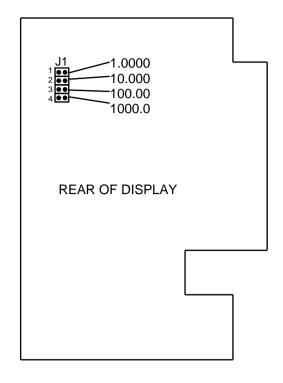
If the module is part of a full 600 system, refer to the system manual (CD2010) for CE certification.

If the module is not part of the full 600 system, it is the responsibility of the organization/individual producing the system to assess and/or test EMC compatibility.

Fig. 1a 635 Front Panel Fig. 1b 636 Front Panel Fig. 2 Decimal Point Selector







2. CONNECTION DETAILS

Power, signal, channel address connections are made automatically on plugging into the 600 backplane.

Other connections, e.g. hold, reset, and links to a second rack, if fitted, are made via circular DIN or single 1mm pins as shown below:

DIN Connector A:				
Pin 1	+5V			
Pin 2	0VD			
Pin 3	+15V	Outputs to		
Pin 4	-15V	Rack 2		
Pin 5	0VA	when fitted		
Pin 6	0VA			
Pin 7	Master/Save out			

DIN Connector B:					
Pin 1	Signal A	Of Rack 2			
Pin 2	Signal B	when			
Pin 3	Excitation	fitted			
Pin 4	Address 0	To Dook 2			
Pin 5	Address 1	To Rack 2 when			
Pin 6	Address 2	fitted			
Pin 7	Address 3	IIIIEU			

DIN Connector C:			
Pin 1	Hold out		
Pin 2	Reset out		
Pin 3	Rack 1/2 select		
Pin 4	Reset in		
Pin 5	No connection		

1mm Pins				
Α	Signal A			
В	Signal B	Of Rack 1		
E	Excitation			
MS	Master/Slave in			
Н	Hold in			
R	As C4			

3. CONTROLS

3.1 Channel/Card Selector Switch

This is a 12-position rotary switch controlling a 4-line BCD address bus on the backplane which operates as follows:

If the switch is set to position 1, then the relevant BCD code is applied to the bus. the amplifier in position 1 in the rack, having its channel address switch set to 1, decodes the address and closes analogue switches to connect output signals A, B and excitation to the backplane analogue busses A, B and E.

3.2 A, B, E Pushbuttons

These switches determine which analogue signal bus is connected to the dpm for display. An LED in each button indicates which signal is selected. For example, to monitor the output of channel B of an amplifier in position 6 of the rack, set the rotary switch to 6 and press and release button B. The LED in button B will now be lit showing that the display is indicating channel B output signal level.

3.3 Decimal Point Selector

This is a 4-way jumper-link behind the front panel,	Position	Decimal Point
accessible on sliding the unit partially out of the rack	1	1.0000
(SWITCH OFF POWER FIRST).	2	10.000
Note: a display of 10000 corresponds to a signal of 10v so	3	100.00
that with the jumper in position 2, the display will read	4	1000.0
directly in volts.		

If no decimal point is required, the link may be parked by linking pins 1-2 vertically. When EX is selected, the decimal point automatically switches to position 2, to indicate volts directly.

3.4 636 ONLY. Normal - Reset Pushbuttons

These buttons select the desired display mode for the signal selected by the channel and A/B controls.

Normal

With this mode selected, the display continuously follows the signal as with the 635.

Peak

When this mode is selected, the display indicates the peak or maximum (most-positive-going) level attained by the signal since a reset was applied. Note that the peak store circuit continues operating even if Normal or Trough or TIR modes are selected.

Trough

This mode is similar to peak except that the trough or minimum (most-negative-going) signal level is indicated.

TIR (Total Indicated Range)

In this mode the display indicates the difference between the stored values of peak and trough.

3.5 External Reset for 636.

The backplane Reset bus may be used to reset peak/trough displays, in addition to the Reset push-button. To enable this function, solder <u>link SP4</u> on the main board must be fitted. (Note: the Reset bus also operates the 681 limits latched reset.)

A logic high applied to the backplane reset pin "R" or 5-pin DIN connector C pin 2 will then reset the 636 store circuits. Digital Common is on pin 2 of the 7-pin DIN connector A.

3.6 Display Hold.

NOTE HOLD is active low (i.e. NOT HOLD)

The display A to D converter may be inhibited to freeze the display by applying a logic low to the HOLD input or linking this to Digital Common via a switch, etc. To enable this function, solder <u>link SP3</u> on the main board must be fitted. (Note: the HOLD connection is bussed on the backplane for use with amplifier modules Sample/Hold option when fitted.)

The HOLD input may be applied to the backplane HOLD pin "H" or 5-pin DIN connector C pin 1. The internal pull-up resistor (to 5v) is normally $10k\Omega$. Digital Common is on pin 2 of the 7-pin DIN connector A.

SP3 is located on the 635/6 PCB near to the 32 way edge connector.

4. USE WITH AMPLIFIER MODULES

4.1 Amplifier Modules 611, 615, 621, 626, 628

To monitor the outputs of these modules:-

- (a) Set the rotary Channel No. switch to the number of the channel to be monitored.
- (b) Press and release button A. The LED in this button will light and the display will indicate the output of channel A of the selected module.

Press and release button B to monitor channel B of the selected module.

- Note: the 615 and 628 are single channel amplifiers: refer to the respective manual for function of the B button.
- (c) Press and release button EX. The LED in this button will light and the display indicates the excitation voltage of the selected channel.
 - The 611 has separate excitation supplies for channels A and B and the 635/6 will normally indicate channel A excitation value. To display channel B excitation, press and hold in the EX button on the relevant 611.

4.2 Trip Module 681

To monitor the four limit set levels:-

- (a) Set the rotary Channel No. switch to the number of the channel housing the 681.
- (b) Press and release button A. The 635/6 now indicates the level of the 681 limits as selected by the Level switch on the 681.

4.3 **Monitoring 4-20mA Signals**

When amplifier modules are set for 4-20mA output at the backplane output connector the 635/636 input remains connected, via the backplane bus, to the voltage output (i.e. the input to the 611/621 etc. voltage to current converter circuits).

Normally the voltage to current relationship is approximately 0 to +10v \approx 4-20mA, i.e. 0v \approx 4mA and +10v \approx 20mA. Hence, when monitoring a 4mA signal the 635/636 will indicate \approx 0000 and 20mA \approx +10000. etc.

5. **SPECIFICATION**

±19999 10mm red LED Display

Sample Rate 2 ½ per second ±0.05% FS Linearity

System Accuracy (Difference between ±0.03% FS ±2 digits

display & amplifier analogue outputs)

Temperature Coefficient

0.002% FS/°C typical Zero Gain 0.005% FS/°C typical

Input Signal ±10V (±12V max) for ±10000 display

Input Impedance

Supply ±15V (±1V) at 0.1A (0.2A for 636)

Channels 12 modules x 2 (A and B) = 24 (with 611, 621,

626) plus excitation

Hexadecimal complementary BCD, 4-line Address Code **Dimensions**

3U high, 16HP (81mm) wide, 195mm deep

(including knob and connector)

Operating Temperature 0 to 60°C

636 only:

Functions Peak, Trough, TIR, Normal. Reset

Accuracy 0.1% FS typical peak and trough, 0.2% TIR

0.1mS for 0 to FS step, or 10kHz. Speed