

**PROFIBUS COMPETENCY CENTRE, AUSTRALIA TECHNICAL SERIES**

**DATE: Feb, 09**

**ORIGINATOR: GRANT WEYMAN**

**DOCUMENT REF: 09/008**

**SUBJECT: BUS START UP**

Before a PROFIBUS master can enter cyclic data exchange with a slave, it must perform the following operations:

“PARAMETERISATION” perhaps better called “set parameters” where optional settings are sent to the slave.

“CONFIGURATION” perhaps better called “check configuration” where the expected configuration is sent to the slave for checking.

Finally the master issues a diagnostic request. The slave responds with diagnostic information indicating whether the slave accepted the parameterisation and configuration.

Only after successful parameterisation and configuration will the slave enter cyclic data exchange with the master. During cyclic exchange, the master constantly checks that the slave is responding and healthy.

In addition each slave constantly checks that the master is operational and healthy.

Should a slave detect a problem, the outputs will automatically “fail safe”; i.e the outputs will switch to a safe condition (typically off).

The slave uses a *watchdog timer* to enable it to detect bus inactivity.

The watchdog timer is reset every time an error free message is received.

If no valid message is received within the specified time (the watchdog time) then the slave assumes a communication error and sets the outputs to *fail-safe status*.<sup>i</sup>

References:

---

<sup>i</sup> CPIC Presentation L02 Verwer Training & Consultancy Ltd.  
The New and Rapid Way to PROFIBUS DP, Manfred Popp

<http://www.profibuscentre.com.au>

<http://www.profibus.com/>