

### Traminator /ESL CAN



- Frames and CAN bus disturbance tool
- CAN high speed (ISO 11898) + CAN Low speed
- CAN standard or extended (11 or 29 bits coded identifiers)
- Configuration with a CAN bus, independently to the disturbed bus
- 3 modes : scenario mode, on line mode, logical Input/Output mode
- Mode selection with switches
- 4 downloaded scenarios
- scenario selection with switches
- Control/configuration CAN Bus : High speed, Id standard
- Application CAN Bus : High speed or Low speed
- 4 logical inputs and 4 logical outputs
- 1 trigger output.
- Supply of the tested module driven by the TRAMINATOR
- Analyse of the collisions on the bus

Tool for development and validation of CAN modules, it allows to generate errors on CAN standard or extended frames (11 bits or 29 bits identifiers) or to disturb a CAN bus.

The Traminator works on a list of baudrates containing the main CAN High speed and Low speed baudrates (see Technical Features). These baudrates are configurable by Switches.

- The Traminator performs disturbances by :
    - opening CAN High and CAN Low lines (bus isolation),
    - grounding CAN High and CAN Low lines (locking),
    - sending an error frame (transmission of 6 dominant bits).
  - The Traminator realizes the following disturbances :
    - Open lines during the acknowledge field (bus isolation during 2 bits).
    - Open lines during the acknowledge field and the induced error frame (bus isolation during 9 bits).
    - Ground connection during the acknowledge field (locking during 2 bits).
    - Destruction of a CAN frame by the transmission of an error frame (6 dominant bits).
- These disturbances allow to control the transition into passive error or into Bus off mode of the tested module.
- The Traminator configuration is made by a second CAN link (CAN configuration bus), which is different from the disturbed CAN bus. The configuration commands allow to define the type of the disturbances, the value and the mask of the identifier, the value and the mask of the disturbed data, and the disturbance frequency (1/10 frames...).

The Traminator manages three different modes:

**The scenario mode** : disturbances are downloaded and memorised. The Traminator works autonomously. The selection of the disturbance from all downloaded disturbances is made by switches.

**The On line mode** : configuration commands on CAN link are immediately executed. The Traminator is driven on real time from a CAN tool (CANalyzer, CANpocket Analyzer,...). In this mode, supplementary commands allow to :

- stimulate the Traminator outputs,
- watch over the module appearance : the first frame sented from the ECU is reported,
- send CAN frames on the Application Bus.

**The ESL mode** (Logical Inputs Outputs) : the Traminator doesn't realize any disturbance : it acts on the Inputs/Outputs.

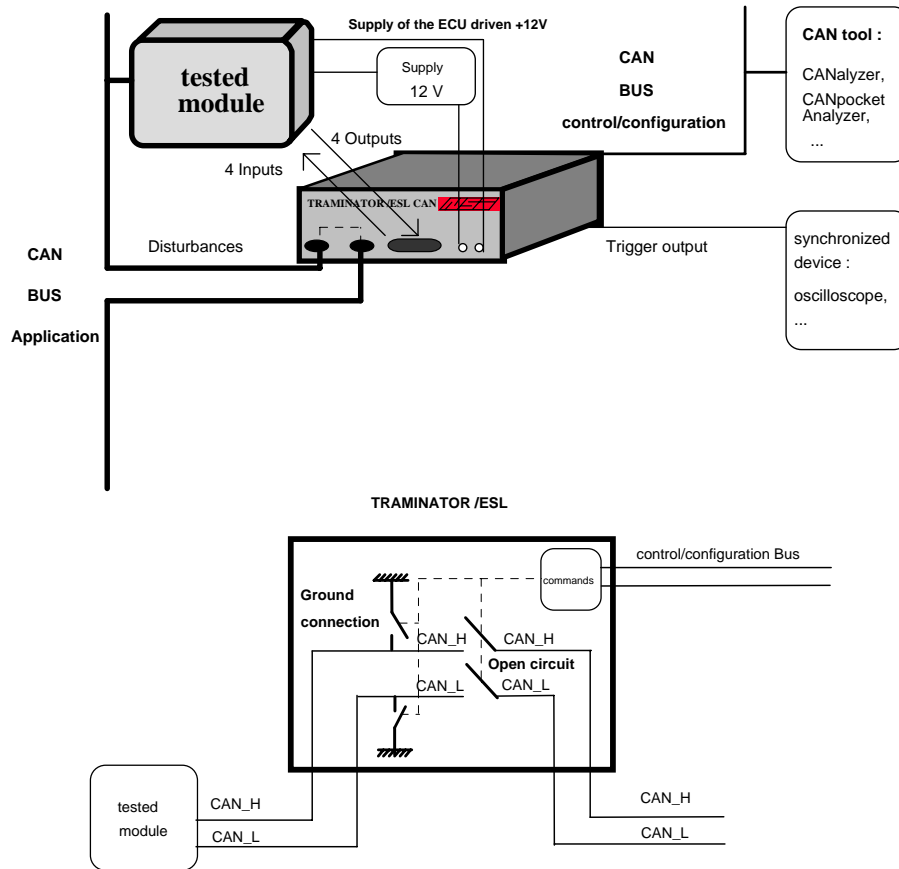
The traminator observes permanently the inputs. At the time of a change of state, it transmits the new informations to the Control Bus. When the Control Bus receives commands, it forces the corresponding outputs.

- In order to permit the synchronization with other devices, the Traminator generates a pulse to the Trigger output when it detects the frame dedicated to be disturbed (scenario and on line mode).
- One of the four Traminator outputs commands a smart power in order to drive the supply of the tested module (until 7 amps). This function allows to synchronize the power on of the module with the disturbances.

A function allows to analyse frame delay due to the bus charge (detection of collisions). This function supports only the following baudrates : 125, 250, 500 and 1000 kbits /s.

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## CONFIGURATION :



## TECHNICAL FEATURES :

<p><b>Presentation :</b> Plastic desk white box  <b>Size :</b> 133 x 129 x 50 mm  <b>Weight :</b> 300g  <b>Storage temperature :</b> -55° C to +85° C  <b>Operating temperature :</b> 0° C to 70° C  <b>Relative humidity :</b> 5% to 95% (non condensing)  <b>Consumption :</b> max 400mA  <b>Displays :</b> 4 LEDs  <b>Supply :</b> 12 Vdc (min. 6,5 V, max. 18 V)  <b>Smart power :</b> 26 VDC max . 7A  <b>Control/configuration bus connectors:</b> SUB D 9 male pins</p>	<p><b>Application bus connectors:</b>          - SUB D 9 male pins (application side)          - Screw connector (tested ECU side)  <b>Supply connectors:</b> screw connector  <b>Smart power connectors :</b> screw connector  <b>Control/configuration CAN Bus rate :</b> 500 kbits /s  <b>Application CAN Bus rate (disturbed Bus) :</b>          High speed : 1000 / 500 / 333,3 / 250 / 200 / 166,6 / 142 kbits /s          High speed and Low speed : 125 / 111,1 / 100 / 90,9 / 83,3 / 76,9 / 71,4 / 66,6 / 62,5 / 55,5 / 50 / 45,4 / 41,6 / 38,4 / 35,7 / 33,3 / 31,25 / 27,7 / 25 / 22,7 / 20,8 / 19,2 / 17,8 / 16,6 / 15,6 / 13,8 / 12,5 / 11,3 / 10,4 / 9,6 / 8,9 / 8,3 kbits /s</p>
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## ORDER REFERENCE :

Reference	Designation
KT000079	TRAMINATOR /ESL CAN High Speed standard format (identifiers 11 bits)
KT000080	TRAMINATOR /ESL CAN High Speed standard and extended format (identifiers 11 and 29 bits)
KT000081	TRAMINATOR /ESL CAN Low Speed standard format (identifiers 11 bits)
KT000082	TRAMINATOR /ESL CAN Low Speed standard and extended format (identifiers 11 and 29 bits)