The Software

Birdie - FTR is supplied complete with PC software and serial interface lead so that:.....

- the Birdie can be driven direct from the PC, with the records logged straight to screen and disk.
- records already acquired by the Birdie-FTR can be uploaded for display and post-processing.

Post processing facilities include descriptive labels for each input, total time ON, percentage time ON, number of transitions and a breakdown into an 'hour-of-day' analysis.

All the standard Windows functions such as printouts, archiving and export to other applications are supported.

The Specification

Number of inputs:	2 sets of 8 + common (16 total)
Max voltage:	265v rms w.r.t common. ±250v dc
Input current:	3mA max.
Connections:	Terminal block, 2.5mm cable capacity
Input identification:	Indent labels included
Threshold (Hi/Lo)	Lo: 6v, Hi: 10v
Event resolution:	4msec.
Minimum pulse width:	12msec (Debounce off)
Debounce periods	100ms, 500ms, 1sec.
No. of events stored (max):	32,768 events
Recording time: ext. power:	unlimited
Int. battery (backlight off):	approx 1200 hrs (50 days)
Input and replay indication:	Individual input LEDs and LCD display Screen
Display:	LCD with backlight
Display modes:	Setup screen(to set control parameters) Monitor screen (to check inputs prior to logging) Logging screen (recording mode) Replay screen (time based and event based)
Control settings:	Reset date/time Backlight Memory mode, auto stop or wraproundDebounce, 100ms, 500ms, 1sec. Replay timebase, (per pixel): 1, 10, 30secs, 1, 10, 30min, 1, 6, 12 hours 1, 10, 30 days
Software	PC software which can download data from Birdie, and provides control and results display in real time
Computer interface:	RS232 serial port
Computer software:	Windows compatible (Win 98 and later) Screen resolution: 800 x 600 min.
Key functions:	Upload data from FTR Control FTR for local logging Record data to disk Display data on screen Print to standard printers Set search mask and seek Add input legends and notes Convert to text file format for export to spreadsheets Statistical analysis of data. Includes summary information and time-of-day analysis

Power:	External:	3.6v dc from supplied mains power adapter Input: 240v, 50/60Hz.
	Internal:	2 x D cells (Heavy duty alkaline Shipped with FTR). Provides approx 50 days continuous operation without external power (backlight off).
Physical:	Size:	60 x 164 x 250mm (excluding padded sleeve)
	Weight:	0.9kg
	Case:	Polycarbonate, self colour yellow, V0 fire rated.
Environmental:		
	Temperature:	0°C - 40°C (operating) 95%RH -20°C - 50° (Storage) 95%RH
	Shock:	1m drop onto concrete.
Safety:	Electrical:	Double insulated Interlocked access covers
Protection	Electrical:	All inputs fused. Transient protected 5.3kV isolation from control circuits.
	Physical:	IP41 Protective padded sleeve included with unit.
Included:		
	Model FTR-100/S	Birdie FTR Qty 2 D size batteries User guide Protective padded sleeve Mains adapter Qty 25 spare input ident labels
	Model FTR-100/P	As above plus... Windows software (3.5" disk) RS232 cable
Compliance/approvals:		Installation class III (240/415v) LVD (IEC61010) EMC (EN50081-2,EN50082-2)

Complicated Electrical Systems - SORTED!

Available from:

Distributed by:
Reliant EMC LLC
3311 Lewis Ave
Signal Hill CA 90755
408-916-5750
www.reliantemc.com

LAPLACE INSTRUMENTS LTD

BIRDIE - FTR FaultTracker

The only tool specifically designed to locate faults on complex electrical systems... even intermittent faults!

Model FTR-100

Complicated Electrical Systems - SORTED!

Birdie-FTR provides the ability to monitor up to 16 channels simultaneously with clear visual indication of on/off status.

It will record exactly what happened, when and in what order, so that faults can be traced quickly and easily.

Can make huge savings in time and avoid unnecessary 'swap-outs'.

It has a recording mode that permits unattended operation ... ideal for intermittent faults.

Recommended for compliance with the EAW Regs, clause 14. Signals can be monitored from outside control cubicles. No need to work with the doors open.

Any input from 12v dc to 240/415v ac can be connected.

Nothing to adjust or configure. Just connect up and go.

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The Birdie-FTR is a very simple device

it just records and displays all the changes that occur on its inputs...
...how simple can you get!

Simple concept, Smart implementation…

- **Has 16 inputs**
- **Does not care what the input is (anything from 12v dc to 240v ac)**
- **Displays the on/off status of each input on bright LED indicators**
- **Records precise time and date of each and every change on the inputs**
- **Is designed for the rough and tumble of the real world**
- **Report data can easily be exported into a standard spreadsheet for indepth analysis**
- **Allows playback of the record in convenient display format for evaluation**
- **Can be connected to a PC for more detailed examination of any results**
- **Is very easy to use**
- **Is self contained and needs no external power**

"Can be left on-site for extended periods to monitor a suspect activity or intermittent faults."

In addition…

- **All inputs fused for safety**
- **Fully compliant with LVD directive**
- **Robust construction, polycarbonate case**
- **Can be padlocked when left on-site**
- **Internal battery ... keeps running when power is lost**
- **Retains data in memory even when switched off**
- **Includes input identification labels**
- **4mm screw terminal block with wire protection leaves**

TYPICAL APPLICATIONS

BUILDINGS
- Heating & Ventilation systems
- Emergency power systems
- Lifts & Escalators
- Alarms
- Lighting
- Security

AUTOMOTIVE
- Servicing depots
- R & D

INDUSTRY
- Production machinery
- Process control
- Power systems
- Boiler rooms

TRANSPORT
- HGV's
- Railway vehicles
- Signalling
- Shipping
- Traffic control systems

SCIENCE
- Experimentation
- R & D
- Data logging/event logging
- Activity monitoring

TYPICAL EXPERIENCES

The Heating System

The central heating system failed to start at 4.00am this morning - again! When tested, everything seems to work fine, but the office staff are becoming really peeved at having to work wearing coats and gloves to keep warm for the first 3 hours each morning.
The problem is that it only goes wrong during the night, and then only once or twice a week. Either we stay up all night, possibly for several nights or..... we use the Birdie-FTR. Connect all the control signals, contactor signals, motor and pump power feeds to the FTR, switch on and leave in logging mode.
3 days later, the fault happened again. Retrieve the FTR and replay the results. All three days operation are available to look at. Find the events that were logged around 4.00 that morning and.... The signal from the auxiliary contacts on the pump contactor is missing! This prevents the main burner circuit starting, hence no heat. Obviously, the auxiliary contacts have become intermittent and the contactor needs to be replaced... problem solved.
This single incident would certainly have more than paid for the cost of the FTR.

The Jigsaw PROBLEM

Our automatic valve assembly machine is a complex beast with 4 stations, multiple heads and several sensors. Occasionally, generally twice a month, it gets out-of-step and starts to misplace vent seals. The many control and sensor signals are all switching away at such a rate that is impossible to clearly see what is happening, especially as timing and sequencing is all important. Stepping the machine in slow sequence did not show any problem.
Using a conventional data logger was not an option because the signals varied from 12v dc to 240v ac and included 24v ac and dc, plus 110v ac. One of the advantages of the FTR is that it will accept this full range of voltages on any input, without any configuration hassles. Connecting the FTR and allowing the machine to run at normal speed until the fault occurred enabled the exact sequence of events that led up to the problem to be studied in detail. In particular, the order in which signals changed could be analysed, one step at a time. This showed that a momentary pulse from a proximity sensor was initiating an operation before its proper time. This occurred only when the machine was running at its normal speed due to centrifugal forces acting on a cantilevered mounting plate. Checking the operation of the sensor showed that its threshold adjustment had slipped. This gave an occasional false pulse only when the machine was running at full speed. Two minutes work with a trimmer and all was well.
Each time the fault occurred, typically some 30 units would have to be manually reworked, at a cost of about £13 each. The FTR repaid itself by saving just two occurrences of this problem!

Safety First

The captain of a rig support vessel reported that he had experienced momentary rogue operation of a rear thruster unit. These are used when manoeuvring in dock or in close proximity to a gas rig. Inadvertent operation could have very serious and potentially disastrous consequences. Initial thoughts were that the problem must lie with the thruster control rack, down at the rear of the engine room. An FTR was connected so that the control signals to the thruster control rack and the power feeds to the thruster were monitored. After 3 weeks another 'glitch' was reported. The FTR records were studied for the period when the fault occurred and it was seen that the problem was not with the thrusters or the local control rack, but in the signals coming down from the bridge.
Subsequent investigations showed that interference from one of the radio transmitters on the bridge and poor ground bonding had caused the false signals to be generated.

Remote Crossings

Our railways now have many 1,000s of unmanned level crossings which use automatic barriers to protect the track when a train approaches. The control systems are designed for maximum reliability and fail safe operation (for obvious reasons). As with all control systems, they are dependant on the correct operation of sensors and other external control signals. One particular crossing failed to open after a train had passed on several occasions, causing considerable delay and frustration to the road traffic. The fault was intermittent and by the time an electrician had arrived on site, the crossing was working correctly. The control unit was replaced on two occasions, but the problem persisted. An FTR was installed to monitor the various inputs and outputs and after 11 days, the problem occurred again. Studying the records showed that all the control system were working properly, and the problem must be associated with the lifting motor. This was exchanged and the problem was cured. Subsequent investigation showed that an intermittent poor connection was present on one of the field windings. The vibration of a second passing train would be enough to restore the connection, clearing the fault before it could be investigated.

BIG Brother

Staff at a high security establishment wanted to run a monitoring programme to record the number of times doors were opened/shut over an extended time period. Statistical information related to the door opening sequence was also required. The doors, of which there were 27, were controlled and monitored from a central office and it was therefore a simple matter to install two FTRs to cover the whole requirement. Every week, the data was downloaded to a PC and, using the FTR software, converted to a text file for export to a standard spreadsheet (Excel). It was then a simple matter to build the required analysis functions in the spreadsheet to provide the desired information.

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