



## **Installation & Operating Procedures**

# **CA436 DDCS to DD312 Interface Card**



**Drives Inc.**

# **CA436**

**DDCS to DD312 Interface Card**

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## **FOR YOUR SAFETY**

Only qualified personnel should install this equipment, after first reading and understanding all the information in this manual. All instructions should be strictly adhered to. The user should consult SAF Drives Inc. or a SAF supplier for clarification of the contents of this manual should any doubt or questions arise.

The installation of this equipment must be conducted in accordance with all national, regional and local electrical codes.

All drawings and technical representations included in this manual are for typical installations and should not in any way be considered for specific applications or modifications. Consult SAF Drives for supplemental instructions.

SAF Drives Inc. accepts no liability for any consequences resulting from inappropriate, negligent or incorrect installation, application or adjustment of this equipment.

The contents of this manual are believed to be correct at the time of printing. In following with our commitment to the ongoing development and improvement of our products SAF Drives Inc. reserves the right to change the specification of this product and/or the content of this instruction manual without notice.



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## 1 GENERAL DESCRIPTION

The CA436 card is used to interface the DD312 DC drive to the SAFphire controller or OEM SAFphire over a fibre optic link. The CA436 also includes 8 digital inputs, 6 digital outputs, 1 analog input, 1 analog output, and 1 tachogenerator input, that can be read and controlled from the SAFphire or OEM SAFphire controller. There is a built in multiplexer for the fibre optic connectors controlled by a digital input. This allows the user to connect the drive to 2 different controllers and choose which one is in control by way of a digital input.

## 2 TERMINALS

<b>Terminal Number</b>	<b>Description</b>
<b>J1</b>	
1	+24VDC control power input, 250mA
2	Common
<b>J2</b>	
1	Analog Input +-10VDC, scaled to +-28000 in SAFphire
2	Common
<b>J3</b>	
1	Analog Output +-10VDC, scaled to +-28000 in SAFphire, 20mA max.
2	Common
3	Current Reference +-10VDC, scaled to +-28000 in SAFphire (this terminal is connected directly to the current reference sent to the CA384 card over the ribbon cable), to be used for monitoring only
4	Common
<b>J4</b>	
1	Tach connection point , as well as RT1 connection point
2	RT2 connection point
3	Tach connection point
<b>J6</b>	
Ribbon cable connector for connection to CA384 card	
<b>J8</b>	
1	Input for fibre optic multiplexer, with no power on terminals 1 and 2 fibre optic channel 1 is used. With power across terminals 1 and 2 fibre optic channel 2 is used
2	Common point for multiplexer input.

<b>J9</b>	
1	Digital input common point (internally tied to terminal 10)
2	Digital input 8
3	Digital input 7
4	Digital input 6
5	Digital input 5
6	Digital input 4
7	Digital input 3
8	Digital input 2
9	Digital input 1
10	Digital input common point (internally tied to terminal 1)
<b>J10</b>	
1	Digital output common point (internally connected to terminal 8)
2	Digital output 6
3	Digital output 5
4	Digital output 4
5	Digital output 3
6	Digital output 2
7	Digital output 1
8	Digital output common point (internally connected to terminal 8)

### **3 SPECIFICATIONS**

- Control Power** 24VDC, 250mA
- Digital Inputs** 120VAC, 2mA
- Digital Outputs** Solid State Relay rated at 30mA, 0-120V AC or DC
- Analog Input** -10VDC to +10Vdc
- Analog Output** -10VDC to +10VDC, 20mA max

### **4 SETUP**

$$RT1 + RT2 = (\text{Tach Volts} - 5) * 1000$$

## 5 DATASETS

DataSet 1	From SAFphire to DD312
Word 1	Command Word
Bit0	Feedback Loss
Bit1	Voltage Relay
Bit2	Drive Run
Bit3	Reset
Bit4	External Fault
Bit5	Watch Dog (must be a 100msec square wave)
Bit6	Reserved
Bit7	Reserved
Bit8	Reserved
Bit9	Reserved
Bit10	Reserved
Bit11	Reserved
Bit12	Reserved
Bit13	Reserved
Bit14	Reserved
Bit15	Reserved
Word 2	Current Reference (28000 is scaled to max current based on burden resistor)
Word 3	Analog Output (28000 is scaled to 10VDC)

DataSet 2	From DD312 to SAFphire
Word 1	Status Word
Bit0	E-Stop
Bit1	Regulator Enable
Bit2	Heat Sink Over Temperature
Bit3	Sync Loss
Bit4	Instantaneous Over Current
Bit5	Inverse Timed Motor Overload
Bit6	Armature Over Voltage
Bit7	Drive Faulted
Bit8	Phase Loss
Bit9	Reserved
Bit10	Reserved
Bit11	Reserved
Bit12	Reserved
Bit13	Reserved
Bit14	Reserved
Bit15	Reserved
Word 2	Current Feedback (scaled to 28000 for full current based on burden resistor)
Word 3	Voltage Feedback (scaled to 28000 for full voltage based on voltage feedback resistors)



DataSet 3	From SAFphire to DD312
Word 1	Digital Outputs
Bit0	Digital Output 1
Bit1	Digital Output 2
Bit2	Digital Output 3
Bit3	Digital Output 4
Bit4	Digital Output 5
Bit5	Digital Output 6
Bit6	Reserved
Bit7	Reserved
Bit8	Reserved
Bit9	Reserved
Bit10	Reserved
Bit11	Reserved
Bit12	Reserved
Bit13	Reserved
Bit14	Reserved
Bit15	Reserved
Word 2	Reserved
Word 3	Reserved

DataSet 4	From DD312 to SAFphire
Word 1	Digital Inputs
Bit0	Digital Input 1
Bit1	Digital Input 2
Bit2	Digital Input 3
Bit3	Digital Input 4
Bit4	Digital Input 5
Bit5	Digital Input 6
Bit6	Digital Input 7
Bit7	Digital Input 8
Bit8	Reserved
Bit9	Reserved
Bit10	Reserved
Bit11	Reserved
Bit12	Reserved
Bit13	Reserved
Bit14	Reserved
Bit15	Reserved
Word 2	Tach Feedback (scaled to 28000 for full voltage based on RT1 and RT2 calculation)
Word 3	Analog Input (28000 is scaled to 10VDC)