



F500 Elite

FIELDBUS ADAPTER

F5004V4CAI & F5004V46CAI

T500 Elite to Profibus DP Slave communications (Software Version 7.1.X)

Approvals: Suitable for use in Hazardous Locations

Zone21 / Cat2D / CL II Div 1 GPS E, F & G (V4)

When powered with a Class2 power supply.

Zone22 / Cat3D / CL II Div 2 GPS F & G (V46)

NOTE: This interface may take as long as 20 seconds to correctly initialize. Do not attempt communications before that time.



Dear 4B Customer:

Congratulations on your purchase. 4B appreciates your business and is pleased you have chosen our products to meet your needs.

Please read in its entirety and understand the literature accompanying the product before you place the product into service. Please read the safety precautions carefully before operating the product. With each product you purchase from 4B, there are some basic but important safety considerations you must follow to be sure your purchase is permitted to perform its design function and operate properly and safely, giving you many years of reliable service. Please read and understand the Customer Safety Responsibilities listed below. Failure to follow this safety directive and the Operation Manuals and other material furnished or referenced, may result in serious injury or death.

SAFETY NOTICE TO OUR CUSTOMERS

- A. In order to maximize efficiency and safety, selecting the right equipment for each operation is vital. The proper installation of the equipment, and regular maintenance and inspection is equally important in continuing the proper operation and safety of the product. The proper installation and maintenance of all our products is the responsibility of the user unless you have asked 4B to perform these tasks.
- B. All installation and wiring must be in accordance with Local and National Electrical Codes and other standards applicable to your industry. (Please see the article “Hazard Monitoring Equipment Selection, Installation and Maintenance” at www.go4b.com.) The installation of the wiring should be undertaken by an experienced and qualified professional electrician. Failure to correctly wire any product and/or machinery can result in the product or machine failing to operate as intended, and can defeat its design function.
- C. Periodic inspection by a qualified person will help assure your 4B product is performing properly. 4B recommends a documented inspection at least annually and more frequently under high use conditions.
- D. Please see the last page of this manual for all warranty information regarding this product.

CUSTOMER SAFETY RESPONSIBILITIES

1. READ ALL LITERATURE PROVIDED WITH YOUR PRODUCT

Please read all user, instruction and safety manuals to ensure that you understand your product operation and are able to safely and effectively use this product.

2. YOU BEST UNDERSTAND YOUR NEEDS

Every customer and operation is unique, and only you best know the specific needs and capabilities of your operation. Please call the 24-hour hotline at 309-698-5611 for assistance with any questions about the performance of products purchased from 4B. 4B is happy to discuss product performance with you at any time.

3. SELECT A QUALIFIED AND COMPETENT INSTALLER

Correct installation of the product is important for safety and performance. If you have not asked 4B to perform the installation of the unit on your behalf, it is critical for the safety of your operation and those who may perform work on your operation that you select a qualified and competent electrical installer to undertake the installation. The product must be installed properly to perform its designed functions. The installer should be qualified, trained, and competent to perform the installation in accordance with Local and National Electrical Codes, all relevant OSHA Regulations, as well as any of your own standards and preventive maintenance requirements, and other product installation information supplied with the product. You should be prepared to provide the installer with all necessary installation information to assist in the installation.

4. ESTABLISH AND FOLLOW A REGULAR MAINTENANCE AND INSPECTION SCHEDULE FOR YOUR 4B PRODUCTS

You should develop a proper maintenance and inspection program to confirm that your system is in good working order at all times. You will be in the best position to determine the appropriate frequency for inspection. Many different factors known to the user will assist you in deciding the frequency of inspection. These factors may include but are not limited to weather conditions; construction work at the facility; hours of operation; animal or insect infestation; and the real-world experience of knowing how your employees perform their jobs. The personnel or person you select to install, operate, maintain, inspect or perform any work whatsoever, should be trained and qualified to perform these important functions. Complete and accurate records of the maintenance and inspection process should be created and retained by you at all times.

5. RETAIN AND REFER TO THE OPERATION MANUAL FOR 4B'S SUGGESTED MAINTENANCE AND INSPECTION RECOMMENDATIONS

As all operations are different, please understand that your specific operation may require additional adjustments in the maintenance and inspection process essential to permit the monitoring device to perform its intended function. Retain the Operation Manual and other important maintenance and service documents provided by 4B and have them readily available for people servicing your 4B equipment. Should you have any questions, please call the 4B location who supplied the product or the 24-hour hotline number in the USA -309-698-5611.

6. SERVICE REQUEST AND ONLINE PRODUCT REGISTRATION

If you have questions or comments about the operation of your unit or require the unit to be serviced please contact the 4B location who supplied the product or send your request via fax (309-698-5615), email (4b-usa@go4b.com), or call us via our 24-hour hotline number in the USA - 309-698-5611. Please have available product part numbers, serial numbers, and approximate date of installation. In order to assist you, after the product has been placed into service, complete the Online Product Registration section which is accessed via our website www.go4b.com

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F500 FIELDBUS ADAPTER

INTRODUCTION

This version of the F500 Elite Fieldbus adapter had been designed to work as a T500 Elite communications gateway and has been designed specifically to for a T500 control unit running software version 7.X.X. Data for up to 32 nodes can be read by the F500. The T500 network data can then be passed through the Fieldbus adapter to a Profibus DP network. The communications control unit is housed in a self-contained wall-mounting enclosure, and will operate from 100v to 240v AC or from 24v DC.

SPECIFICATIONS

A plastic enclosure houses the electronics and terminal connectors. The unit contains a printed circuit board to accommodate power supply circuitry, microprocessor, Fieldbus card and terminals. The design is capable of accommodating 1 of the 8 most common Fieldbus interfaces. In this instance we are using a Profibus DP interface.

Electrical Supply (F5004V46CAI)	100-240VAC (+/- 10%); 50/60Hz or 24VDC (+/- 10%)
Electrical Supply (F5004V4CAI)	24VDC (+/- 10%)
Power Consumption	10VA/10 WATTS
Terminals	4mm ² ;14 AWG max
Dimensions [L x W x H]	9.7”(246mm) x 7.4”(188mm) x 4”(102mm)
Fixing Centres [L x W]	8.75”(222mm) x 4”(102mm)
Cable Entry	2 Holes 11/8” DIA (28mm); 3/4” CONDUIT
Weight	3lbs, 1.3Kg

Table 1- F500 Module Specifications

Approvals of V4 Model:

- CE 1180 Ex tb IIIC T125° Db IP66 T_{AMB} -20°C to +50°C IECEx BAS05.0026X
- CE 1180 Ex II 2D Ex tb IIIC T125° Db IP66 T_{AMB} -20°C to +50°C Baseefa04ATEX0131X
- CSA - Class II Div. 1, Groups E, F & G
(F5004V4CAI-PGW - When Powered with a Class 2 Power Supply)

Approvals of V4 Model:

- CE 1180 Ex tc IIIC T125° Dc IP66 T_{AMB} -20°C to +45°C IECEx BAS11.0018X
- CE 1180 Ex II 3D Ex tc IIIC T125° Dc IP66 T_{AMB} -20°C to +45°C Baseefa11ATEX 0033X
- CSA - Class II Div. 2, Groups F & G (F5004V46CAI-PGW)

Approved Power Dissipation in Watts:

- ATEX category 2D: 12 Watts
- ATEX category 3D: 25 Watts
- CSA (F5004NV4CAI-PGW): 12 Watts
- CSA (F5004NV46CAI-PGW): 12 Watts

Approval Safety Information

To Open the Lid:

1. Disconnect power (isolate ALL circuits)
2. Untighten the lid securing screws
3. Carefully open the lid ensuring that the gasket is not damaged and remains in place

To Close the Lid:

1. Check that the gasket is correctly fitted into the box groove and is undamaged.
2. Tighten the lid screws.
3. Check that the lid and box are correctly mated.

Special conditions of use:

1. **The equipment shall be suitably earth bonded via the PCB mounted earth terminal inside the equipment enclosure.**
2. **Warning: The equipment is a potential static hazard, clean only with a damp cloth.**
3. **Do not allow dust layers to build up on the equipment.**

INSTALLATION INSTRUCTIONS

The Control Unit box should be installed in a suitable control or starter switch room. The box should have sufficient space to open the lid for wiring.



The Control Unit is susceptible to static voltage. Connection of a clean ground to terminal 29 is essential for optimum performance. Prior to this connection, static handling precautions should be taken.

ELECTRICAL WIRING

Refer to Drawings A, B, C & E

When installing the equipment in an area which is likely to be hazardous from Ignitable Dusts, use liquid tight conduit and fittings and follow all local codes.

OPERATING INSTRUCTIONS

The Fieldbus Adapter is a self-contained unit and there are no user configurable options with the exception of the ProfiBus slave address. The adapter is equipped with three communications ports; RS232, RS485 and Profibus DP (slave).

The RS232 is a simple interface which can be used for diagnostics purposes. The data from this port is formatted to work with a VT100 display terminal. Any terminal or terminal emulator capable of supporting the VT series or compatible commands can be used with this port although the data has been optimised to work with VT100. The RS232 port operates at a fixed data rate of 19200, N, 8, 1. See Appendix 'A'

The RS485 port is a four wire, twin twisted pair full duplex serial port and has been specifically configured to work with the T500 communications network. You should not connect any other devices to this port unless you wish to monitor the T500 data directly.

The Profibus interface provides the following:

- Transmission media: Profibus bus line, type A or B specified in EN50170
- Topology: Slave configuration
- Fieldbus Connector: 9 pin female DSUB
- Cable: shielded copper; twisted pair
- Optically isolated bus A and B termination
- Address range 1-99 selected by on board switch
- Maximum cyclic I/O data size of 244 bytes
- Optional bus termination, switch selectable
- Led status indication

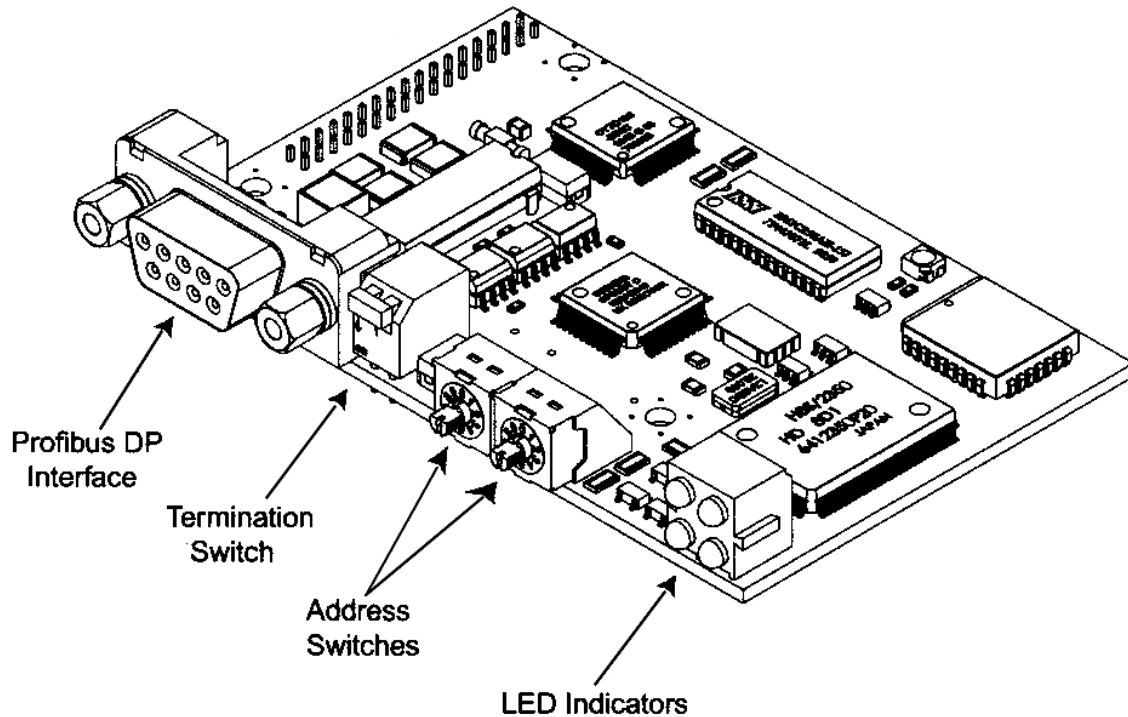


Figure 1 - Interface Card

The above diagram shows the location of the main parts of the Profibus module.

The address switches allow the unit slave address to be set between 01 and 99. The left hand switch sets the ten's digit of the address and the right hand switch sets the unit digit of the address. If you decide to change the address then you must reset the interface by first removing and then reconnecting power. The default unit address is 77.

The termination switch can be used to add termination resistors to the Profibus interface if required. If the F500 Profibus interface card is the first or last module on the Profibus network, then the switch needs to set to ON else it must be set to OFF.

T500 CONFIGURATIONS

Important: In order to make full and correct use of the F500 you need to ensure that the T500 is correctly configured. As part of the setup for the T500 you are required to configure the fieldbus settings. Refer to the T500 manual for full details regarding this requirement. See below for quick guide on T500 setup.

- Navigate through the T500 menu to the Fieldbus options
- The fieldbus type should be set to 'ETH-NET' for both Profibus DP and Ethernet F500 models
- Ignore the number of sensors field
- Set the unit ID to 1

The Profibus connections are shown below comply Profibus DSUB connections standard.

Pin	Signal	Description.
1	N/C	No connection
2	N/C	No connection
3	B line	Positive RxD/TxD according to RS485 specification
4	RTS	Request to send
5	GND BUS	Isolated ground connection
6	+5V BUS	Isolated +5V connection
7	N/C	No Connection
8	A line	Negative RxD/TxD according to RS485 specification
9	N/C	No Connection

Figure 2 - Profibus Connector Pinout

The statuses LED are grouped in a single block of four and indicate the following status.

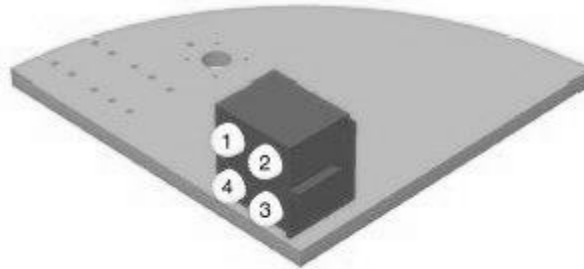


Figure 3- Profibus Card Status LEDs

Led 1 Status

Colour	Frequency	Description
-	-	Not Used

Led 2 Status

Colour	Frequency	Description
Green	Solid on	Module is ON-LINE and data exchange is possible

Led 3 Status

Colour	Frequency	Description
Red	Solid on	Module is OFF-LINE and data exchange is not possible.

Led 4 Status

Colour	Frequency	Description
Red	1 Hz	Interface board initialisation failure
Red	2 Hz	Network configuration does not match module configuration
Red	4 Hz	Initialisation failure of the Profibus interface IC

DATA ALLOCATION

The F500 Profibus is designed to monitor data for a maximum of 32 TN4 or SN2 nodes (refer to the T500 manual for a more detailed explanation). Each communication node produces 5 bytes of data. The data is stored in the F500 in the following manner:

Data Byte	Contents
1	Reserved (Usually 0)
2	Activity counter
Sensor Data Field Start	
3	Node 1- Sensor data 1
4	Node 1- Sensor data 2
5	Node 1- Sensor data 3
6	Node 1- Sensor data 4
7	Node 1- Sensor data 5
...	...
78	Node 16- Sensor data 1
79	Node 16- Sensor data 2
80	Node 16- Sensor data 3
81	Node 16- Sensor data 4
82	Node 16- Sensor data 5
...	...
83	Node 17- Sensor data 1
84	Node 17- Sensor data 2
85	Node 17- Sensor data 3
86	Node 17- Sensor data 4
87	Node 17- Sensor data 5
...	...
158	Node 32- Sensor data 1
159	Node 32- Sensor data 2
160	Node 32- Sensor data 3
161	Node 32- Sensor data 4
162	Node 32- Sensor data 5
Sensor Data Field End	
163-169	NOT USED
170-185	Sensor Alarm Bits
186-189	NOT USED
190-205	Node Type Information
206-239	NOT USED
240-242	Firmware Version Information
243	NOT USED

Table 2 - F500 Data Allocation

ACTIVITY COUNTER

This field provides means of checking if the communication between the F500 and T500 is active. This field will increment by 1 every time new data has been successfully received from the T500. The value will increment from 0 to 255 and then roll over back to 0. Depending on the system size, it may take up to 5 seconds for this value to update. It is recommended that the operator be alerted if the value has not been updated for more than 15 seconds.

NODE TYPES

The F500 and T500 support multiple types of communication nodes - TN4 and SN2. The sensor data is encoded differently depending on the node type. Therefore it is crucial to know what the current node type is before decoding the sensor data. The information for all 32 node types is stored in 16 Bytes. Each node requires 4 bits to store its type. Table 3 and Table 4 below describe the data alignment.

BYTE 190	
Bits 7:4	Bits 3:0
Node #2	Node #1
BYTE 191	
Bits 7:4	Bits 3:0
Node #4	Node #3
BYTE 205	
Bits 7:4	Bits 3:0
Node #32	Node #31

Table 4 - Node Type Data Allocation

VALUE	NODE TYPE
0	Not Scanned
1	TN4
2	SN4

Table 3 - Node Type Decoding

SENSOR ALARMS

This section provides information on whether each individual sensor is in alarm or not. This is the absolute minimum that is required by the PLC to successfully decode the sensor state to alarm or healthy. The information for all 32 node alarms is stored in 16 bytes. Each node can have up to 4 sensors and therefore requires 4 bits to store the alarms. This means that each BYTE contains information for sensor alarms on 2 nodes. Table 5 and Table 6 below describe the data alignment.

BYTE 170	
Bits 7:4	Bits 3:0
Node #2	Node #1
BYTE 171	
Bits 7:4	Bits 3:0
Node #4	Node #3
...	
BYTE 185	
Bits 7:4	Bits 3:0
Node #32	Node #31

Table 5- Sensor Alarm Bits Allocation

The individual sensor alarm bits within each node have different meaning depending on the node type. The decoding is shown in Table 13.

TN4			
Bit 3	Bit 2	Bit 1	Bit 0
Sensor 4	Sensor 3	Sensor 2	Sensor 1
SN2			
Bit 3	Bit 2	Bit 1	Bit 0
Input 2 - Underspeed Alarm	Input 2 - Underspeed Stop	Input 1 - Underspeed Alarm	Input 1 - Underspeed Stop

Table 6 - Alarm Bits Decoding

If the bit reads 1, then the input is in alarm.

If the bit reads 0, then the input is not in alarm.

SENSOR DATA

Each node takes up four bytes of information. Depending on the node type, the meaning of the data changes. Having determined the node type (Table 3 and Table 4), it is possible to decode the data for individual sensors.

TN4 SENSOR DATA DECODING

If the node type is TN4 then each node has four sensors. Each sensor occupies one byte and should then be decoded as shown below.

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5
Sensor 1	Sensor 2	Sensor 3	Sensor 4	TN4 Ambient Temperature

Table 7 - TN4 Data Allocation

VALUE (DECIMAL)	VALUE (HEX)	DESCRIPTION
0 to 110	0x00 to 0x6E	NTC Positive Temperature (0°C to 110°C)
127 to 158	0x7F to 0x9E	NTC Negative Temperature (-0°C to -31°C) *
238	0xEE	NTC Sensor Open Circuit
239	0xEF	Lost Communication Between T500 and Node
240	0xF0	PTC Sensor Healthy / Cold
241	0xF1	PTC Sensor Tripped / Hot
250	0xFA	Contact Sensor Open / OFF
251	0xFB	Contact Sensor Closed / ON
253	0xFD	Sensor Not Scanned by T500
254	0xFE	NTC Sensor Over Temperature Fault, Temperature Cannot be Measured Reliably
255	0xFF	NTC Sensor Short Circuit

Table 8 - TN4 Data Decoding

For negative temperatures equation 1 should be used to convert values in the range of 127-158 to negative temperature:

$$\text{Equation 1: } t [^{\circ}\text{C}] = 127 - \text{Value (Decimal)}$$

The temperatures are always reported in °C regardless of the display units on the T500. The PLC program has to convert the units into °F if required. Please use equation 2 for the conversion.

$$\text{Equation 2: } t [^{\circ}\text{F}] = (t [^{\circ}\text{C}] \times 1.8) + 32$$

SN2 SENSOR DATA DECODING

The SN2 node has two speed and two interlock inputs. The interlock inputs are used together with speed values to create machine states which are described in Table 10 and Table 11. Four bytes of sensor data is used for reporting the two machine speeds in pulses per minute (PPM). Two bytes are used for each speed input. The speed data decoding is illustrated below in Table 9.

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5
Speed Input 1 MSB	Speed Input 1 LSB	Speed Input 2 MSB	Speed Input 2 LSB	Machine States

Table 9- SN2 Data Allocation

Each speed input is 16-bit value. Use the formula below for each input:

$$\text{SPEED [PPM]} = (\text{Speed MSB} \times 256) + \text{Speed LSB}$$

BYTE 5	
Bits 7:4	Bits 3:0
Input 2	Input 1

Table 10 - SN2 Machine States Data Allocation

VALUE (DECIMAL)	STATE	DESCRIPTION
0	Invalid	Invalid State
1	Stopped	Machine Stopped
2	Starting	Machine Start Up Delay
3	Running	Machine Running Normally
4	Interlock Off	Interlock Removed, Machine Still Running
5	Underspeed Alarm	10% Underspeed Condition Detected
6	Underspeed Stop	20% Underspeed Condition Detected
7	Calibrating	SN2 Input Calibration in Progress
8 - 14	Invalid	Reserved for Future Use
15	Comms Lost!	Lost Communication Between T500 and SN2 Node

Table 11 - SN2 Machine States Decoding

CHECK LIST

For problems after initial start-up

1. Is there excessive interference on the electrical power supply? Power conditioners and surge (spike) suppressor may have to be fitted.
2. Has the wiring for the F500 and Fieldbus been routed away from power cables?
3. Is the F500 Elite circuit properly grounded?
4. Is the Micro-processor control unit overheating, if so mount the unit in a temperature-controlled environment of maximum temperature 113°F (45°C).
5. Check that high powered ‘Walkie-Talkie’ radios are not operated immediately near the control unit or F500 as this will affect the performance.
6. Check that the communications/power cable is connected correctly and in accordance with DRG A,B,C and E.
7. Check that there is no exception status reported.
8. If the T500 units are not responding or are intermittent, check that the termination resistors are correctly fitted.

CONTACT INFORMATION



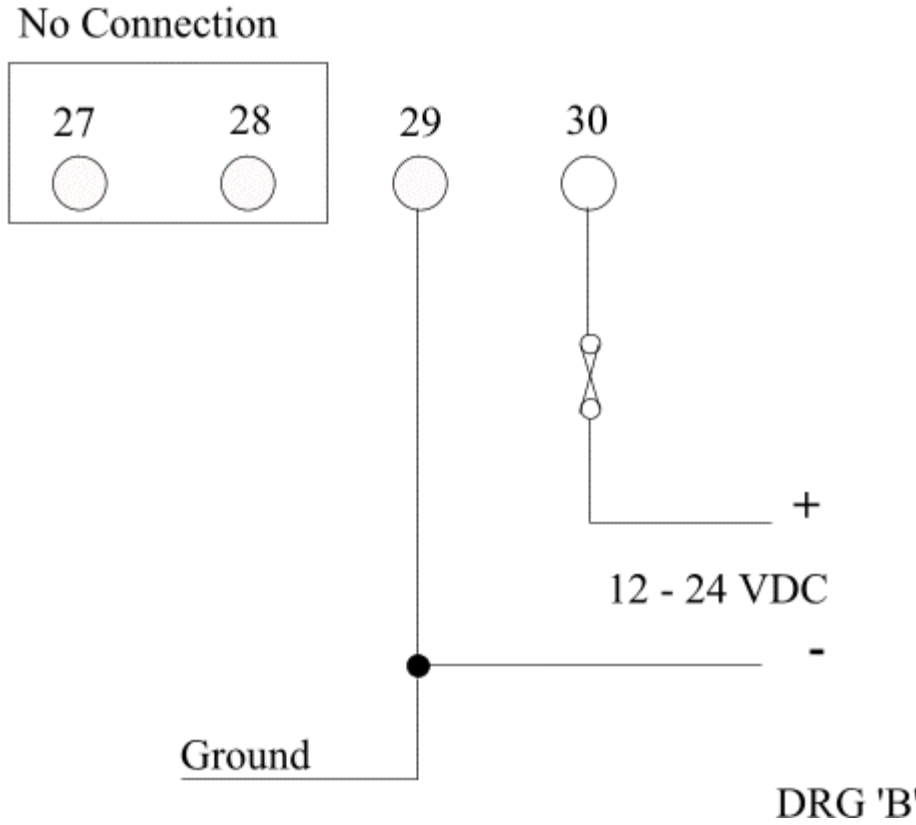
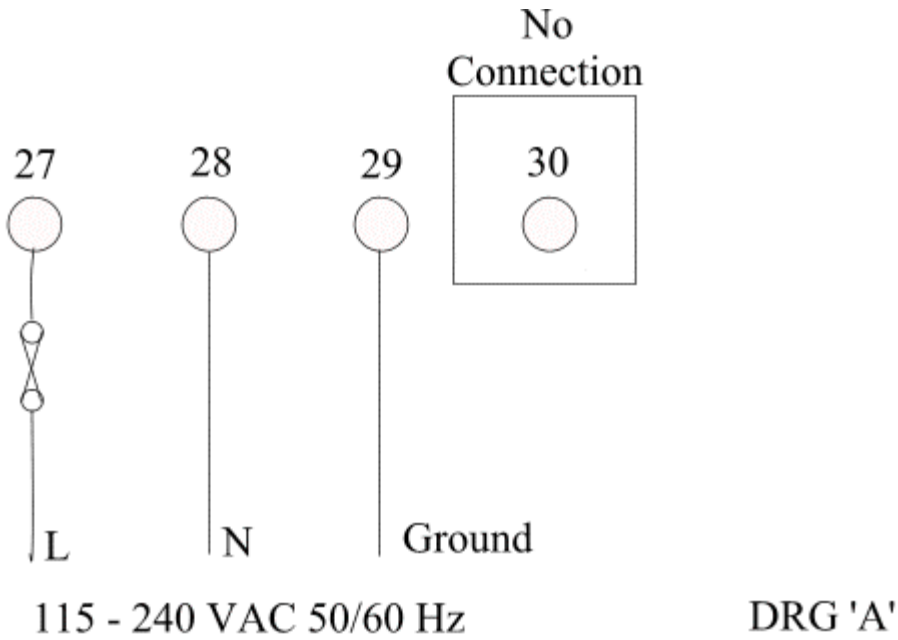
www.go4b.com

US: +01 309 698 5611

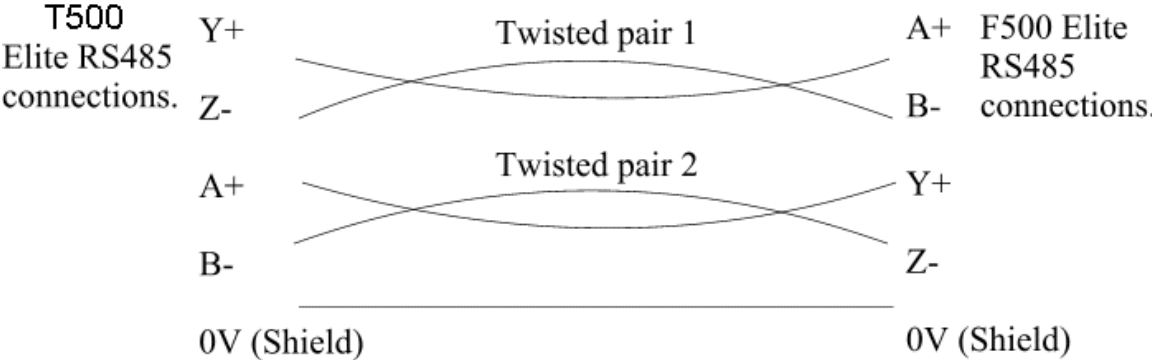
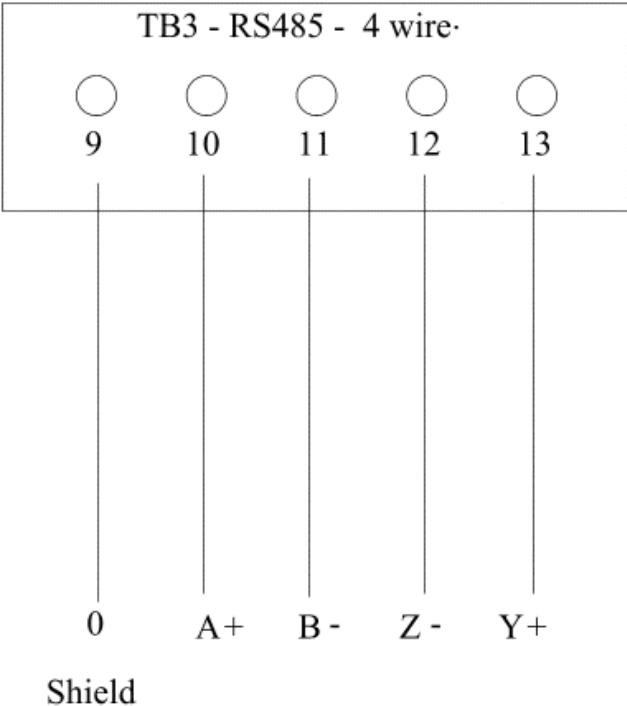
UK: +44 (0)113 246 1800

F: +33 (0)3 22 42 32 36

D: +49 (0)700 224 2491

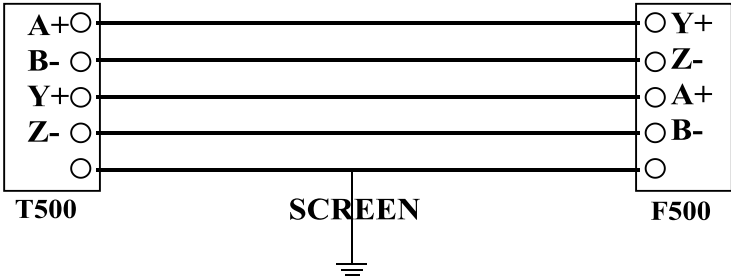


T500 Elite to F500 Elite Connection Diagram

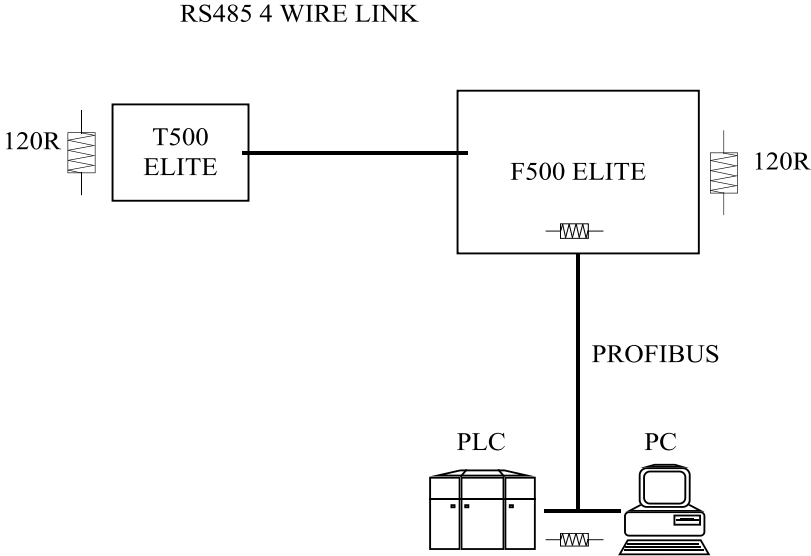


DRG 'C'

General connection detail for the T500 Elite to F500 Elite



Connect 120 R 1/2 watt resistors between A+ and B- and between Y+ and Z- at both the F500 elite end and at the T500 elite.



Drawing 'E' General Connection Detail.

APENDIX 'A' – Diagnostics

The F500 is equipped with some additional features to help in the diagnostics if correct operation cannot be achieved.

LED

Located on the main circuit board just above the RS485 connection to the T500 you will find an LED indicator (usually RED). This indicator can be used to determine the operating status of the F500.

At power up, the led may flash once briefly.

After power up, the F500 has to test, and then initialize the Profibus interface. The led will flash three times in quick succession to indicate the start of this process. The led will light and remain ON if the initialization is successful. If the initialization process fails then the initialization cycle will begin again and repeat until the initialization is complete.

Once the initialization cycle is complete then the led remains ON, indicating that the F500 is trying to establish communications with the T500 network. This process can take up to 20 seconds depending upon the number of nodes connected to the T500.

If the T500 initialization is successful then the led will turn OFF and remain off.

If the T500 initialization fails, then the led will flash in the following cycle.

1 flash followed by a pause:

Indicates that the F500 has failed to find a T500. This could be a connection fault or the T500 has the unit address set to '0'.

2 flashes followed by a pause:

Indicates that the data size for use by the F500 is incorrect (contact technical support).

3 flashes followed by a pause:

Indicates that the T500 found is incorrectly configured for use with this Fieldbus interface. See the T500 manual and make sure that you have set the fieldbus setting on the T500 correctly.

The flash sequence will repeat indefinitely or until the F500 is reset.

The F500 is equipped with an RS232 serial interface. This interface is used to allow downloads of new versions of the F500 software. It is also used to provide some diagnostics information during operation.

The serial data is formatted to work with a VT100 series terminal. This can be a dedicated terminal or a PC running VT100 emulation software. Most PC's are supplied with Hyper Terminal which can be set to work as a VT100 terminal (see the Microsoft website for how to configure and use Hyper Terminal)

The serial data is fixed at 19200 Baud, 8 data bits, 1 stop bit and no parity. The 9 way DEE connector expects a standard serial communications lead. If your PC is not equipped with a serial port, then we recommend that you purchase a USB to Serial adapter, following the manufacturer's instruction to install.

The information available from the F500 is as follows.

Power Up Reset....Wait	[After power up reset]
Initialising – XX seconds remain	[Time to initialize the fieldbus]
F500 Elite Communications Gateway	[Device identifier]
Elite Software Version - 1.2.3	[Current F500 software version]
CBU Version = 1.2.3	[Information about the fieldbus interface]
API Version = 1.2.3	
FBI Version = 1.2.3	
ABI Version = 1.2.3	
FieldBus Type = Profibus-DP	
S2468E	[Initialization code]
T500-1 Detected	[Found T500 unit 1]
Type = Profibus	[Configured to work with Profibus]
Block(s) = 2	[Configured to work with 2 blocks of data]
Good Configuration detected...	[The configuration is good]
T51	[T500-1]
Poll:000 Node 1=000:000:000:000:000	[Activity counter for the T500 (Poll = 000)] [and the five bytes of data for node 1]

Other messages that might appear according to fault conditions detected.

Displayed when there is a configuration error in a T500

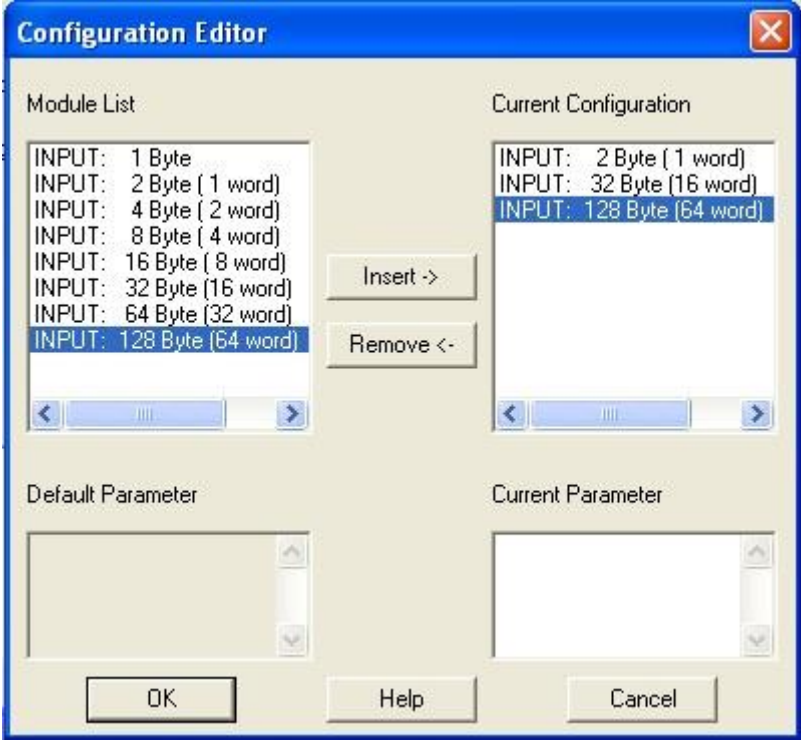
T500-1 Detected
 Type = DeviceNet
 Block(s) = 0
 System HALTED.. DeviceNet configuration detected..

Displayed when NO T500 units can be found

System HALTED.. No T500's Detected...

APPENDIX ‘B’ – Master/Slave configuration.

The GSD file for the F500 Profibus can be downloaded from the [4B website](#). The F500 does not require the use of the GSD file in order to operate correctly and this is only provided as a courtesy to the user. If you monitor 32 nodes the interface will require a minimum of 162 bytes of data storage in the Profibus interface. Below is a typical setup for 162 bytes.



2 Bytes + 32 bytes + 128 Bytes = 162 bytes Total.

Other combinations may be used as long as the assigned INPUT is 162 bytes or greater.

;=====
; Profibus Device Database of HMS Industrial Networks.

```

; Model : ANYBUS-S PDP
; Description : ANYBUS-S Profibus DP slave
; Language : English
; Date : 12 March 2004
; Author : HMS Industrial Networks AB
;
;=====
#Profibus_DP

; Device identification
Vendor_Name      = "HMS Industrial Networks AB"
Model_Name       = "ANYBUS-S PDP"
Revision         = "Version 1.5"
Ident_Number     = 0x1003
Protocol_Ident   = 0          ; DP protocol
Station_Type     = 0          ; Slave device
FMS_supp        = 0          ; FMS not supported
Hardware_Release = "Version 1.6"
Software_Release = "Version 1.2"

; Supported baudrates
9.6_supp        = 1
19.2_supp       = 1
45.45_supp      = 1
93.75_supp      = 1
187.5_supp      = 1
500_supp        = 1
1.5M_supp       = 1
3M_supp         = 1
6M_supp         = 1
12M_supp        = 1

; Maximum responder time for supported baud rates
MaxTsd_r_9.6    = 15
MaxTsd_r_19.2   = 15
MaxTsd_r_45.45  = 15
MaxTsd_r_93.75  = 15
MaxTsd_r_187.5  = 15
MaxTsd_r_500    = 15
MaxTsd_r_1.5M   = 25
MaxTsd_r_3M     = 50
MaxTsd_r_6M     = 100
MaxTsd_r_12M    = 200

; Supported hardware features
Redundancy      = 0          ; not supported
Repeater_Ctrl_Sig = 2        ; TTL
24V_Pins        = 0          ; not connected
Implementation_Type = "SPC3"

; Supported DP features
Freeze_Mode_supp = 1          ; supported
Sync_Mode_supp   = 1          ; supported
Auto_Baud_supp   = 1          ; supported
Set_Slave_Add_supp = 0        ; not supported

; Maximum polling frequency
Min_Slave_Intervall = 1        ; 100 us

; Maximum supported sizes
Modular_Station    = 1          ; modular
Max_Module         = 24
Max_Input_Len      = 244
Max_Output_Len     = 244
Max_Data_Len       = 416
Modul_Offset       = 1

Fail_Safe          = 0          ; Slave does not accept data frames with zero data length in state CLEAR.

```

```

Slave_Family          = 0
Max_Diag_Data_Len = 6

; Definition of modules
Module = "IN/OUT: 1 Byte" 0x30
EndModule
;
Module = "IN/OUT: 2 Byte ( 1 word)" 0x70
EndModule
;
Module = "IN/OUT: 4 Byte ( 2 word)" 0x71
EndModule
;
Module = "IN/OUT: 8 Byte ( 4 word)" 0x73
EndModule
;
Module = "IN/OUT: 16 Byte ( 8 word)" 0x77
EndModule
;
Module = "IN/OUT: 32 Byte (16 word)" 0x7F
EndModule
;
Module = "IN/OUT: 64 Byte (32 word)" 0xC0,0x5F,0x5F
EndModule
;
Module = "IN/OUT: 128 Byte (64 word)" 0xC0,0x7F,0x7F
EndModule
;
Module = "INPUT: 1 Byte" 0x10
EndModule
;
Module = "INPUT: 2 Byte ( 1 word)" 0x50
EndModule
;
Module = "INPUT: 4 Byte ( 2 word)" 0x51
EndModule
;
Module = "INPUT: 8 Byte ( 4 word)" 0x53
EndModule
;
Module = "INPUT: 16 Byte ( 8 word)" 0x57
EndModule
;
Module = "INPUT: 32 Byte (16 word)" 0x5F
EndModule
;
Module = "INPUT: 64 Byte (32 word)" 0x40,0x5F
EndModule
;
Module = "INPUT: 128 Byte (64 word)" 0x40,0x7F
EndModule
;
Module = "OUTPUT: 1 Byte" 0x20
EndModule
;
Module = "OUTPUT: 2 Byte ( 1 word)" 0x60
EndModule
;
Module = "OUTPUT: 4 Byte ( 2 word)" 0x61
EndModule
;
Module = "OUTPUT: 8 Byte ( 4 word)" 0x63
EndModule
;
Module = "OUTPUT: 16 Byte ( 8 word)" 0x67
EndModule
;

```

```
Module = "OUTPUT: 32 Byte (16 word)" 0x6F
EndModule
;
Module = "OUTPUT: 64 Byte (32 word)" 0x80,0x5F
EndModule
;
Module = "OUTPUT: 128 Byte (64 word)" 0x80,0x7F
EndModule
```

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Revision History

Document Revision	Date revised	Revisions made
Rev 0	July, 2014	Creation of CAI manual (using F500 HB PGW CSA Rev6 as the template)
Rev 1	21 July 2015	Added Node Type, Alarm Bits and Firmware Version into data table Added SN2 Decoding support Manual tidy up and improvements