



Application Note for Using the Operator Station HE500TIU050/10X/11X/20X with an OCS100/200/250/Mini

Protocol File Name

HE500TIU050 = CsCAN_R?.0xx
 HE500TIU1xx = CsCAN_R?.1xx
 HE500TIU2xx = CsCAN_R?.2xx
 (The “?” = the TIU firmware revision)

Configuring the Operator Station

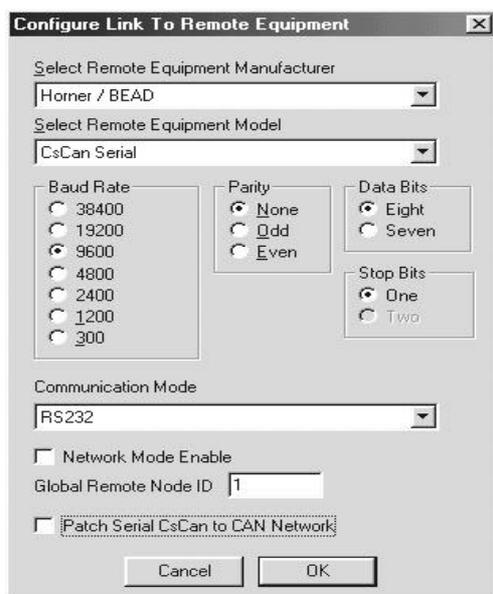
To verify the Automated Equipment type the Operator Station is setup for, watch the screen of the Operator Station on power up. The first screen message details the setup of the Operator Station. To configure the Operator Station for particular Automated Equipment, select the Automated Equipment in the Communication Settings from the Configure menu in **CBREEZE** software. Select the appropriate Manufacturer and the appropriate Remote Equipment Model. Then from the File menu select Update Protocol, the appropriate file name will appear in the file name field. The programmer may need to point to the correct folder name/location. If further information is required see the manual or **CBREEZE** help on update/change protocol.

Protocol Revisions

Version 1.00 Supports master only operation to the slave OCS.

Serial Port Format

Communication to the Automation Equipment (AE) is via the PLC Port on the TIU terminal. The connection is RS 232 Half Duplex. The default communication settings are 9600 baud, eight data bits, no parity and one stop bit with no handshaking.



If using a TIU101, TIU111 or TIU201 Operator Station there is an additional option available. This option “Patch Serial CsCAN to CAN Network” allows the communications to be rerouted via the CAN interface rather than using the RS232 PLC port on the TIU and the PC Port on the OCS. The result is that all register types are available directly over the CsCAN network rather than through the slave OCS.

NodeAddress.

- If used on a 1 to 1 connection to an OCS, the address is set to the same as that of the connected OCS. If not known, this value can be seen from the OCS SYSTEM menu.
- If a Network of OCS devices is present, the Network Mode will need to be enabled within the Operator Station and the OCS device address of each embedded data field will need to be entered as part of the embedded data configuration..

The Operator Station should now be capable of communication with the AE.

Testing Communications

A “Comms Page Wizard” can be used to quickly establish whether or not communication is working.

Do “Configure / Page Wizard / Comms Stats” and accept the warning screen.

Add a little text similar to the example shown and double-click on the screen to embed a data register e.g. Function Key 1. Select an address from within the range. Download this to the TIU using “File / Download”.

The Total Counter should be incrementing, as should the Good counter. If Bad or None are occurring then some fault finding will need to be done. Main reasons for this are cables and / or mismatched comms Parameters



OCS REGISTER RANGES

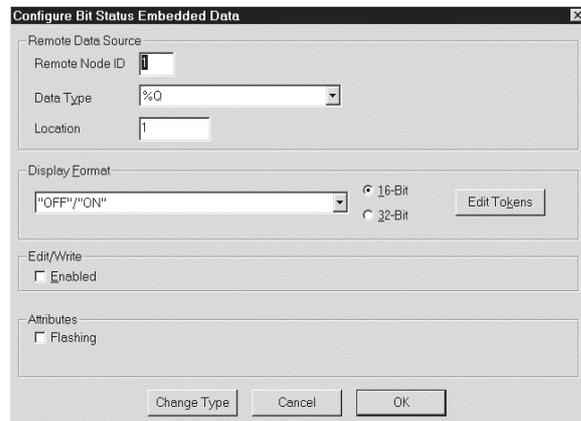
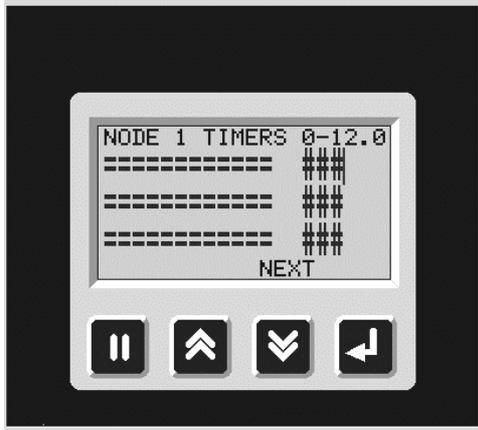
REGISTER TYPE	Register Name	Range	Data Type
Analogue I/P	%AI	1-256	RO-16 bit Word
Global Analogue I/P	%AIG	1-16	RO-16 bit Word
Analogue O/P	%AQ	1-256	RO-16 bit Word
Global Analogue O/P	%AQG	1-16	RO-16 bit Word
Digital Inputs	%I	1-1024	RO-Bit or Word
Global Digital I/P	%IG	1-64	RO-Bit or Word
Timer Elapsed	%Rx	1-2048 Note 1	RO-16 bit Word
Timer Status	%Rx+1	1-2048 Note 1	RO-16 bit Word
Counter Elapsed	%Ry	1-2048 Note 1	RO- 16 bit Word
Counter Status	%Ry+1	1-2048 Note 1	RO-16 bit Word
Function Keys	%K	1-10 or 12	RW-16 bit Word
Retentive Coils	%M	1-2048	RW-Bit or Word
Output Coils	%Q	1-1024	RO-Bit or Word
Global O/P Coils	%QG	1-64	RO-Bit or Word
Data Registers	%R	1-2048 Note 1	RW-16 bit Word
Temporary Bit	%T	1-2048	RW-Bit or Word
System Registers	%SR	1-64	RO-bits

RW=Read/Write RO=Read Only.

Note 1- %R registers are shared with Counters, Timers & general data words. Also if %R registers have been formatted in special ways e.g. Real Numbers, the protocol has no way of knowing this. Therefore care must be taken to match data types to be compatible at both ends.

Addressing & Displaying Bit types

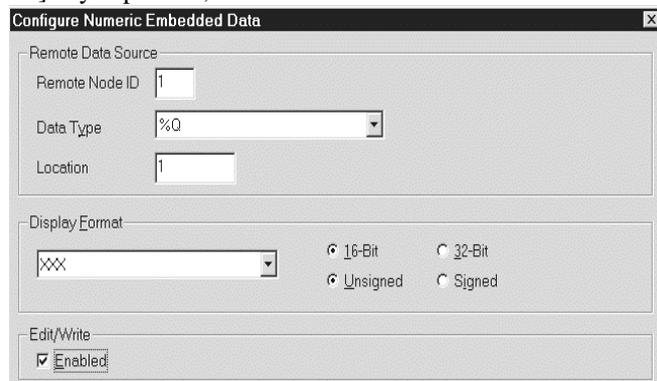
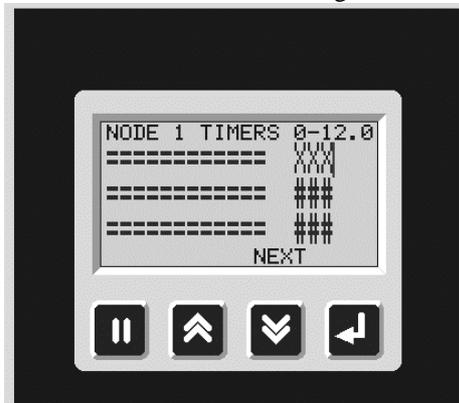
Bit types can be displayed use Bit Tokens by selecting the ON/OFF ICON. All addresses are decimal. The following is an example of how to add a bit type onto the screen of a TIU. If Network Mode is enabled, the Remote Node ID needs to be the address of the OCS to be viewed.



Addressing & Displaying Word types

With the TIU, Bit types can also be displayed as Word values. This is done, by “double clicking” on the screen, selecting a numeric type and then selecting the lowest address of the module. (Horizontal Fills, Text Tables etc. can also be used as a display type). Then, if 8 lowest address Digital Inputs were “ON” to a Smartstack module, the value would be displayed as 255.

The example below shows the difference when a bit type is changed to a numeric type with three digits to be displayed. Data can be passed to an OCS device if the “Edit field” has been enabled, the data will automatically be sent to the selected Node and Register when the [Enter] key is pressed,



Special Function Relays

These are read only 16 bit registers in the OCS that have various uses. E.g. SR_7 is “ALWAYS_ON”. Addressing is in decimal.

Writing to Control Registers

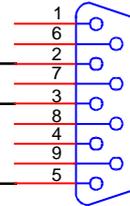
Writing to registers over the Network can be extremely dangerous and should only be done with extreme caution. E.g. it would be possible to write to an output (not necessarily in the OCS ladder) that could turn on a motor or solenoid or some other device that could initiate machine movement.

CONNECTING AN OPERATOR STATION An OCS100/200/250/Mini

TIU

+5V	1	—
TX 485/422+	2	—
TX 485/422-	3	—
RX 485/422+	4	—
RX 485/422-	5	—
TX RS232	6	—
0V(GND)	7	—
RX RS232	8	—
TX 4-20mA +	9	—
TX 4-20mA-	10	—
RX 4-20mA+	11	—
RX 4-20mA-	12	—
EARTH	13	—

**9 Pin Male
D type (Rear)**

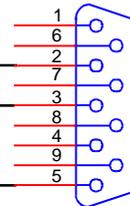


TIU 100/110

TIU

TX 485/422+	1	—
TX 485/422-	2	—
RX 485/422+	3	—
RX 485/422-	4	—
TX RS232	5	—
0V(GND)	6	—
RX RS232	7	—
SHIELD	8	—

**9 Pin Male
D type (Rear)**



TIU 50/101/102/111/112/20X