

# Piggy-Back Products.

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Piggy-Back systems work with an existing ECU (Engine Control Unit) and therefore do not replace the vehicle's original ECU. Piggy-Back means just that - to "piggy back" or go on top of something else. Other words for piggy-back are "chipping" or "add-on".

# Perfect Power Products.

All products are manufactured by Digital Data Systems (Pty) Ltd in Johannesburg, South Africa. Digital Data Systems is a proudly South African company being the holding company for the Perfect Power brand of products and we have been in business since 1972. With German engineers at the helm, you can expect quality at an affordable price with innovative features.

Perfect Power specializes in the design and manufacture of fuel injection systems for every application from your everyday street car to your high-tech performance car.

All our products are made to the highest international standards with our advanced production facilities. We strive in making our products better and better each time. We do offer our spare production capacity out to our clients and we also offer custom made OEM products that suit our client's requirements and budgets. Please inquire at [info@ddsystems.co.za](mailto:info@ddsystems.co.za) with OEM in the subject for more information.

Brought to you by dds.

The logo features a large, stylized white letter 'P' on a red background. To the right of the 'P', the words 'Perfect' and 'Power' are stacked in a bold, italicized, white sans-serif font.

All our products are assembled by SMT (Surface Mount Technology) machine and then computer tested against a go / fail test procedure. Only once they pass all the tests, then only do they enter into the next phase. All products are then heat soaked for a period of 24 hours and then re-tested to make sure there are no component failures. This process ensures that the product you buy will last forever and give you years of service.

All Perfect Power products are powerful "real time" programmable fuel injection and ignition computer systems. High speed communication is achieved from USB communication. LetRipp II tuning software is used to manage the tuning, in real time, with all of our modern tuning units. The software was designed with tuners in mind and has many features to assist in the chip tuning process. All our products have extensive help documentation, application notes, FAQ and manuals that will answer almost every question you might have. Email [info@perfectpower.com](mailto:info@perfectpower.com) for support.

The Perfect Power range of products falls into three major categories: Stand Alone Systems and "Piggy Back" or Add-on Systems and "Accessories and Peripherals".

# Warranty.

Perfect Power unit(s) come with a 12 month warranty on the electronics, excluding the drivers, from shipment date. The warranty will fall away if:

- The unit(s) has / have been tampered with.
- The unit(s) has / have been abused, misused or incorrectly maintained.
- The unit(s) has / have been incorrectly installed.
- The unit(s) was / were not tested on receipt.

If the unit(s) was / were damaged in transit, then the dealer from whom the unit(s) was / were purchased, will replace it as soon as possible.

Please note that if the unit(s) has / have been working fine for a while and then fails, it could be because of one of the following:

- The unit(s) has / have been damaged in installation (not covered by warranty)
- One of the internal drivers has been destroyed (not covered by warranty)
- Malfunction of electronics (warranty claim)

The damaged unit(s) will need to be sent back to the factory, by your dealer, for inspection and a new unit(s) needs to be purchased to replace it. If the problem is a manufacturing fault, the cost of the unit(s) and shipping fees will be refunded. However, Perfect Power will not be held liable for the cost of removal, reinstallation, dyno time and mapping of the unit(s).

Perfect Power unit(s) need to be returned to your relevant dealer before any claims procedure can begin. PRS and SMT units CANNOT be repaired

## DISCLAIMER

Under no circumstances will Perfect Power be held responsible for any incidental, indirect, specific or consequential damages arising from the use of the unit(s).

## RETURNS

All returns need to be authorized in advance. Please contact us on +27 11 792 9805, or [info@perfectpower.com](mailto:info@perfectpower.com) for authorization.

# Warranty.

Please return the goods to one of the following addresses:

For returns by post :

Digital Data Systems (Pty) Ltd  
P O Box 1577 Bromhof  
2154 South Africa

For returns by shipping company :

Digital Data Systems (Pty) Ltd  
22 Arbeid Avenue  
Strijdom Park, Randburg  
South Africa

All returns must be sent prepaid and no collect shipments will be accepted. Please ensure the parcel for its full value. If we determine that we are at fault for the return, we will refund the shipping costs.

We cannot accept returns on custom ordered parts. We also cannot accept returns on used or installed parts, parts not in their original packaging, parts that are not in a resalable package and parts that have come into contact with oil, coolant or fuel.

# Contact.

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Tel : +27 11 791 5947  
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Physical Address : 22 Arbeid Avenue, Strijdom Park, Randburg, South Africa, 2194  
Postal Address : P.O. Box 35872, Northcliff, Gauteng, South Africa, 2115



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## Smart Tuner 8

The SMT8 piggy-back system follows in the footsteps of the popular SMT6 and SMT7 products, but with unparalleled performance and a quantum leap of technical innovation. This is all possible with the latest 16 bit DSP processors, crammed full of features that you've never seen before. The SMT8 is ideal for the professional tuner and engine builder at a cost competitive price.

One of the new features is the fully programmable engine protection, which monitors the engine's performance. Should anything exceed the engine's specifications, the SMT8 will gradually reduce the engine's power after a programmable time delay, in essence looking after your engine. This is absolute MAGIC!

The external display output is also new for the SMT8 series. It allows our digital display to receive data from the SMT8 and selectively display the desired value without the presence of a PC. The displays are small with bright attractive LED colour options. Multiple values can be displayed on a single display by simply toggling between them.

An average installation consists of connecting 6 wires to the vehicle's ECU wiring loom, changing the settings of the SMT8 in the setup section of the LetRipp II Tuning Software and voila - you are ready to re-tune the vehicle. An experienced installer can install an SMT8 unit within 30 minutes for a basic installation. The primary features of the SMT8 will take longer to install, simply because there are more wires, but it is worth the wait.

The SMT8 can drive two extra injectors (13 ohm each) for supplementing fuel at high boost. The extra injector can be controlled via Throttle/RPM, AMP and Engine Temp maps. This allows for precise fuel delivery at boost conditions - a feature which is very popular with turbo and supercharger installations.

Set-points is a feature which makes the SMT8 stand apart from the other piggy back chips. It allows for the implementation of gear shift lights, fan control, idle assistance to mention a few. It has three relay outputs which can be switched on via 14 different signal sources. All Set-point functions can be combined in a logical fashion, and full polarity (higher than/lower than) selection is possible, even switching between the two operating maps is possible.

Two full operating maps (Map A and Map B) are present in the SMT8. Each operational map is capable of being switched into operation in real time while you drive or even when your Set-point function comes true. Switching between the two maps can also be achieved by having an external dash board switch installed, having one operational map for max power and the other for fuel consumption. The options are endless! The LetRipp II Tuning software is able to switch and lock operational maps to facilitate the tuning process.

Two wide band LSU-4 channels can be tuned simultaneously with the SMT8 version 3. This is feature is the major difference between version2. A large 16 x 24 map (384 tune sites) allows for the precise AFR (Lambda) signal modification via the two wide band inputs and outputs. The AFR is mapped via Throttle/RPM, AMP and Engine temperature. Two narrow band AFR (Lambda) probes can also be tuned simultaneously with the two wide band probes. This feature is invaluable for V6 and V8 applications where there are two wide bands probes and two narrow band probes. All 4 lambda probes can be tuned at the same time with one SMT8 unit.



## SMT8-UKIT

- 1 x SMT8 Standard Piggy-Back Controller
- 1 x SMT8 Tuning Harness
- 1 x USB Comm Cable
- 1 x CD with LetRipp Software and Manuals

## SMT8-KIT

- 1 SMT8 Standard Piggy-Back Controller
- 1 x SMT8 Tuning Harness

## Features

- System definition
- Ignition advance/retard limits
- Start second specification
- Analogue Upper/Lower limits
- Frequency modification
- Prevents frequency over-ranging
- Boost control
- Boost loop gain parameter
- Cut protection action
- Retard protection action
- Modify protection action
- Frequency protection
- AMP protection
- Engine Temp. Protection
- Air Temp. Protection

## Benefits

- Tailor the unit to your application
- Restricts ignition modification range
- Prevents action after power-up
- Prevents analogue over-ranging
- Tune a frequency airflow meter
  
- Controls the turbo boost
- Set the Boost control gain
- Signal cut when protected
- Retards ignition when protected
- Proportional protection
- Protects a frequency signal
- Protects an AMP signal
- Protects the engine temperature
- Protects the air temperature

## Features

- RPM protection
- Time before protection action
- Ignition Window
- Analog modification channels
- Wide band AFR modification
- Narrow band AFR modification
- Tune narrow from wide AFR
- CUT AMP + ENGT protection
- Retard AMP + ENGT protection
- External display specification
- TPS calibration
- TPS direction
- Engine temp. Calibration
- Air Temp. Calibration
- AMP calibration
- RPM calibration
- Set-point control
- Two RPM set points
- Two temperature set points
- One AMP set point
- One TPS set point
- Two analogues input set points
- Two analogues output set points
- Two narrow AFR set points
- Two wide AFR set points
- Two injection set points
- One Boost set point
- Logical combination of set points
- Map Switching from set points
- External display testing
- Teeth per injection setting
- Teeth per crank turn
- Edges per crank turn
- Acceleration enrichment
- Ignition map with 384 points
- Ignition AMP map

## Benefits

- Protects RPM
- Specify time before action takes place
- For not so perfect crank signals
- Allows you to map two engine signals
- Allows two banks AFR tuning
- Two after-CAT modifications
- Map both Narrow and wide AFR together
- Cut Protection with logical AND
- Retard protection with logical AND
- Tailor your display needs
- Adopt to your TPS sensor
- Specify Up/Down direction
- Two-point adaptation to your engine
- Two-point adaptation to your engine
- Linear adaptation to your engine sensor
- Set the operating range
- Operated any of 3 outputs
- Switch action on RPM limit
- Switch action on temperature
- Switch action on AMP
- Switch action on TPS
- Switch action on two analogue inputs
- Switch action on two analogue outputs
- Switch action on narrow AFR
- Switch action on wide AFR
- Switch action on injection length
- Switch action on Boost
- Logical AND, OR
- Invoke different tuning map
- Verifies the external display function
- Operated the external injector timing
- Adapt to your crank trigger wheel
- Adapt to your crank trigger wheel
- Extra fuel when it's needed
- For three dimensional Ignition tuning
- Provides AMP ignition tuning



## Features

- Ignition Engine temp. Map
- Ignition Air temp. Map
- 7 steps per degree ignition
- Injection map with 384 points
- Injection AMP side map
- Injection Engine temp. side map
- Injection Air temp. side map
- Analogue maps with 384 points
- Analogue AMP side map
- Analogue Engine temp. side map
- Analogue Air temp. side map
- Frequency or PWM tuning
- Frequency map with 384 points
- Frequency AMP side map
- Frequency Engine temp. side map
- Frequency Air temp. side map
- Boost basic PWM setting
- Boost air temp. Map
- Boost Target map
- Manual map switching
- Automatic map switching
- PC map switching
- USB 2.0 communication
- Built-in factory test
- Administration text field
- Dealer info text field
- Branding text field
- Password text field
- Maximum RPM recording
- Maximum Engine temp. Record
- Maximum Air temperature
- Maximum AMP recording
- Fault indication on all major items
- Re-flash enabled
- Altitude compensation
- Comprehensive help text

## Benefits

- Provides Engine temperature ignition
- Provides Air temp. ignition tuning
- Very fine ignition replica
- Two maps for two injection activation
- Provides AMP injection tuning
- Provides engine temp. injection tuning
- Provides air temp. Injection tuning
- For fine tuning of two analogue signals
- Provides analogue AMP tuning
- Provides analogue Engine temp. Tuning
- Provides Analogue Air temp. Tuning
- Both signals can be tuned
- For fine tuning a frequency/PWM signal
- Provides frequency AMP tuning
- Provides frequency engine temp. Tuning
- Provides frequency air temp. Tuning
- Two PWM settings for different loads
- Different PWM settings for different loads
- Precise boost target control
- From the dashboard
- From the set point control
- For loading set ups in to different maps
- Communication and optional power
- With dates and results
- For saving manufacturing data
- For dealer identification
- Branding information
- Access control
- User retrievable recording
- User retrievable
- User retrievable
- User retrievable
- Easy installation and trouble shooting
- Field upgrade-able
- For influencing fuel mixture
- Easy understanding without manual