

# 1. INTRODUCTION

## *The VBT-321*

VMETRO's Advanced VMEbus tracer, the VBT-321, is a full featured logic state analyzer targeted at VMEbus real-time program development, performance analysis, maintenance as well as hardware debugging and verification.

## *Self contained*

The VBT-321 is a self contained unit, with its own processor and firmware, operated from a standard ASCII terminal; on-site, over a local network or remotely via modem. It is a passive module, in the sense that no signals are driven on the VMEbus by the tracer.

The VMEbus is sampled, and if the collected data matches one (or a combination) of the user-defined qualifiers, the sample is stored in the 2k deep trace memory or one of several HW-counters is incremented for statistical purposes.

Time-tag resolution of 40ns (25 MHz) allows for accurate performance measurements as well as verification of hardware specifications.

## *Other features*

- Four level trigger/qualifier events covering all dynamic VMEbus signals.
- Powerful search/select functions on any combination of data buffered in the 2k trace memory.
- Cycle characteristics like transfer data size, cycle status and address modifiers decoded into easy-readable english.
- Real-time statistics of event counts, bus- and interrupt- level activity are presented on-line as histograms.
- Two RS-232C serial ports and a *transparent mode* allows convenient on-site or remote operation of both the VBT-321 and the host processor from the same terminal.
- 25MHz asynchronous sampling for better resolution of timing measurements.
- 16MHz synchronous sampling captures all traffic in even the fastest VMEbus systems.

- External signal Input and Trigger Output on BNC-connectors on the front panel.
- Provisions for piggyback modules for future VME and VSB enhancements. The following piggybacks may be installed:
  - VBAT/PB-321, VMEbus Anomaly Trigger.
  - VSB/PB-321 VSBbus tracer.
  - VP2/PB-321 with VSBbus Personality Module.
  - TIM-100/PB-321, 100 MHz timing analyzer.
  - XMEM/PB-321, 64 or 256K extra trace memory.

**VBT-321**  
**VBT-321B**



A new, improved, version of the VBT-321, called *VBT-321B* has recently been introduced. The main [visible] difference between them is that the VBT-321B has 9-pin D-type connectors where the VBT-321 uses 25-pin on the RS-232 ports. Differences in operation and use is explained as separate sections for the two versions. Look for VBT-321 or VBT-321B in the note margin.

**VBT-321A**

The VBT-321A is similar to the VBT-321B, but has a some limitations in the firmware; It lacks support for piggybacks and a few other features. Look for VBT-321A in the note margin. The VBT-321A may easily upgraded to the full fledged VBT-321B.