

*Extracted from Document  
#14510-201 REV A*



Operating Manual

**9520-647**

# Airborne Serial Time Display

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**Timing, Test & Measurement**





# 9520-647 Airborne Serial Time Display

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# Chapter One

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## INTRODUCTION/PRODUCT OVERVIEW

The Datum 9520-647 Airborne Serial Time Display is a small and rugged unit that can be mounted in a standard aircraft instrument panel. The Model 9520-647 accepts as its input a serial time code (IRIG B) modulated on a carrier frequency of 1 kHz. It automatically synchronizes to the input code and the time of day is displayed in hours, minutes and seconds.

The Serial Time Display has 1.48 inches of panel height, 5.53 inches of depth and 5.74 inches of width, including the mounting ears.

The model number on the rear panel of this instrument will be 9520-647R, 9520-647Y or 9520-647G. The suffix letter indicates the color of the LED display: red, yellow, or green respectively.

## OPERATING MANUAL SUMMARY

This Operating Manual is divided into the following chapters:

### A. CHAPTER ONE – INTRODUCTION/PRODUCT OVERVIEW

This chapter includes a general description of the Datum 9520-647 Airborne Serial Time Display and provides some basic product information.

### B. CHAPTER TWO – OPERATION

Describes the controls and indicators.

### C. CHAPTER THREE – SPECIFICATIONS

Provides detailed specifications for all aspects of the Datum 9520-647.

## PURPOSE OF EQUIPMENT

The 9520-647 provides a cost-effective solution to the problem of displaying time in an aircraft that is derived from an IRIG B serial time code.



## PREPARATION FOR SHIPMENT

To turn off the Datum 9520-647 prior to shipment, remove the power from the J2 DC Power plug on the rear panel. Package the instrument in its original packing if possible. If the original packing materials are not available, pack in a reinforced cardboard carton using foam to take up any space inside the carton. Do not use foam popcorn or crushed paper for packing.

If the instrument is being returned to Datum, contact the Service Department (978) 927-8220 to advise of the product return.

## TYPOGRAPHICAL AND OTHER CONVENTIONS

This Operating Manual uses the following conventions:

Acronyms and Abbreviations – Terms are spelled out the first time they appear in this Operating Manual. Thereafter, only the acronym or abbreviation is used.

Table 1-1 describes the typographical conventions that this Operating Manual uses to distinguish between the different types of information according to how they are used.

TABLE 1-1. TYPOGRAPHICAL CONVENTIONS

WHEN TEXT APPEARS THIS WAY...	IT MEANS...
9520-647 Operating Manual	The title of a document or the name of a product
CRITICAL PORT-1 J1	An operating mode, alarm state, status, or chassis label.
Press the <b>Enter</b> key.  Press the <b>Print Scrn</b> key.	An named keyboard key. The key name is shown as it appears on the keyboard. An explanation of the key's acronym or function immediately follows the first reference to the key, if required.
A re-timing application...	A term or a word being emphasized.
Datum does not recommend...	A word or term given special emphasis so that you do not miss the idea being presented.

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## WARNINGS, CAUTIONS, RECOMMENDATIONS, AND NOTES

Warnings, Cautions, Recommendations, and Notes attract attention to essential or critical information in this Operating Manual. The types of information included in each are explained as follows:



### WARNING ...

All warnings have this symbol. Do not disregard warnings. They are installation, operation, or maintenance procedures, practices, or statements that if not strictly observed, may result in personal injury or loss of life.



### ELECTRICAL SHOCK HAZARD ...

All electrical shock hazard warnings have this symbol. To avoid serious personal injury or death, do not disregard electrical shock hazard warnings. They are installation, operation, or maintenance procedures, practices, or statements that if not strictly observed, may result in personal injury or loss of life.



### CAUTION ...

All cautions have this symbol. Do not disregard cautions. They are installation, operation, or maintenance procedures, practices, conditions, or statements that if not strictly observed, may result in damage to or destruction of equipment or may cause a long-term health hazard.



### CAUTION ...

All Electrostatic Discharge (ESD) cautions have this symbol. They are installation, operation, or maintenance procedures, practices, conditions, or statements that if not strictly observed, may result in electrostatic discharge damage to, or destruction of, static sensitive components of the equipment.



### RECOMMENDATION ...

All recommendations have this symbol. Recommendations indicate manufacturer-tested methods or known functionality. They contain installation, operation, or maintenance procedures, practices, conditions, or statements that provide you with important information for optimum performance results.



### NOTE ...

All notes have this symbol. Notes contain installation, operation, or maintenance procedures, practices, conditions, or statements that alert you to important information which may make your task easier or increase your understanding.



**9520-647**

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## WHERE TO FIND ANSWERS TO PRODUCT AND DOCUMENT QUESTIONS

If you believe that this product is not performing as expected, or if you have comments about this Operating Manual, please contact your Datum representative or sales office.

We appreciate your suggestions on ways to improve this Operating Manual. Please mark or write your suggestions on a copy of the page and mail or fax it to ...

Datum – Timing, Test & Measurement  
34 Tozer Road  
Beverly, MA 01915-5510  
US Toll Free: 1-800-544-0233  
Phone: +1-978-927-8220  
Fax: +1-978-927-4099  
E-mail: [ttmsales@datum.com](mailto:ttmsales@datum.com)

Thank you for providing the information.



### NOTE ...

Datum offers a number of applicable training courses designed to enhance product usability. Contact your Datum representative or sales office for a complete list of courses and outlines.

# Chapter Two

## INSTALLATION/OPERATION

### INSTALLATION



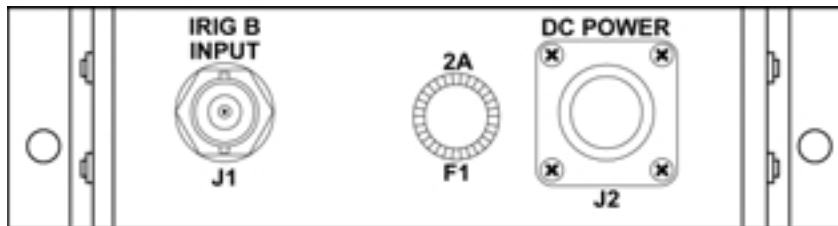
**NOTE ...**

Refer to Chapter Three for power and signal input specifications and for chassis dimensions.

1. Connect the IRIG B serial time code to J1.
2. Connect +28 VDC to J2.
3. Install the display in the aircraft instrument panel.

The Model 9520-647 is now operational.

FIGURE 2-1. DATUM 9520-647 REAR PANEL



### OPERATION

There are no switches or controls for this instrument. Once power and IRIG B time code inputs are applied, the unit quickly synchronizes to the input time code and displays the time from the code. The only control is the INTENSITY control on the right hand side of the front panel to allow a comfortable viewing intensity.

FIGURE 2-2. DATUM 9520-647 FRONT PANEL







# Chapter Three

## SPECIFICATIONS

### PERFORMANCE

#### Time Code Input

Code Format:	Serial time code
Configuration:	Amplitude modulated carrier (IRIG B)
Carrier Frequency:	1 kHz
Modulation Ratio:	6:1 to 2:1 without adjustment
Amplitude:	1 to 10 V P-P on the mark cycles
Input Impedance:	6.8KΩ, maximum

#### DC Power Input

Voltage:	+28 VDC ±4 VDC
Power Consumption:	< 4 watts

#### Synchronization

Accuracy:	<10 milliseconds referenced to input time code frame marker.
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#### Environmental Specifications

Temperature (operating):	0 to 60 °C
Altitude:	50,000 feet
Relative Humidity:	0 to 95% (non condensing)

Display Color	Red, yellow or green, as indicated by the suffix letter on the model number (9520-647R, 9520-647Y or 9520-647G)
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### CONNECTOR PIN ASSIGNMENTS

#### J1 BNC

#### IRIG B Modulated Time Code Input

#### J2 KPT02E10-98P

Pin	Function
A	Power Return (ground)
B	+28 VDC ±4 VDC
C	Not used
D	Not used
E	Not used
F	Chassis ground



# 9520-647

