

APPLICATION NOTE

XAN-002: Intercooler Water Spray on Rev B XEDes

Description Describes how to connect and configure intercooler water spray output in the *XEDE* Processor (Rev B model only). This output can just as easily be configured to drive a cam adjustment such as VTEC.

Overview *What is intercooler water spray used for?*

Under certain heavy driving conditions, spraying a small amount of water on the front / top of the intercooler can assist in raising the efficiency of the intercooler, reducing the temperature of the air inside. Cooler air means higher air density, which means higher mass air flow. More air mass means more fuel and therefore more power if tuned correctly.

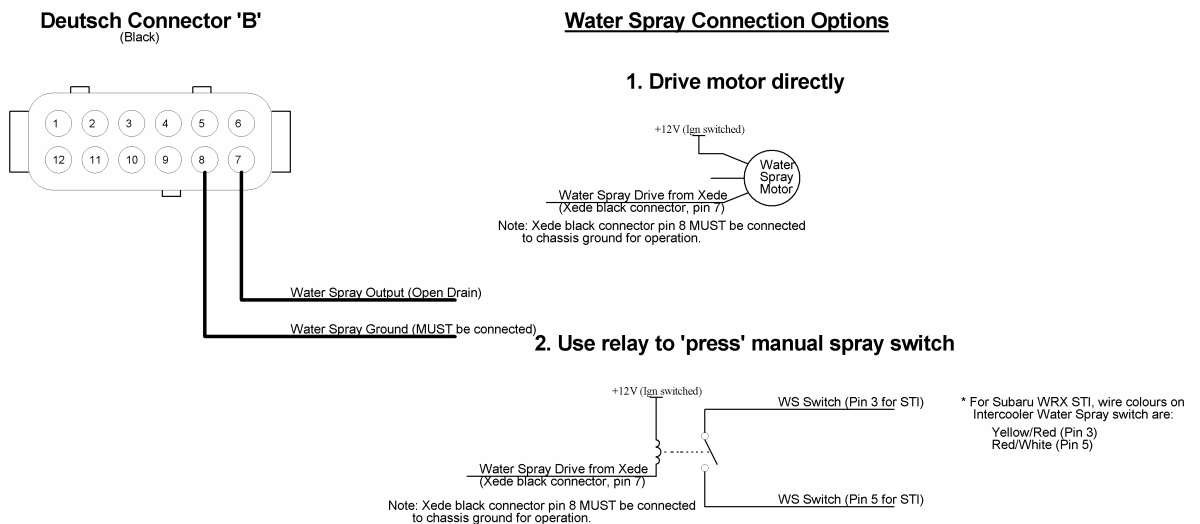
How does it work?

The *XEDE* turns the water spray on at a preset user-definable operating point, above a certain RPM and engine load. There are two definable stages where this can occur, to cover the two cases of high RPM and low load, and low RPM and high load. Once turned on, the water spray will stay on for a preset minimum time. When turned off, the water spray will stay off for a preset minimum time.

Connections *How do I wire it up?*

XAN-002 Intercooler Water Spray on Rev B Xedes.

There are two ways to connect it in; the first ('1.') allows the *XEDE* to drive the water spray motor directly, without the need for a relay. The second ('2.') uses a relay to either close a switch that already exists for water spray (as in the Subaru WRX STi), or apply power to the motor.



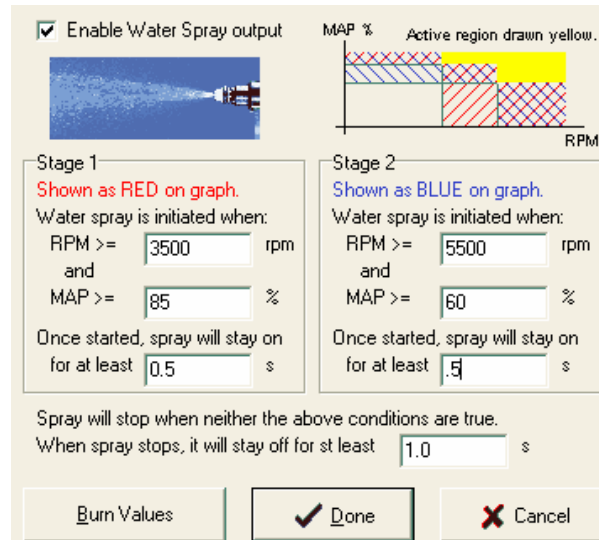
Pins 5 and 8 of the Deutsch Connector 'B' are connected internally in the *XEDE*, so if pin 5 is already tied to chassis ground for wastegate solenoid drive, the connection on pin 8 is not required.

APPLICATION NOTE

Programming *How do I configure the software?*

QUICK START NOTE: All **XEDEs** are shipped from factory with the intercooler water spray feature enabled, with a default set of parameters that should be sufficient as a starting point, so no further adjustment is required for it to function.

The water spray settings can be adjusted through **XUPDATE** (Water Spray tab) and **XMAP** (Features-Water Spray...). The following is a screen shot of the dialog:



Adjust the RPM and MAP points and minimum on time for each stage. The minimum off time applies to both stages. The graph shows the region where the water spray will turn on, indicated by the solid yellow area.

NOTE: the output will be active when, in EITHER stage 1 or 2, RPM **and** MAP are above the set point for that stage, at the same time.

When the settings are adjusted to your requirements, click 'Burn Values' to store the settings inside the **XEDE**. If you do not do this, the settings will not take effect.

Special Note The **XEDE** has no means of detecting when the water reservoir used here is empty. To prevent possible overheating of the water spray motor, check the water level regularly, particularly after extended periods of heavy driving.

Other Applications The water spray output is also suitable for driving such devices as a VTEC solenoid or other device which needs to change state under heavy driving conditions. Since it is not possible to pre-test every possible scenario with the **XEDE**, proceed with caution when attempting to drive a new device. ChipTorque will not be held responsible for any damage howsoever caused as a result of using the **XEDE** in any application. The drive transistor is capable of sinking about 10A for **low duty cycles only** (up to 30%).

END OF DOCUMENT
