

# High Resilience Systems

## Dual Redundancy for Safety Critical Applications

In safety critical applications such as Air Traffic Control, Time & Frequency Solutions recommend the use of a dual redundant system, which provides a continuous output supply if a fault develops.



### Features

- Two or more M211 Modular Time & Frequency Systems are linked by a Changeover Unit
- If a failure occurs in the main timing system, the Changeover Unit switches the output signal to the standby timing system
- Manual or automatic operation
- Remote access available through optional Network Management System (NMS)

For extra flexibility, link your redundant system to our proprietary Network Management System (NMS)

This enables configuration, control and monitoring from a remote PC - see over.

### Key Benefits

The Time & Frequency Solutions' High Resilience Dual Redundant System provides a specific output (e.g. serial, parallel, timecode) through intelligent interface modules on each M211 Modular Time & Frequency System.

The outputs from each M211 are connected via a Changeover Unit, which continuously supplies an output of the required signal.

In normal operation, the system outputs are taken from the main M211. If a fault is detected, the Changeover Unit automatically switches the system outputs to the standby timing system, ensuring continued availability of the timing system outputs.

Upon resumption of satisfactory operation of the main M211, the Changeover Unit can be set to either automatically switch the system outputs to the back to

the main timing system, or to continue with the standby unit.

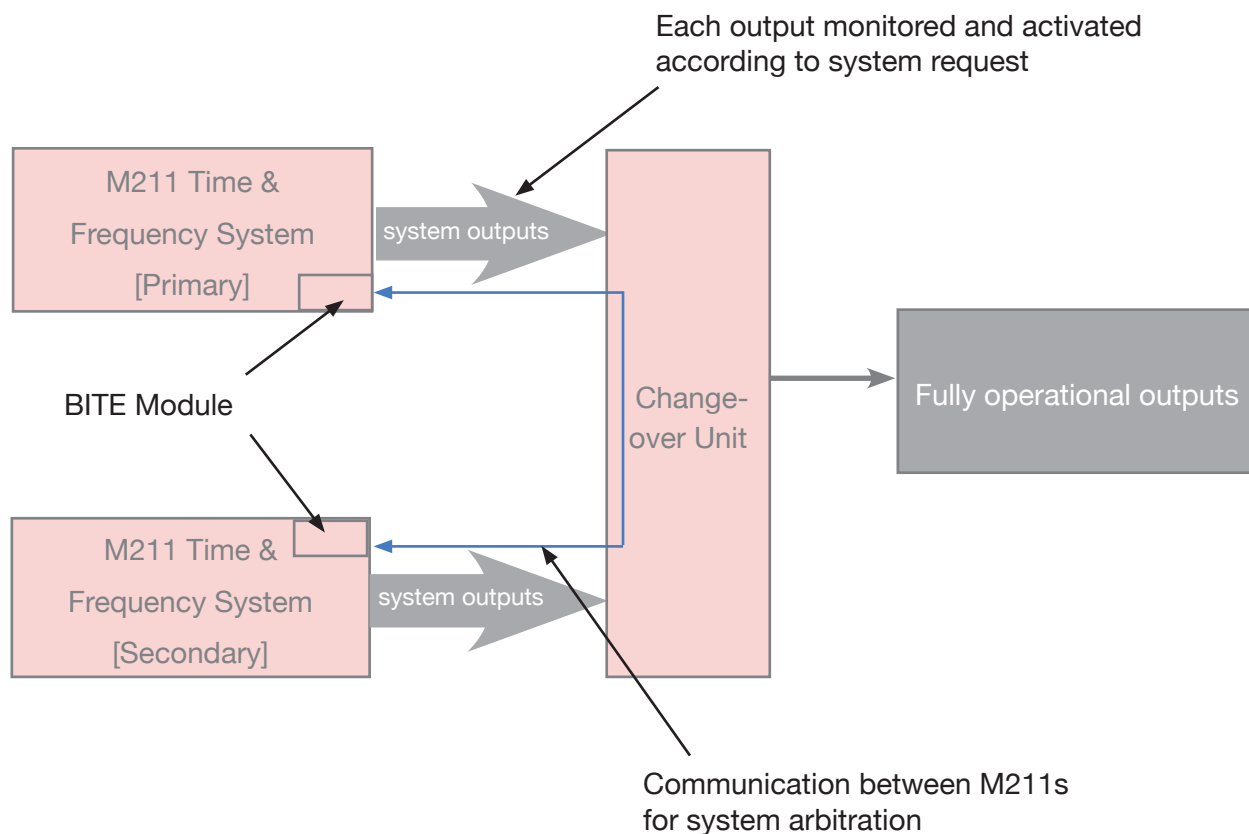
Controls are also provided on the Changeover Unit for selection of manual/automatic operation. In manual mode, it allows the selection of either main or standby M211 for data output.

To enhance the redundancy system further, the Time & Frequency Solutions Network Management System offers additional remote access and monitoring (see over).

#### Dual / Triple Redundancy

Dual redundancy is more than adequate for most applications. However, some circumstances require triple-redundancy, whereby the Changeover Unit links three M211 Time & Frequency Systems.

# Typical Dual Redundant Configuration



## Changeover Modules

We have developed a specific range of intelligent interface modules, which have been specially designed for use in the dual-redundant system.

This range of modules monitors each output of the interface and activates the outputs according to the system request. These modules send information to the BITE (Built-In Test Equipment) Module provides the necessary communication between the M211 Time & Frequency Systems.

## Optional Remote Access for configuration & control

The optional Network Management System (NMS) is provided as a software package and once installed provides the user with an easy to use graphical user interface. The interface allows the user to monitor the system either from an overview or in detail. Log reports are produced, displayed and recorded for any errors or faults that occur within the time & frequency system.

The NMS allows remote configuration control and monitoring by means of the Simple Network Management Protocol (SNMP). The software is offered with a variety of options such as different platforms, customisation and can be delivered on a pre-configured PC.



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