

# BECKER AVIONICS

**RMI-Converter**

**AC3503**

**AC3504**

## **Installation and Operation**

Manual DV30640.03

Issue 03 June 2020

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AC3503 / AC3504

## FIRST ISSUE AND CHANGES

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Page No.:	Date :	Page No.:	Date :
Title	06/2020		
Section 1	06/2020		
Section 2	06/2020		

# Becker Avionics

AC3503 / AC3504

## Table of contents

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<b>Section</b>	<b>1</b>	<b>GENERAL INFORMATION</b>	<b>Page</b>
1.1		Introduction	1-1
1.2		Purpose of equipment	1-1
1.3		RMI Converter AC3503	1-2
1.3.1		RMI Converter AC3504	1-2
1.4		Technical data	1-2
1.4.1		General data	1-2
1.4.2		Environmental data	1-2
1.4.3		Mechanical dimensions an weights	1-3
1.4.4		Certifications	1-3
1.4.5		Design specification	1-3
1.4.6		Environmental qualification	1-3
1.5		Accessories	1-4

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AC3503 / AC3504

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AC3503 / AC3504

## Section 1 GENERAL INFORMATION

### 1.1 Introduction

This manual describes the RMI-Converters AC3503 / AC3504 and its variants.  
The manual contains the sections:

Section		DV30640.03
1	General Information	X
2	Installation	X
3	Operation	
4	Theory of Operation	
5	Maintenance and Repair	
6	Illustrated Parts List	
7	Modification and Changes	
8	Circuit Diagrams	

### 1.2 Purpose of equipment

The equipment has been designed to meet the requirements of JTSO-2C41d. For operational requirements under environmental conditions, EUROCAE/RTCA ED-14C/DO-160C has been taken as a standard. In the certified Environmental Categories, there are practically no restrictions for use of the RMI converters in rigid airframe attachment. In demonstration tests, all systems were shown to be functional at operating pressures equivalent to altitudes of up to 50 000 feet.

# Becker Avionics

AC3503 / AC3504

Type designation Part-No.:	Article-No.:	Standard RMI x, y, z	sin/cos 2 - 5 V DC	sin/cos 5 - 10 V DC
AC3503-(1) mounting plate included	0822.590-912	X		
AC3504-(1) mounting plate included mounting plate not included	0856.010-912 0576.808-912		X	
AC3504-(2) mounting plate included	obsolete			X

## 1.3 RMI Converter AC3503

The RMI converter AC3503 supplies a 3 wire standard synchro-signal to drive max. two ARNIC-Synchros (XYZ).

### 1.3.1 RMI Converter AC3504

The RMI converter AC3504 supplies a DC-Signal (sine/cosine) to drive RMI-Indicators.

## 1.4 Technical data

### 1.4.1 General data

Power supply

AC3503	+27.5 V DC or 26 V/400 Hz
AC3504	+27.5 V DC

Current consumption

AC3503	0.45 A
AC3504	0.45 A

Bearing accuracy	≤ 3° by 70 mV/m (190 kHz - 850 kHz) ≤ 8° by 70 mV/m (> 850 kHz)
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### 1.4.2 Environmental data

Operating temperature	-55 °C . . . . . +70 °C
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Storage temperature	-55 °C . . . . . +85 °C
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EUROCAE/RTCA ED-14C/DO-160C	Env.Cat. D2-BA(MN)XXXXXXXXZBABATZXXX
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## 1.4.3 Mechanical dimensions an weights

Dimension	219 x 139 x 54 mm
Weight	0.75 kg

## 1.4.4 Certifications

LBA no.	10.921/53JTSO
BZT approval no.	A107418D LB

## 1.4.5 Design specification

JTSO-2C41d

RTCA	DO-179 Category A
EUROCAE/RTCA	ED-14C/DO-160C
EUROCAE/RTCA	ED-12A/DO-178A

## 1.4.6 Environmental qualification

The following performance standards under environmental test conditions have been established in accordance with the procedures set forth in EUROCAE/RTCA ED-14C/DO-160C Env. Cat. D2 -BA(MN)XXXXXXXXZBABATZXXX.

Environmental condition	ED-14C/ DO-160C	Category	Performance
Temperature	4.0	D2	
Low operating temperature	4.5.1		- 55 °C
Low ground survival (storage temperatur)	4.5.1		- 55 °C
High short-time operating temperature	4.5.2		70 °C
High operating temperature	4.5.3		55 °C
High ground survival (storage) temperature			85 °C
Min. operating pressure (equivalent altitude)	4.6.1		50 000 ft.
Temperature variation	5.0	B	
Humidity	6.0	A	48 h at up to 50 °C and 95% relative humidity
Shock :	7.0		
Operational shocks	7.2		11 ms at 6 g for all three dimensional axes

# Becker Avionics

AC3503 / AC3504

Environmental condition	ED-14C/ DO-160C	Category	Performance
Crash safety shocks	7.3		11 ms at 15 g for all three dimensional axes acceleration 12 g
Vibration	8.0	MN	
Magnetic effect	15.0	Z	Deflection of <1° of compass at a distance of < 30 cm
Power input variation	16.0	B	Test confirmed that the equipment functions on 20 V emergency power supply
Resistance to voltage spikes on equipment power leads	17.0	A	
Audio-frequency conducted susceptibility	18.0	B	
Susceptibility to induced magnetic and electric fields at 400	19.0	A	
Hz Radio-frequency interference susceptibility	20.0	T	
Spurious RF emissions	21.0	Z	

## 1.5 Accessories

RMI-Converter AC3503-(01)	Article-No.: see page 1-2
RMI-Converter AC3504-(01)	Article-No.: see page 1-2
RMI-Converter AC3504-(02)	Article-No.: see page 1-2
Mounting plate	Article-No.: 0310.794-283

### Connector kits

CK3503-S for AC350X-(X), soldering includes:	Article-No.: 0836.036-954
Cable connector 25 pin	Article-No.: 0725.021-277
Case with mounting articles	Article-No.: 0775.479-277
Coding Pin	Article-No.: 0782.211-277
Label "AC"	Article-No.: 0711.160-258
CK3503-C for AC350X-(X), crimp includes:	Article-No.: 0523.909-954
Cable connector 25 pin	Article-No.: 0472.921-277
Case with mounting articles	Article-No.: 0775.479-277
Coding Pin	Article-No.: 0782.211-277
Label "AC"	Article-No.: 0711.160-258

### Manuals

Maintenance and Repair DV30640.04	Article-No.: 0870.862-071
Installation and Operation DV30640.03	Article-No.: 0668.882-071



# Becker Avionics

AC3503 / AC3504

## Table of contents

---

<b>Section</b>	<b>2</b>	<b>Installation</b>	<b>Page</b>
2.1		General	2-1
2.2		Pre-installation Check	2-1
2.2.1		Operational Check	2-1
2.2.2		Mechanical Installation RMI-Converter AC3503, AC3504	2-1
2.2.3		Installation Wiring	2-1
2.3		Post-installation Check	2-1
Fig. 2-1		Dimensions AC3503 / AC3504	2-2

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AC3503 / AC3504

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# Becker Avionics

AC3503 / AC3504

## Section 2 Installation

### 2.1 General

Installation of the RMI-Converter AC3503 / AC3504 will depend on the aircraft type and equipment fitted. Thus, only general instructions can be provided in this section. Before installing the RMI-Converter in an aircraft, examine the equipment for evidence of damage.

### 2.2 Pre-installation Check

Unpack the equipment and inspect all assemblies for evidence of damage.

#### 2.2.1 Operational Check

A functional check prior to installation is only reasonable when all system components (receiver, converter and indicator unit, antenna, etc.) are installed. Therefore, such a functional check is described in the ADF System Manual DV30601.03 / DV30613.03.

#### 2.2.2 Mechanical Installation RMI-Converter AC3503, AC3504

The RMI-Converter is intended for installation in the avionics compartment of the aircraft. The dimensions are shown in Fig. 2-1.

#### 2.2.3 Installation Wiring

The interwiring diagrams as well as information for cables are described in the ADF System Manual DV30601.03 / DV30613.03.

### 2.3 Post-installation Check

A functional check after installation is only reasonable for all system components (receiver, converter and indicator RMI-converter, antenna, etc.) together. Therefore, such a functional check is described in the ADF System Manual DV30601.03 / DV30613.03.

# Becker Avionics

AC3503 / AC3504

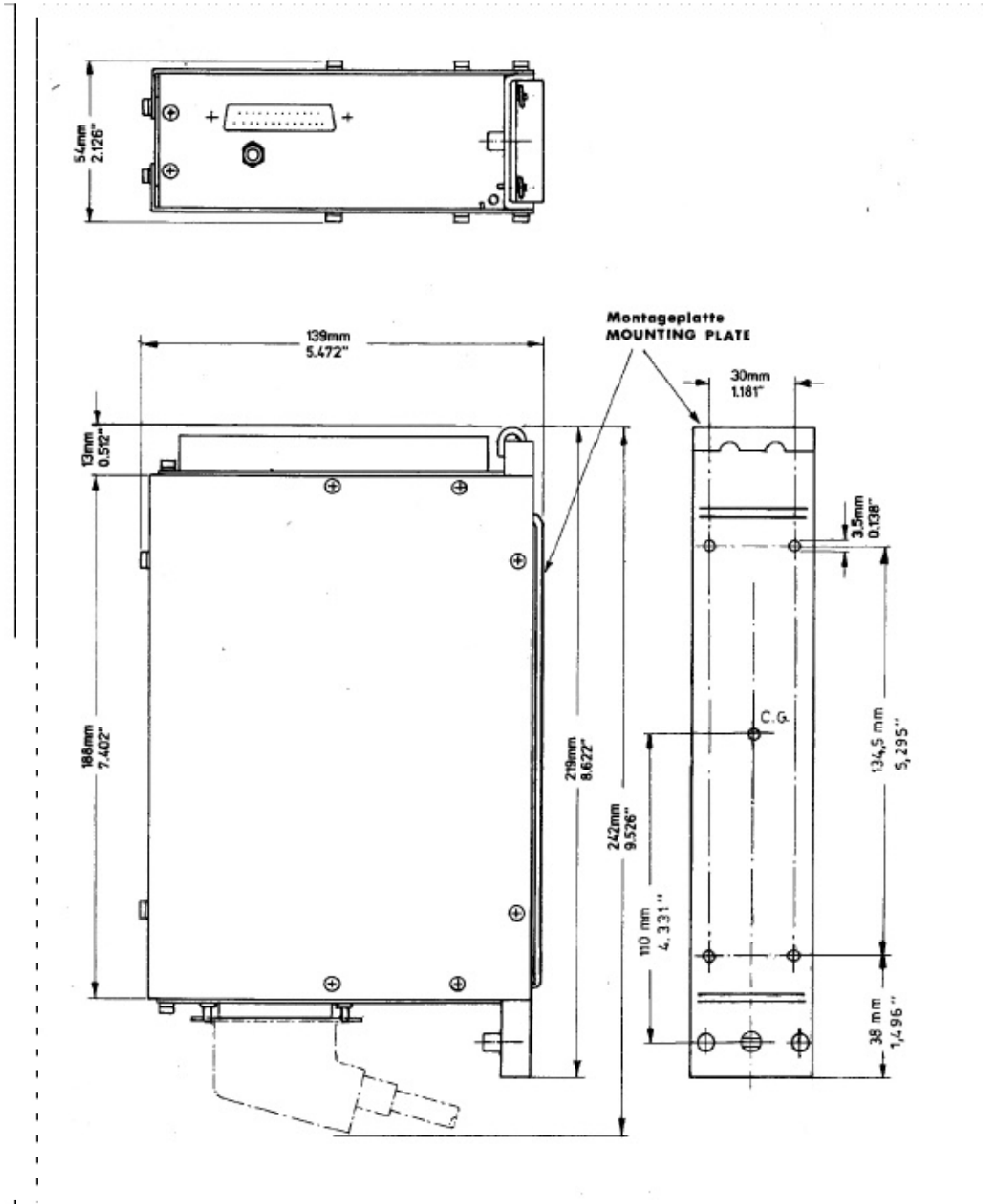


Fig. 2-1 Dimensions AC3503 / AC3504

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