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AUTOMATIC BALANCE RECORDER

UNICORDER  
U-1641

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SPESIFICATION

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Specifications are subject to change without notice.

PANTOS CO. , LTD	Drawing number	Amendment
	1641-00-0001C	

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## 1. OVERVIEW

The Unicorder U-1641 is a pen type recorder, provided with maximum 16 channels.  
The input unit is a plug-in type.

## 2. SPECIFICATIONS

### Basic specifications

Model:	U-1641
Number of channels:	8 to 16
Operation method:	Automatic balancing system (digital servo system)
Type or input unit:	Plug-in type (2 channels for 1 unit)
Reference point:	Right end of chart paper ( Left end is also possible by changing the setting.)

### Recording

Recording Pens:	Felt-point pen (Recording Length approx.5km)
Effective recording width:	250 mm
Pen interval:	4 mm
Pen name:	NDL- * *
Accuracy:	$\pm 0.25\%$ of measurement accuracy and effective recording width including linearity and dead band. (For measurement accuracy, refer to the specification of input units.)
Maximum pen speed:	Approx. 1600 mm/s
Synchronizer:	ON, OFF 20 data/mm
Measurement ON/OFF:	Each channel independent
Chart paper:	Roll paper No.25020P50 (50 m), No.2501P50 (20 m)
Chart speed:	10 to 2400 mm/min, /h Set in 1 mm increments
Resolution of time axis:	0.05 mm
Sampling speed:	Max. 4 ms
Paper winding-up:	Equipped (option)

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Superimposed marker:

Operates by operation switch and external remote controller

Link with ON/OFF of synchronizer.

Amplitude: approx. 10 mm

On time: approx. 50 ms

Auto pen cap:

Pen is automatically stored at the specified position when power is OFF, measurement is OFF and paper ends.

**Printing**

Printing method:

Wire dot-impact method, 5 x 7 dots

Ink ribbon:

Cassette type (black), model P1101

Printing speed:

Approx. 1.5 sec/line

Mode	Time	Input value	Range	SYNC	Limiter	Limiter value	Chart speed	Comment
Status	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>		<input type="radio"/>		<input type="radio"/>
Manual	<input type="radio"/>	<input type="radio"/>						
Start	<input type="radio"/>			<input type="radio"/>			<input type="radio"/>	
Chart speed	<input type="radio"/>						<input type="radio"/>	
SYNC	<input type="radio"/>			<input type="radio"/>				
Limiter	<input type="radio"/>				<input type="radio"/>			
Logging	<input type="radio"/>	<input type="radio"/>						
Scale	<input type="radio"/>		<input type="radio"/>					

Status mode:

Prints the setting description

Range, SYNC ON or OFF, Limiter value and Comment (Max. 60 characters, 3 types)

Manual mode:

Prints Time and Measurement value for all channel

Start mode:

Prints Time, SYNC ON or OFF and Chart speed

Chart speed mode:

Prints chart speed and Time after chart speed was changed.

SYNC mode:

Prints Time when synchronizer is ON or OFF and ON or OFF indication.

Limiter mode:

Prints Channel No. and ON or OFF time

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Logging mode:

Prints Time, Chart speed, Channel No., Measurement value and Unit at constant. When logging mode is set to ON, printing is possible even if the paper drive is stopped.

Chart speed	Printing interval
10 mm/sec or more	30 sec
5 mm/sec to 9 mm/sec	1 min
1 mm/sec to 4 mm/sec	5 min
30 mm/min to 59 mm/min	10 min
10 mm/min to 29 mm/min	30 min
5 mm/min to 9 mm/min	1 hour
1 mm/min to 4 mm/min	2 hour
40 mm/h to 59 mm/h	3 hour
20 mm/h to 39 mm/h	6 hour
10 mm/h to 19 mm/h	12 hour

Scale mode:

Prints the range scale when a fixed amount of chart paper is fed. Printing interval varies according to chart speed.

Chart speed	Printing interval
40 mm/sec to 10 mm/sec	1200 mm
9 mm/sec to 5 mm/sec	600 mm
4 mm/sec to 10 mm/sec	300 mm

#### Display section

Display:

5" EL display, 320 x 256 dots

Display mode:

- (1) Range display  
Simultaneous display for all channels
- (2) Digital measurement value display  
6 digits (Mark, measurement data, decimal point)  
Date, chart speed
- (3) Wave
- (4) AUX (optional screen)  
Limiter, Chart feed trigger, Scaling (physical amount), Time, Tag name, Logging printing, Pen adjustment, Comment, Printing, IC card, and Floppy disk (extra-cost option)

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**Limit switch (output is extra-cost option)**

Number of level: 2 for each channel  
 Type: Both upper and lower limit  
 Alarm: The warning buzzer sounds if it exceeds the limit value. With ON/OFF function.  
 Output (option): 2 contact points/ch, photo-MOS output  
 Max. 8 channels  
 Capacity of contact: DC 400 V, 0.1 A

**Chart feed trigger**

Remote mode: Paper is fed by turning on the remote mode.  
 Trend: No. of speeds: 3 (3 stages are set.)

**Operation**

Scaling: Range: -10000 to +10000  
 Decimal point and unit are set arbitrarily

**GP-IB interface (extra-cost option)**

Standard: Based on IEEE standard 488-1978  
 Mode: Both input and output of setting value and measurement value

**RS-232C interface (extra-cost option)**

Standard: Based on EIA RS-232C  
 Mode: Both input and output of setting value and measurement value  
 Speed: 1.2K, 2.4K, 4.8K, 9.6K bps

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**IC memory card**

Function: Set value  
 Capacity: 16 K bytes (8 files)  
 Model: BS-16D1-A-262  
 Battery: 2016 series  
 When the battery is run out, the message "NO BATTERY" is displayed.  
 Battery life: 5 years or more (at 25°C, and state that the battery is removed from the mainframe. The BR-2016 is used in this case.)

**Floppy disk (extra-cost option)**

Disk used: 3.5" 2HD  
 Format: MS-DOS  
 Data capacity: 1.2 M bytes (Approx. 500 K data)

**External remote controller 1**

Type of signal: TTL level  
 Transistor switch  
 Contact signal

Following functions can be operated from the external devices: operation panel and OR.

Chart paper feed: Start-up and stop  
 Falling: start-up  
 Rising: stop  
 (Not respond to signal of 3 ms or less)

Chart paper rapid feed: Start-up and stop (feed)  
 L: start-up  
 H: stop

Select of clock for chart-paper feed: Select the external clock or internal clock.  
 Chart paper can be fed in synchronization with the external clock.  
 L: external  
 H: stop

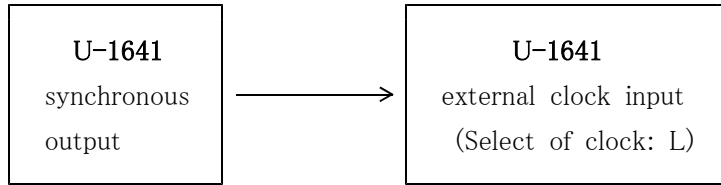
External clock input: 50  $\mu$ m/1 clock TTL  
 Max. frequency: 800 Hz  
 Min. pulse width: 10  $\mu$ s

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Weight marker: Simultaneously for all channels  
L: ON

Chart paper feed: Used when operating the units in parallel

Synchronous output: 1 clock / 50  $\mu$ m TTL



Manual printing: Prints the setting items for printing ON.  
L:print

Mesurement ON/OFF: Simultaneously for all channels  
Falling: Measurement ON  
Rising: Measurement OFF (Not respond to the signal of 5 ms or less.)

**External remote controller 2 (extra-cost option)**

EXT. Chart speed 1  
EXT. Chart speed 2

**Built-in clock**

Accuracy:  $\pm 4$  seconds by day

Recording digit: NN year NN month NN day NN hour  
NN minute NN second

**Back-up**

Item: Each setting, built-in clock

Battery: Two lithium batteries, built in the body

Storing time: Approx. 1 month (at 25°C)

**Operation**

Pen lift: All pens move to the pen rest when the power is turned OFF. (All pen simultaneous operation type)

Measurement ON/OFF switch  
Measurement OFF -- Pen up -- Pen-rest (During this operation, pens other than the one that is in the measure OFF operation does not move.)

Measurement ON -- Pen up -- Moves to recording position -- Pen down (During this operation, pens other than the one that is in the measure ON operation does not move.)

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## Standard specification

Withstand voltage:	Between power supply and chassis (GND): AC 1500 V, 1 minute Between analog input and chassis (GND): AC 500 V, 1 minute Between each an analog input: AC 500 V, 1 minute
Insulation resistance:	Between power supply and chassis (GND): 100 M $\Omega$ or more at DC 500 V Megger Between I/O control and chassis (GND): 20 M $\Omega$ or more at DC 250 V Megger Between analog input and chassis (GND): 100 M $\Omega$ or more at DC 500 V Megger
Operating environment:	Temperature 5 to 40°C, Humidity 35 to 80%RH
Storage environment:	Temperature -5 to 50°C, Humidity 35 to 80%RH
Vibration:	8 to 50 Hz 0.1G or less
Impact:	Not allowable
Power supply:	90 to 132 VAC/ 170 to 265 V (Changeover method), 47 to 440 Hz 9 to 16 VDC (extra-cost option)
Power consumption:	Maximum 8 pens, 240 W 10 pens, 240 W 12 pens, 250 W 14 pens, 260 W 16 pens, 270 W At balanced 8 pens, 150 W 10 pens, 155 W 12 pens, 160 W 14 pens, 165 W 16 pens, 170 W
Dimensions:	Approx. 438(W) x 290(H) x 520(D) mm
Weight	8 ch: 18.0 kg 10 ch: 19.5 kg 12 ch: 21.0 kg 14 ch: 22.5 kg 16 ch: 24.0 kg (including AC voltage/temperature input unit)

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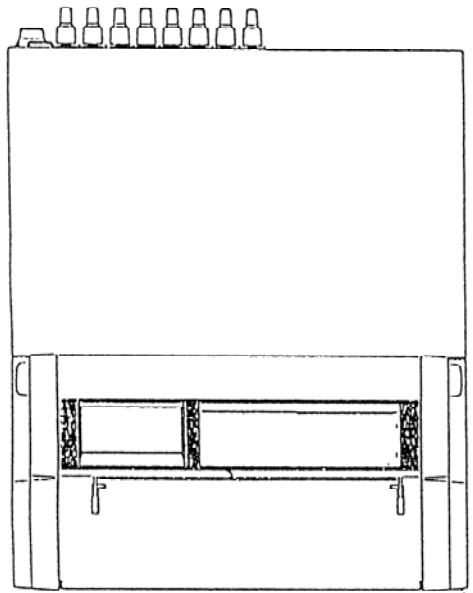
**Accessories:**

Power cable:	1
20 m chart paper #2501P50:	1
Ribbon cassette P1101:	1
IC card BS-16D1-A-261:	1
Pens (various colors) NDL-**:	1 each
Dust cover:	1
5A fuse (built-in type):	1
Input cover:	1
Input cover stay:	4
Dropping pipet:	1
Grounding adapter TM-100:	1
Remote connector 57-30360:	1
Instruction manual:	1

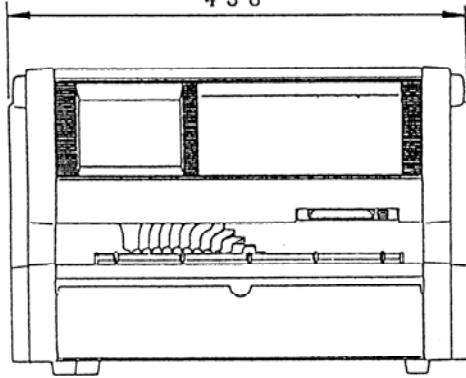
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### 3. EXTERNAL VIEW

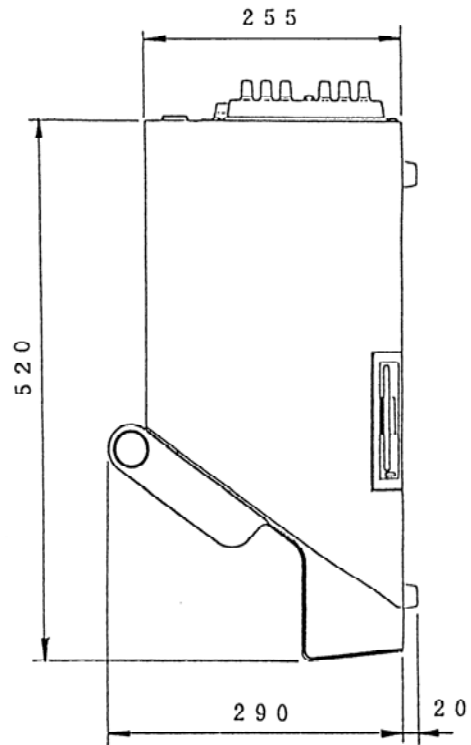
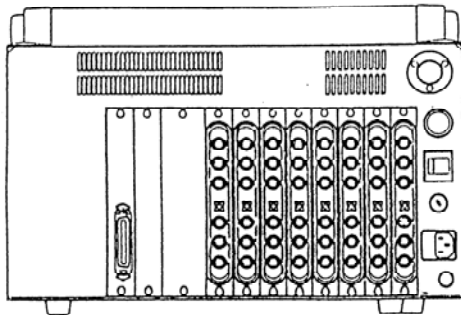
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Rear view



FDD and DC-DC power supply are option.

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