PORTABLE TEST EQUIPMENT (PTE) SOFTWARE AND DATA LOGGING SYSTEMS

FOR INTELLIGENT MONITORING AND DIAGNOSTICS OF RAIL POWER CONVERSION SYSTEMS

Legacy power conversion systems (such as Auxiliary Power Supplies and Battery Charging equipment) were designed without any intelligence to record and monitor faults. If a fault occurs in the power conversion system one of the first steps is to isolate and remove the unit for inspection at the depot or at the supplier facility. This is a very time consuming and costly process. To reduce fault finding times TPS can incorporate diagnostic features into legacy power conversion systems to record and monitor faults. The latest cutting edge power conversion systems designed by TPS already incorporate monitoring in their controller or via a dedicated monitor card, and customers can use a laptop with our proprietary PTE software to interrogate the unit for fault finding and diagnostics. Where possible TPS can incorporate the above features into legacy power conversion systems as well with the addition of a data logger card.

PTE is a diagnostic tool for investigating the running parameters and the fault history on the range of products designed and built by TPS. It has been designed so that it may be configured to meet the requirements of all legacy products as well as current designs. The application is installed on a standard laptop computer running any version of Windows (XP onwards) and connects to the control/monitor card of the product or data logger card via a USB, RS232, CANbus, Bluetooth and Ethernet communications link. When connected to a product, the PTE can be used to perform the following:

- View the current real time analogue and digital parameters and if required, continuously record this information to disk at periodic intervals. These saved files may then be transferred to other locations, via email or otherwise, and can be viewed and analysed by anyone with access to the PTE application software.
- Download, view and save any fault logs stored on the control/monitor card or data logger. Each fault log consists of a record of all analogue and digital IO values for approximately 3 seconds before the fault log trigger and 2 seconds after. The fault logs triggers may be configured to use any of the digital status values. The data logger card can store up to 100 fault logs (less on older systems) recorded on a first in, first out basis.
- Download, view and save the event log stored on the control/monitor or data logger card. Whenever a pre-defined event occurs the card will store information associated with this event in a 1000 entry rolling buffer. The event description, code and a time/date stamp is recorded for each event.
- Keep track of the number of occurrences of each defined event (called the event count). Where this is supported, the PTE can download these event counts which can be viewed and saved to disk.
- Download, view and save the minute, hour and day logs stored on the control/monitor card or data logger card.

In addition to the features defined above, the PTE can be used in carrying out routine maintenance and can be used to format the fault and event log memory, resynchronize the real time clock and configure any serial numbers associated with the unit.

Key features/benefits for PTE:

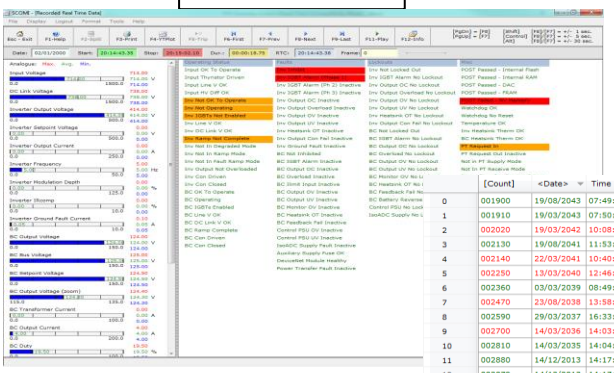
- ✓ Cuts down on fault finding times
- ✓ Live view of operational data
- ✓ Historical fault and event logging
- ✓ Easy connection to any standard PC
- ✓ Configurable to meet the requirements of all legacy products and current designs
- ✓ Helps debug faults
- ✓ Data can be shared with TPS to help fault findings
- ✓ Records real time data for up to 24 hours

Key features/benefits for the data logger:

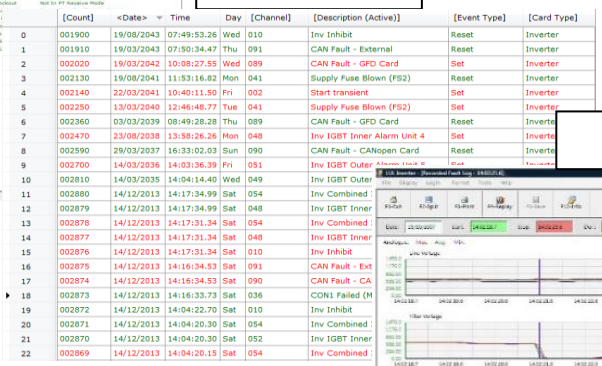
- ✓ Drastically cuts fault finding times
- ✓ Reduce no-fault-founds
- ✓ Record up to 100 fault logs
- ✓ Record up to 1000 event logs
- ✓ Debug the full system
- ✓ Cost-saving solution
- ✓ Can help trace intermittent faults
- ✓ Small and light weight
- ✓ Data logger can be fitted to existing product using original connectors so no modification to the wiring harness is required

Sample screens

Real Time Data



Historical Data



	[Count]	<Date>	Time	Day	[Channel]	[Description (Active)]	[Event Type]	[Card Type]
0	001900	19/08/2043	07:49:53.26	Wed	010	Inv Inhibit	Reset	Inverter
1	001910	19/03/2043	07:50:34.47	Thu	091	CAN Fault - External	Reset	Inverter
2	002020	19/03/2042	10:08:27.55	Wed	089	CAN Fault - GFD Card	Set	Inverter
3	002130	19/08/2041	11:53:16.82	Mon	041	Supply Fuse Blown (FS2)	Reset	Inverter
4	002140	22/03/2041	10:40:11.50	Fri	002	Start transient	Set	Inverter
5	002250	13/03/2040	12:46:48.77	Tue	041	Supply Fuse Blown (FS2)	Set	Inverter
6	002360	03/03/2039	08:49:28.28	Thu	089	CAN Fault - GFD Card	Reset	Inverter
7	002470	23/08/2038	13:58:26.26	Mon	048	Inv IGBT Inner Alarm Unit 4	Set	Inverter
8	002590	29/03/2037	16:33:02.03	Sun	090	CAN Fault - CANopen Card	Reset	Inverter
9	002700	14/03/2036	14:03:36.39	Fri	051	Inv IGBT Outer Alarm Unit 8	Set	Inverter
10	002810	14/03/2035	14:04:14.40	Wed	049	Inv IGBT Outer		
11	002880	14/12/2013	14:17:34.99	Sat	054	Inv Combined		
12	002879	14/12/2013	14:17:34.99	Sat	048	Inv IGBT Inner		
13	002878	14/12/2013	14:17:31.34	Sat	054	Inv Combined		
14	002877	14/12/2013	14:17:31.34	Sat	048	Inv IGBT Inner		
15	002876	14/12/2013	14:17:31.34	Sat	010	Inv Inhibit		
16	002875	14/12/2013	14:16:34.53	Sat	091	CAN Fault - Ext		
17	002874	14/12/2013	14:16:34.53	Sat	090	CAN Fault - CA		
18	002873	14/12/2013	14:16:33.73	Sat	036	CON1 Failed (M		
19	002872	14/12/2013	14:04:22.70	Sat	010	Inv Inhibit		
20	002871	14/12/2013	14:04:20.30	Sat	054	Inv Combined		
21	002870	14/12/2013	14:04:20.30	Sat	052	Inv IGBT Inner		
22	002869	14/12/2013	14:04:20.15	Sat	054	Inv Combined		

Event Logs

TPS Scope

TPS have installed intelligent systems using PTE software in fleets that are successfully running worldwide. Some of our high profile customers include Virgin, Alstom, Arriva, Chiltern and more. Asides from supplying PTE we can provide a complete set of turn-key support services including design, manufacturing, installation and through-life support of products. Further information can be found in a detailed manual, available to download upon request.

With over 40 years rail pedigree, a team of highly skilled engineers and technicians and a track record in creating world-class power electronics products, why go anywhere else for your auxiliary power supply?

We will be happy to discuss your project or enquiries, please contact our marketing department at marketing@turbopowersystems.com to get in touch or call us on +44 (0) 191 482 9288/9251/9278.

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