



Apstar

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ApStarnet Application Note 1.

Typical Starnet Connections

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1. Revision History:

| Revision | Date | Comment |
|----------|------------|-----------------|
| 001 | 20/09/2018 | Initial Release |
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2. Introduction

This document should be read in conjunction with the ApStarnet User Manual, ApStarnet Modbus Manual, and Gem80 Starnet User Information (T464).

It provides a brief indication of some typical connection arrangements which are typically used in Starnet Communications Networks.

Interconnections between ApStarnet Ports and Gem80 8587 Starnet Termination Panels are shown in various combinations.

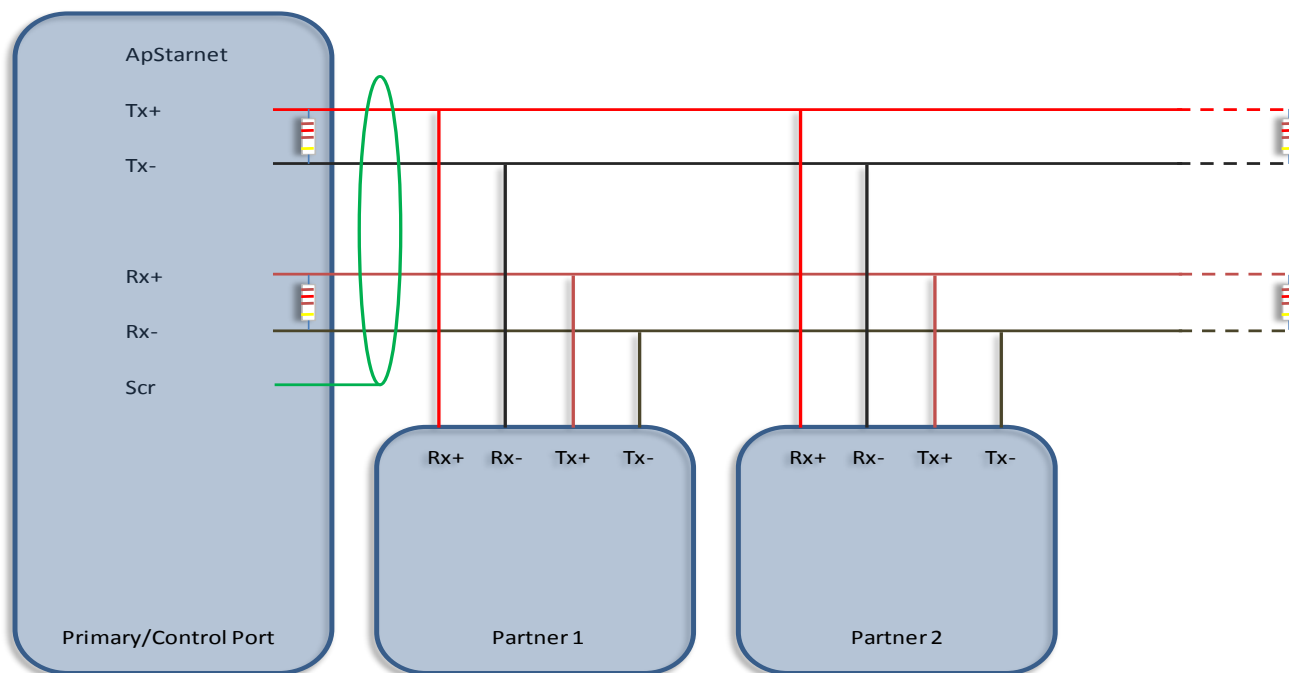
3. Link Terminations

The ApStarnet unit contains on board termination resistors for each link of each port. These can be selected in or out of circuit by DIP switches on the front of the unit local to the terminations for each Port.

To aid link stability and to prevent unwanted reflections, the two ends of a Starnet link are normally fitted with termination resistors. Where an ApStarnet unit is fitted to one end of the link, the built in termination resistors can be enabled using the front panel DIP switches.

On the Gem80 Termination Panel also has in built termination resistors. Where s Gem80 Termination Panel is at the end of a link, the termination resistors are connected in circuit by linking terminals Tx+ to TZ0, and RX+ to RZ0.

Historically some networks were terminated with a 220ohm resistor to reduce the loading. Only use this if the 120ohm resistor causes communication errors.



4. Cable Screens

Usually the Tx+/Tx- and Rx+/Rx- should be twisted pairs. The cable used should then preferably have screens around each pair. The screen of each twisted pair should be connected through a termination point at each device. At one point along its path it should be connected to a clean earth point. All cables should be suitable for RS485/HDLC Communications.

For clearness, the Cable Screens have been omitted from the following connection diagrams.

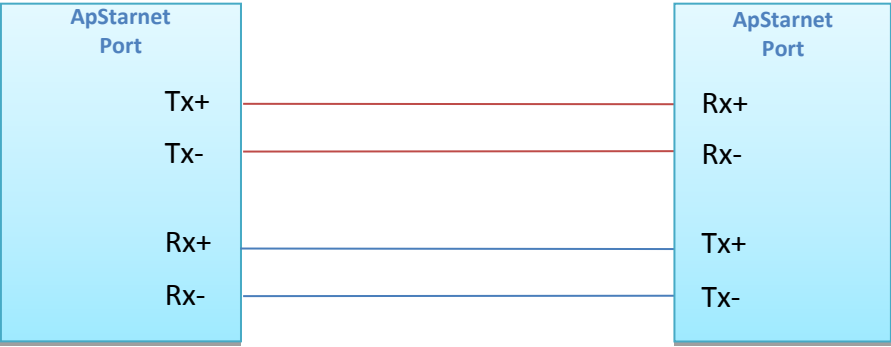
5. Index to Diagrams

Depending upon the particular configuration of ApStarnet's, Gem80's, Primary/Control Port, Secondary/Slave Ports etc, use the table below to refer to the appropriate connection diagram for that application configuration.

| Link Type | Primary | Secondary | Connection Diagram |
|------------------|----------------|-----------------------|---------------------------|
| Point to Point | ApStarnet | ApStarnet | Diagram 1 |
| Point to Point | ApStarnet | Gem80 | Diagram 2 |
| Point to Point | Gem80 | ApStarnet | Diagram 3 |
| | | | |
| Multi-drop | ApStarnet | ApStarnet's | Diagram 4 |
| Multi-drop | ApStarnet | Gem80's | Diagram 5 |
| Multi-drop | ApStarnet | ApStarnet and Gem80's | Diagram 6 |
| Multi-drop | Gem80 | ApStarnet's | Diagram 7 |
| Multi-drop | Gem80 | ApStarnet and Gem80's | Diagram 8 |
| | | | |

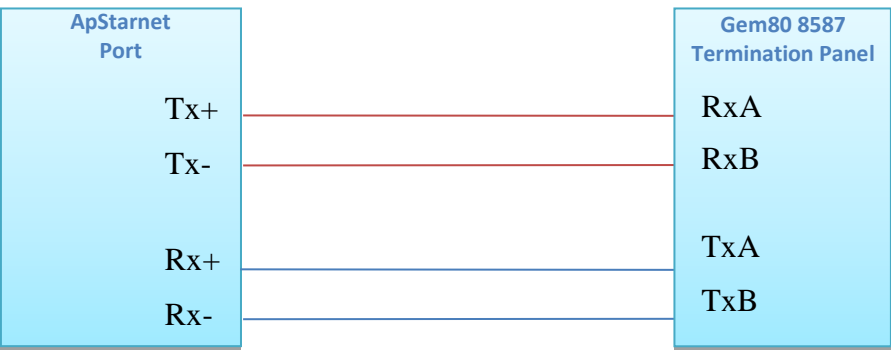
5.1 *Diagram 1. ApStarnet Primary/Control to ApStarnet Secondary/Slave*

4 Wire, Point to Point:



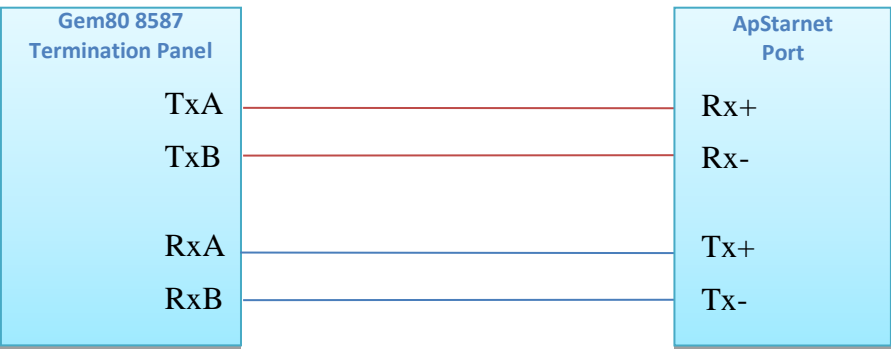
5.2 *Diagram 2. ApStarnet Primary/Control to Gem80 Secondary/Slave*

4 Wire, Point to Point:



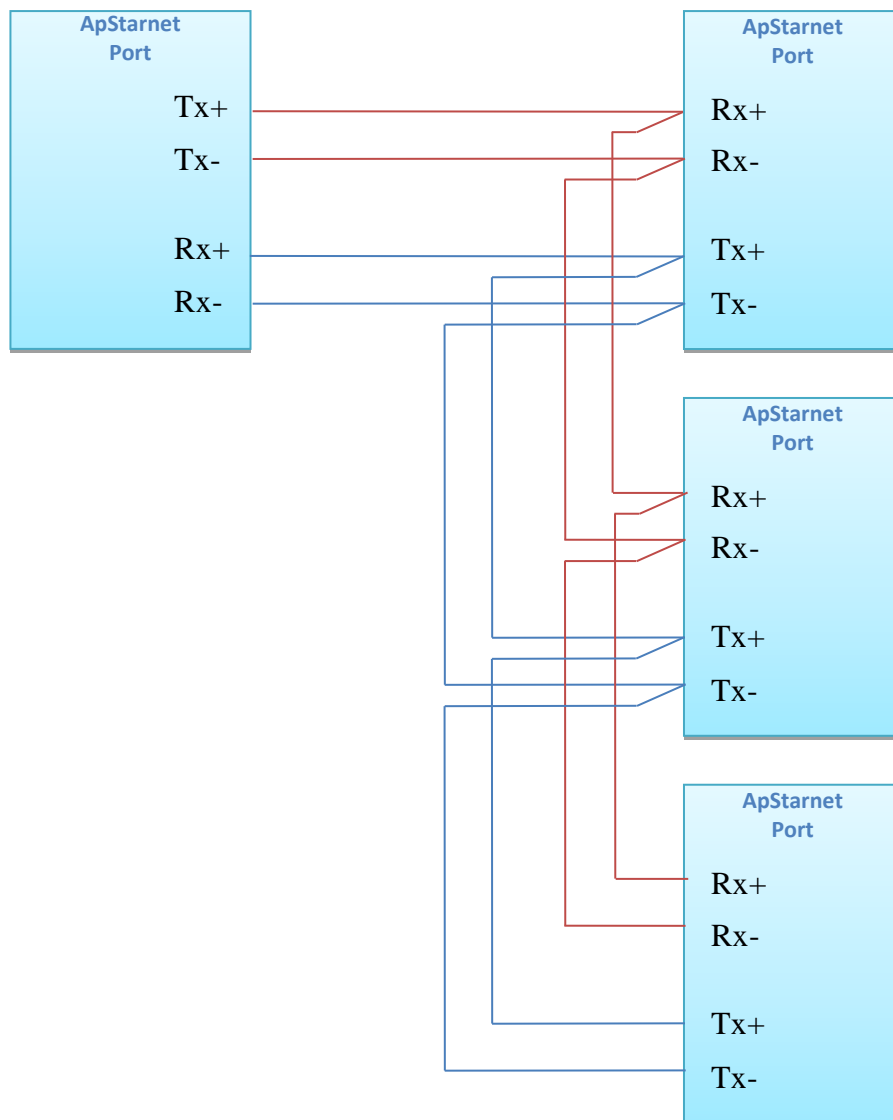
5.3 *Diagram 3. Gem80 Primary/Control to ApStarnetSecondary/Slave*

4 Wire, Point to Point:

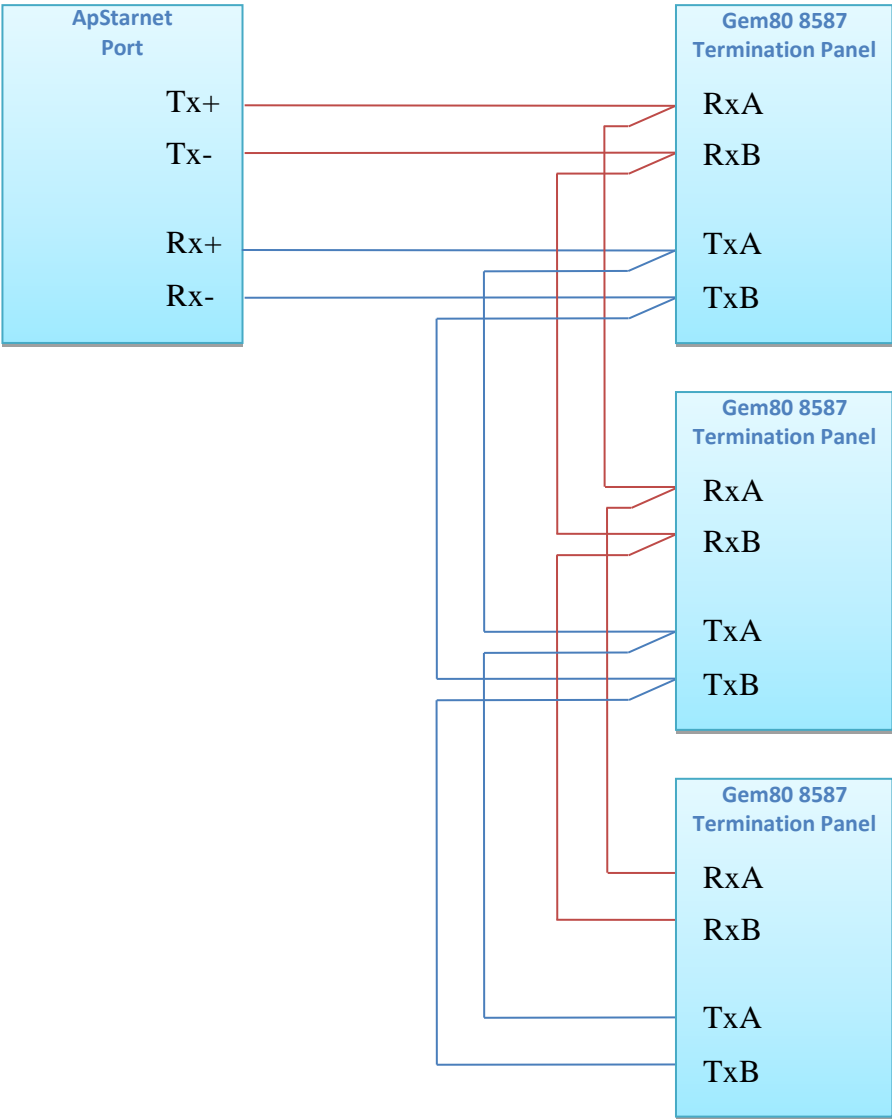


5.4 Diagram 4. ApStarnet Primary/Control to ApStarnet Secondary/Slaves

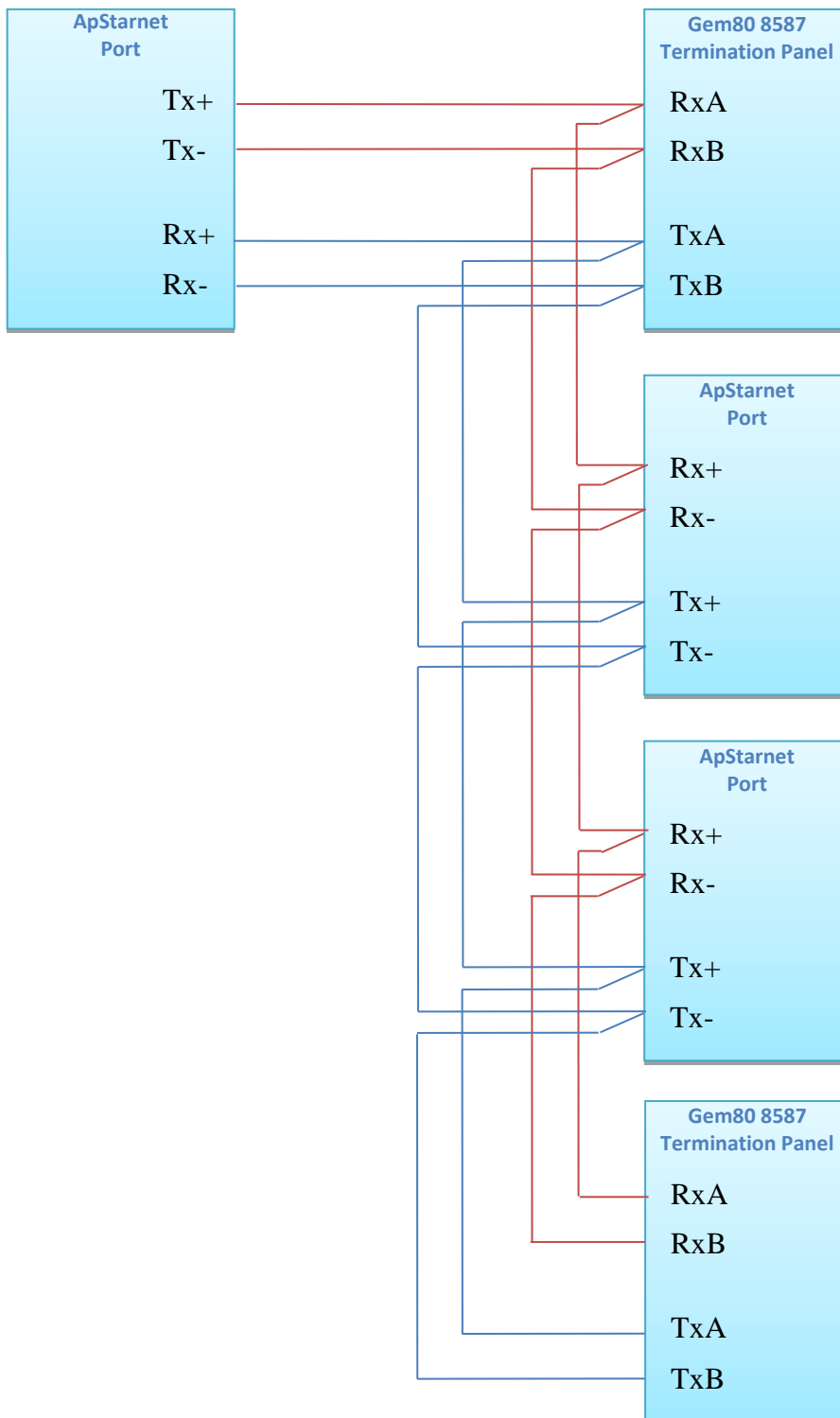
4 Wire, Multi-drop:



5.5 *Diagram 5. ApStarnet Primary to Gem80 Secondary/Slaves*
4 Wire, Multi-drop:

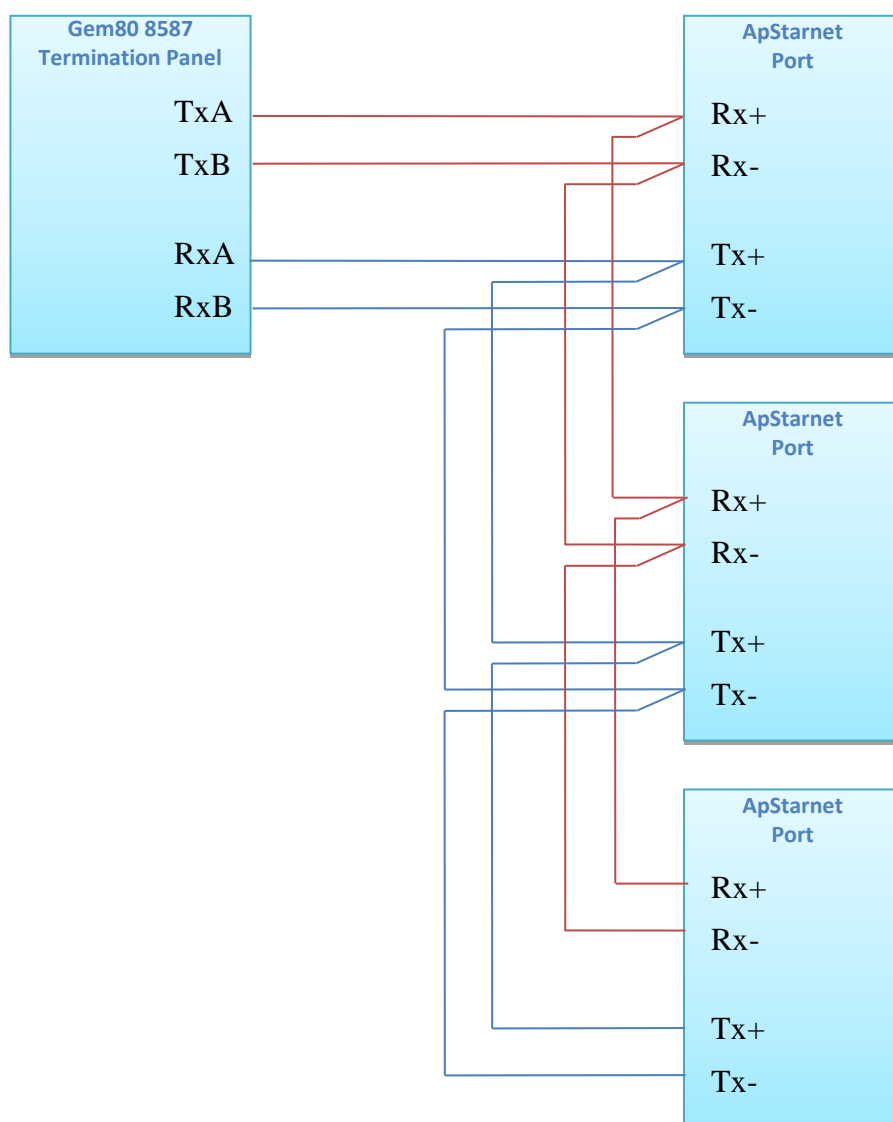


5.6 Diagram 6. ApStarnet Primary to mixed ApstarnetGem80 Secondary/Slaves
4 Wire, Multi-drop:



5.7 Diagram 7. Gem80 Primary/Control to ApStarnet Secondary/Slaves

4 Wire, Point to Point:



5.8 Diagram 8. Gem80 Primary/Control to mixed ApStarnet and Gem80 Secondary/Slave
4 Wire, Point to Point:

