
Acroloop Motion Controller

Application Note

This document describes how to configure a Paradigm operator interface terminal to allow communications with an Acroloop Motion Controller. The communications protocol supports access to system parameters, global user variables, and system bit flags. Please read this document carefully before attempting to configure communications with these devices.

Introduction

The EDICT-97 configuration software has been designed to allow the user to enter a Parameter mnemonic and number in a manner that should be familiar to a user of an Acroloop Motion Controller. The driver allows the exchange of data with the Controller.

Accessing Data

The Acroloop Motion Controller communications protocol allows access to a number of Parameters over a serial communications link. The driver described here supports a subset of these parameters and these are given in the table below.

Parameter	Data Type	Mnemonic	Range	Access
Global User Variable	FP32	PU	00000..04095	Read/Write
System Parameter	LONG	PL	04096..20487	Read/Write
System Parameter	FP32	PF	04096..20487	Read/Write
System Bit Flag	BIT	BF	0000..4095	Write

Attempts to read or write to an un-dimensioned Global User Variable will be ignored, and communications will not be failed, but system performance will be slower.

Be sure to use the correct mnemonic when reading or writing to a System Parameter – PL for LONG data types, and PF for FP32 data types. The Acroloop attempts data conversion when the wrong data type is used, so incorrect use may not be readily apparent.

Writing any non-zero number to a System Bit Flag will set the bit, while writing zero will clear the bit.

Examples

Read Encoder 0 Position, P6144, LONG data type:

```
LVar := [PL06144]
```

Set COM1 Communication Timeout, P7012, LONG data type, to 150:

```
[PL07012] := 150
```

Read ADC Input 0, P6408, FP32 data type:

```
FVar := [PF06408]
```

Set Global User Variable 4000, P4000, to 2.441:

```
[PU04000] := 2.441
```

Set Bit 520:

```
[BF0520] := 1 (any non-zero number)
```

Clear Bit 32:

```
[BF0032] := 0
```

Knowledge of Unit Operation Is Assumed

In all cases, the simple principle of ‘pass-through’ is maintained: there is no attempt to validate a value in terms of the end use of the unit: both familiarity with the control functions and knowledge of system operation are assumed.

Communications

Communications with the Acroloop Motion Controller is via an RS-232, point to point link, or via RS-422, with default serial communications format of baud rate of 19200, 8 data bits, No parity, and 1 stop bit.

Binary Data Transfer for this port must be set to Mode 1 -- control character prefixing enabled, and high bit stripping disabled (this is Acroloop's default COM port configuration).

Control Character Echoing for this port must be set to Mode 1 – command prompt ON, error messages ON, and character echo ON (this is Acroloop's default COM port configuration).

The Communication Timeout for this port must be lengthened for baud rates below 4800 (the 50mS default is fine for 4800 and above).

The Acroloop model number must be selected in “EDICT-97, Communication Devices, Options”. The available models are ACR1200, ACR2000, and ACR8000 / ACR8010.

The connections details are described in the table below.

Paradigm unit (RS 232 port)	Acroloop Motion Controller COMM Connector (36-pin Mini D Ribbon Connector)		
	Usage	COM1	COM2
Pin 1 (Tx)	(RXD)	Pin 1	Pin 5
Pin 2 (Rx)	(TXD)	Pin 19	Pin 23
Pin 3 (RTS)			
Pin 4 (CTS)			
Pin 5 (0v)	(GND)	Pin 2	Pin 6

In addition a link must be fitted between Pin 3 (RTS) and Pin 4 (CTS) on the Paradigm unit.