Application Note AN001

P7xxx series 1+1 redundancy, utilising internal control facility and external T/R/TR1000 switching units

Any identical P7xxx series synthesised rack mounted converters will operate as a 1+1 redundant pair, without the need for an additional controller. All that is required is a T1000, R1000 or TR1000 switch unit which comes complete with all necessary interface cabling.
UpConverters require the T1000L/H which comprises an input IF splitter and an RF coaxial switch to switch the output.
DownConverters require the R1000L/H which comprises an input RF coaxial switch and an IF combiner at the output.
Combined Up & DownConverter requires the TR1000L unit.
These units are available in two versions, the T1000L/R1000L/TR1000L for L-band converters and the T1000H/R1000H for SHF converters. The following table summarises the type required for each converter combination;

Converter Type	1+1 Type				
	TR1000L	T1000L	T1000H	R1000L	R1000H
P7000	☺				
P7001				☺	
P7002		☺			
P7003					☺
P7006			☺		
P7007					☺
P7008			☺		
P7010, 11, 12, 25, 35					☺
P7013, 14			☺		
P7018			☺		

T/R/TR1000 units come complete with IF and RF interconnecting cables and the serial CANBUS® communication cable.

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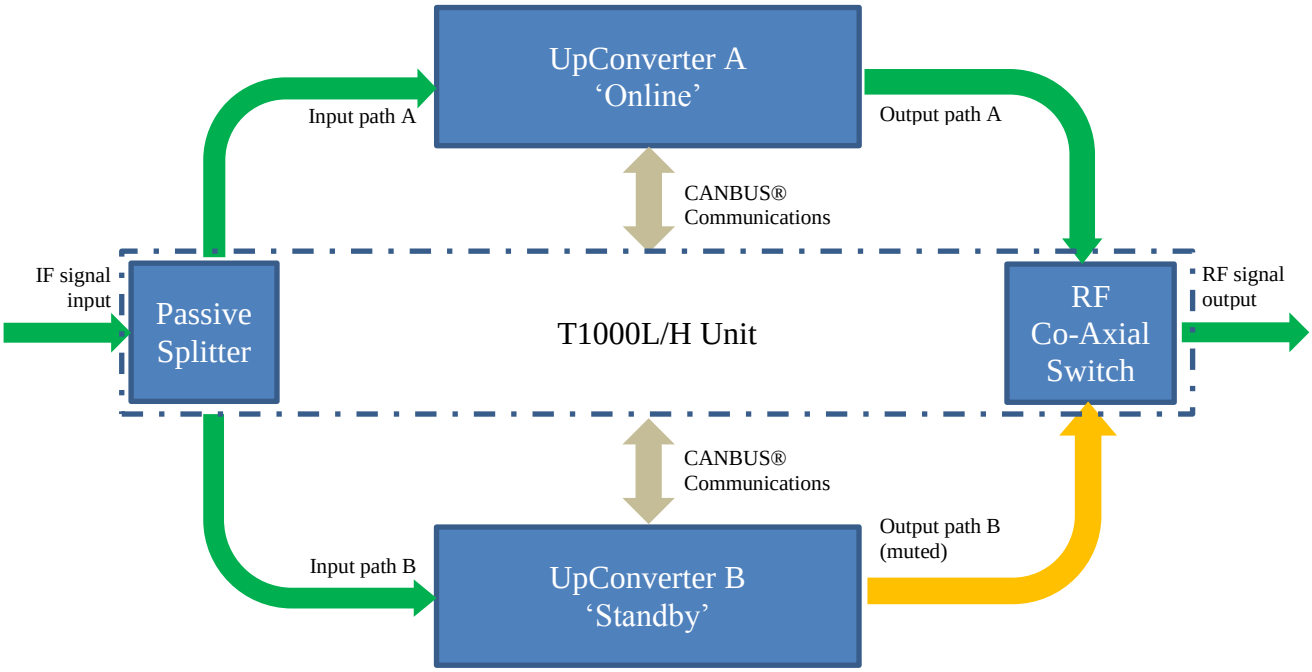
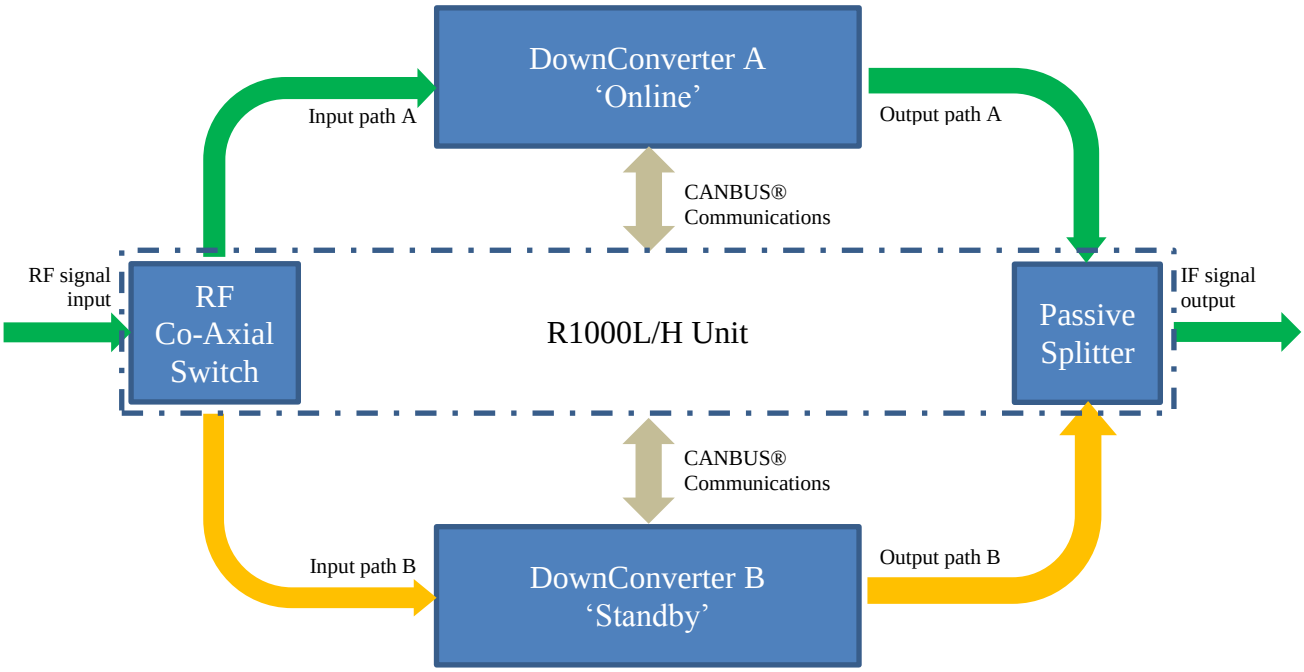


P7xxx series UpConverter in 1+1 redundancy using T1000L/H

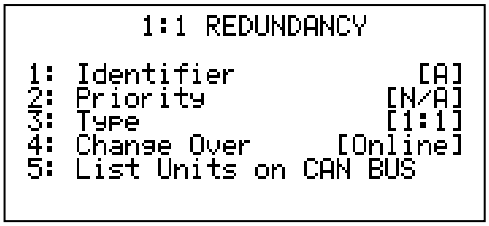


P7xxx series DownConverter in 1+1 redundancy using R1000L/H

Operation

Within the P7xxx series menu structure there is a redundancy menu screen (see below), the redundancy type on the redundancy menu is set to [1:1], then each converter can be identified as either path [A] or path [B] and can also be set to either [Online] or [Offline] (standby) status.

The coaxial switch within the T/R/TR1000 is controlled by both converters, ensuring that the online converter is always connected to the output.



Automatic changeover

Both converters monitor the alarm status of each other and control the output coaxial switch. If the online converter develops an alarm condition, the standby converter will assume master control and initiate switching, routing itself to the output.

Changeovers are minimised, i.e. a unit taken off line due to an alarm, will remain ‘off line’ even if it returns to the non-alarm state. If it does return to the non-alarm state then it will act as the off line (standby) unit. The software provides the necessary delays of status to the control logic, to prevent unnecessary switching.

Manual changeover

The converters are able to ‘give away’ operation to the other unit of the pair, if instructed to do so from the front panel. A manual switchover will occur by pressing 4 when in the redundancy screen.

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