

Sertel Electronics

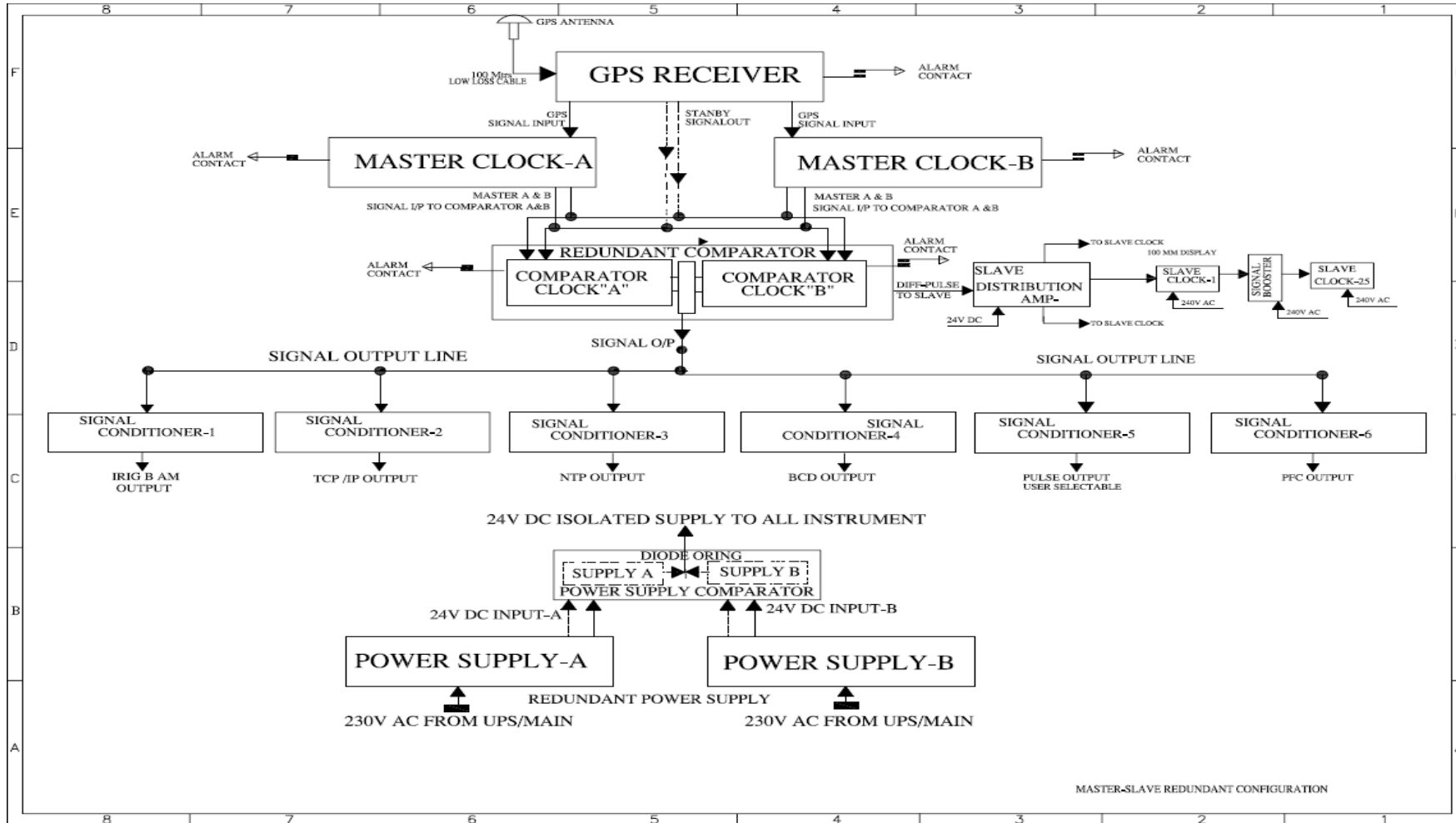
## GPS Time Synchronisation System - T-GPS-300



<b>Technical Manual - GA DIAGRAMS</b>															
<input type="radio"/>	<b>Section A</b>														
	<b>Time Synchronisation in Generation Plant</b>														
<input type="radio"/>	<b>Section B</b>														
	<b>Substation Automation Compliant to IEC61850</b>														

**Section A**

**Sample Configuration 1 - Generation Plant Synchronisation with Varied O/Ps Protocols**



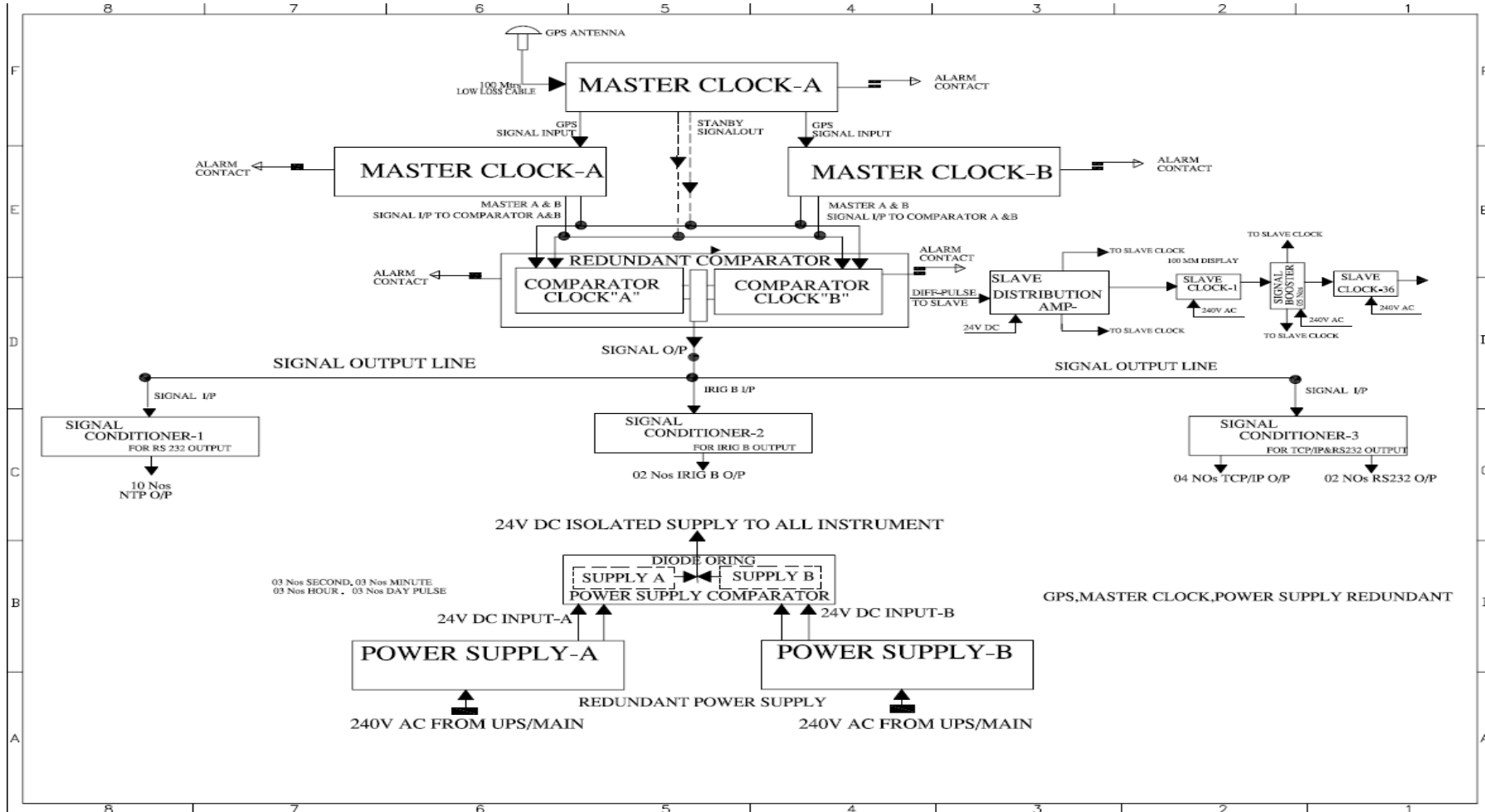
**Note:**

1	Redundant Master Clock Configuration
2	Signal Conditioners can be increased, customised for any type of protocol output required.
3	Redundant Power Supply

4	Supports O/Ps such as 1PPS/H/M, IRIG-B, TCP/IP, NTP/SNTP, BCD Outputs, PULSE Outputs and PFC Contacts
5	O/Ps synchronise devices such as SCADA, DCS, InterLogic systems etc. present in Generation Plants
6	Sertel expertise and support includes protocol handshaking our varied outputs with other monitoring and controlling devices in the plant

Section A

Sample Configuration 2 - Generation Plant Synchronisation Expandable O/Ps

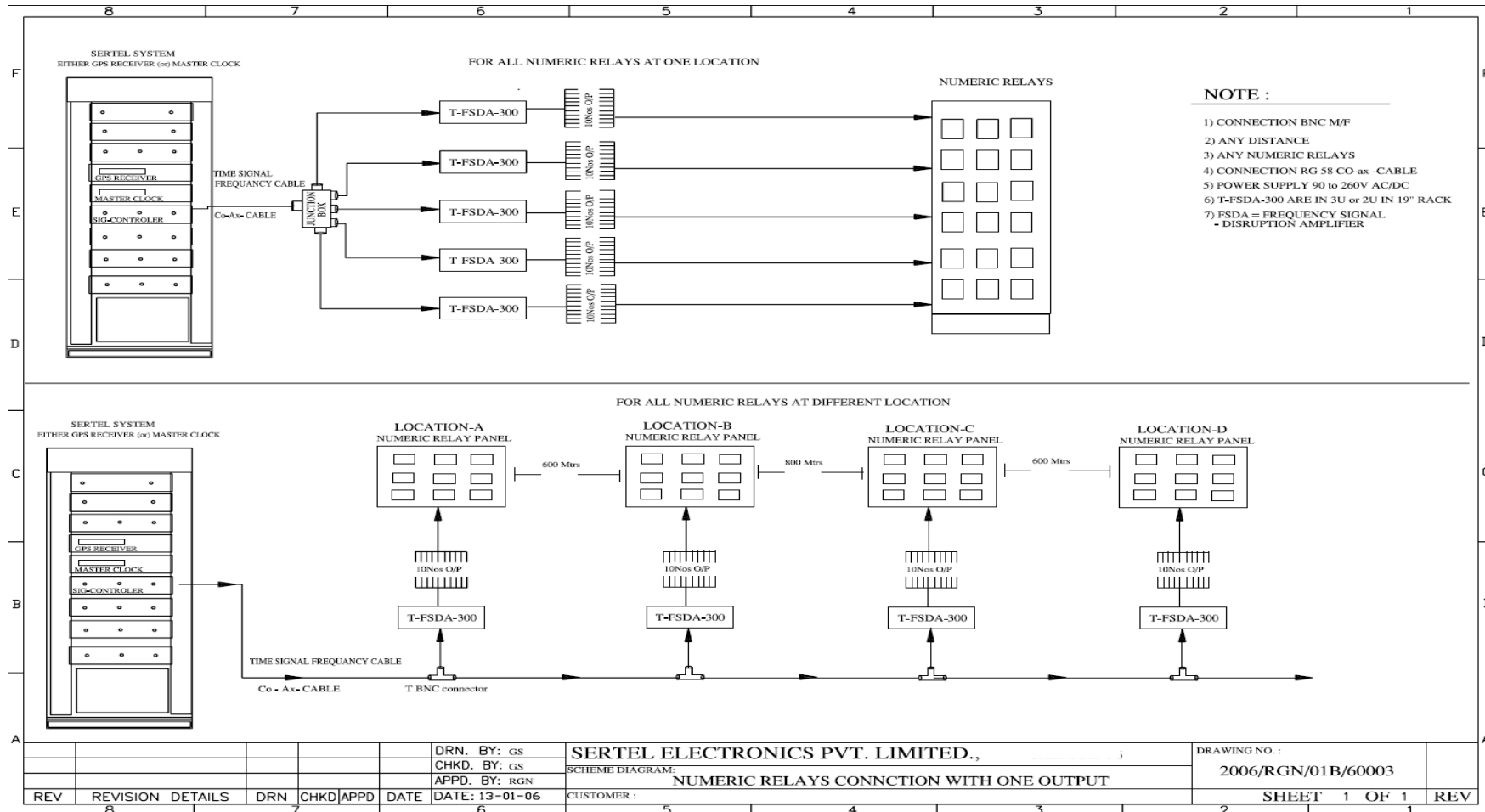


Note:

1	Redundant Master Clock Configuration	4	Supports O/Ps such as 1PPS/H/M, IRIG-B, TCP/IP, NTP/SNTP,BCD Outputs,PULSE Outputs and PFC Contacts - Number of O/Ps is expandable.
2	Signal Conditioners can be increased, customised for any number of outputs required on the different protocols.	5	These O/Ps synchronise devices such as SCADA, DCS,InterLogic systems etc. present in Generation Plants
3	Redundant Power Supply	6	Sertel expertise and support includes protocol handshaking our varied outputs with other monitoring and controlling devices in the plant

Section A

Sample Configuration 3 - Generation Plant Synchronisation with high precision IRIG-B

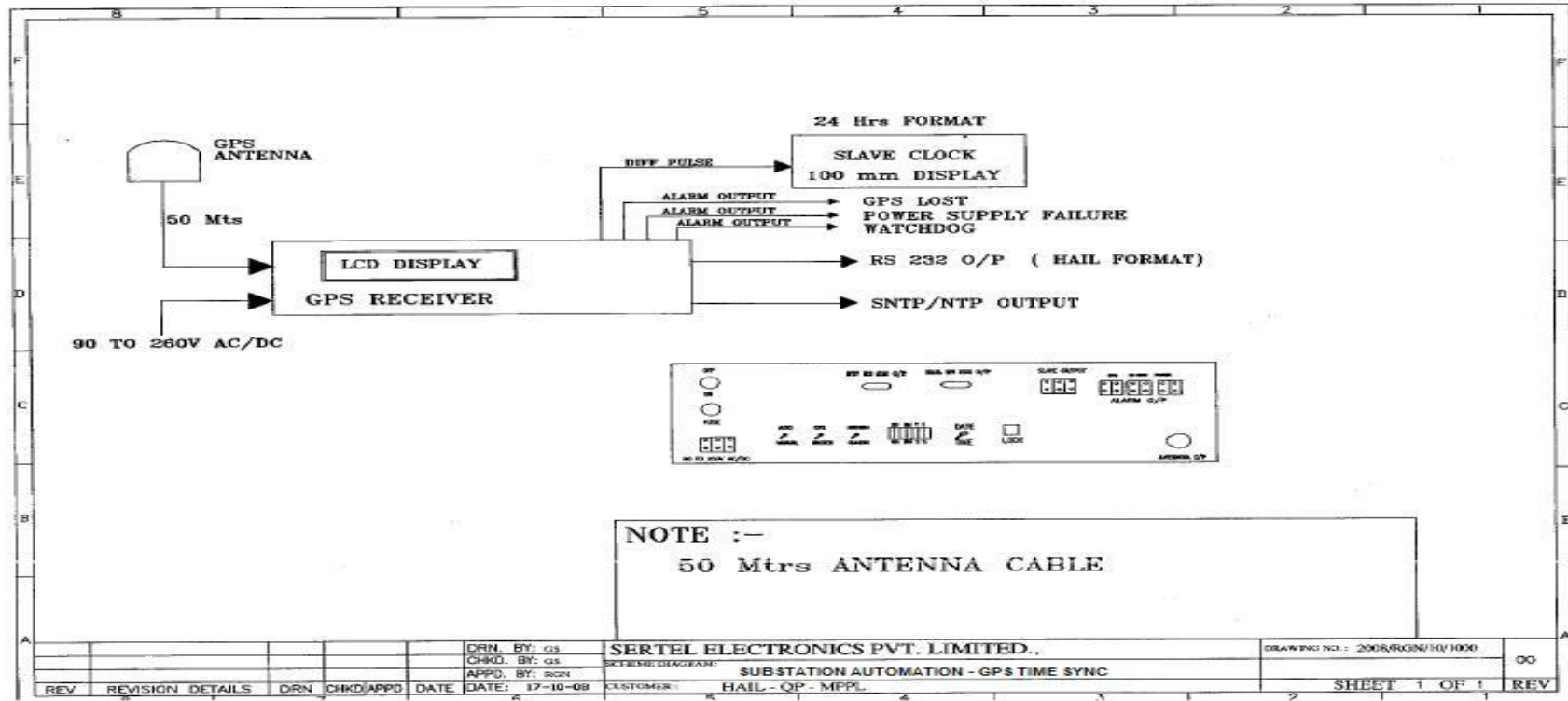


Note:

1	Time Synchronisation of Entire plant using IRIG-B outputs. This configuration synchronises entire range of numeric relays in the plant
2	All the IRIG-B outputs are Galvanically Isolated for protection and control.
3	T-FSDA-300 acts as Frequency Distribution Amplifier which distributes signals across network of relays or monitoring/control devices.

Section B

Sample Configuration 1 - Substation Automation Plants

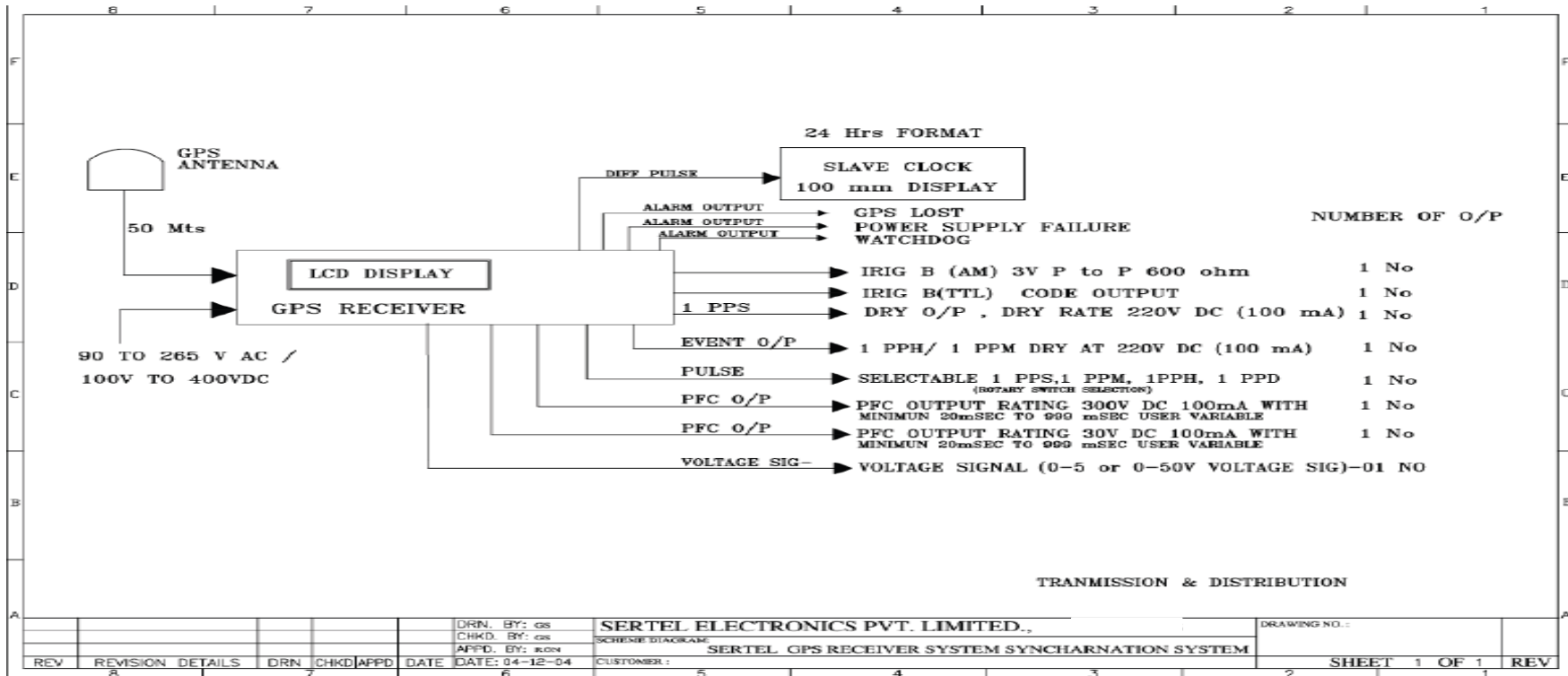


Note:

1	Substation Automation - IEC61850 compliant
2	NTP/SNTP servers - Can synchronise Windows/ Linux/Unix network systems
3	Slave Display can be provided in different areas. These can be at any distance across the substation

Section B

Sample Configuration 2 - Substation Automation Plants

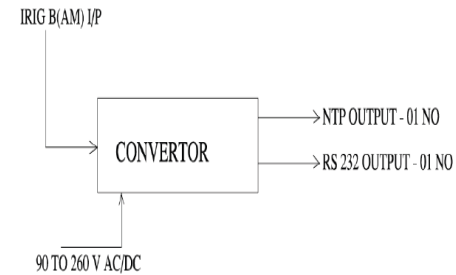
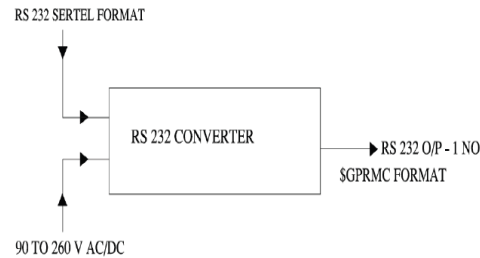
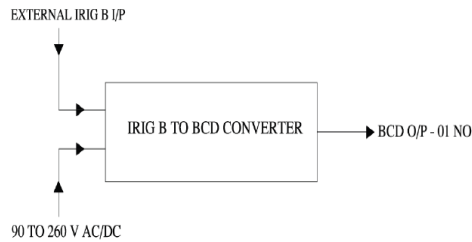
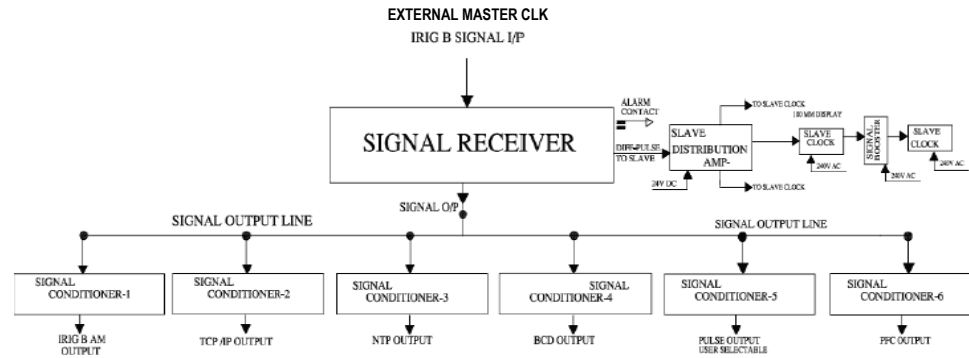


Note:

1	Substation Automation - IEC61850 compliant
2	NTP/SNTP servers - Can synchronise Windows/ Linux/Unix network systems. The outputs can also be customised into different suitable protocols as shown.
3	Slave Display can be provided in different areas. These can be at any distance across the substation

**Section B**

**Sample Configuration 3 - Protocol Converters and Signal Conditioners**



**Note:**

1	Sertel Product range also includes separate Protocol Converters which are handy solutions in plants while interfacing with other devices.
2	Our Time synchronisation solution is also adaptable to any other manufacturers Master Clock. In situations like these External IRIG-B as main time source.
3	Power input for these cards from 90V-260V AC/DC. These can be used for both Generation as well as Substation Automation applications.