CHURCHILL CONTROLS
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Mega_Link 2

Product Familiarisation
Thames Water

Part 2 - Use Cases

26th March 2026

Configuration

- Basestation and Outstation units are identical
  - The installed config file determines operation
- We supply a basestation to outstation pair with a 1 to 1 data mapping default configuration
- We supply a basestation to multi-outstation system with a best-fit configuration
  - Or customised to your requirements

Simple Point to Point

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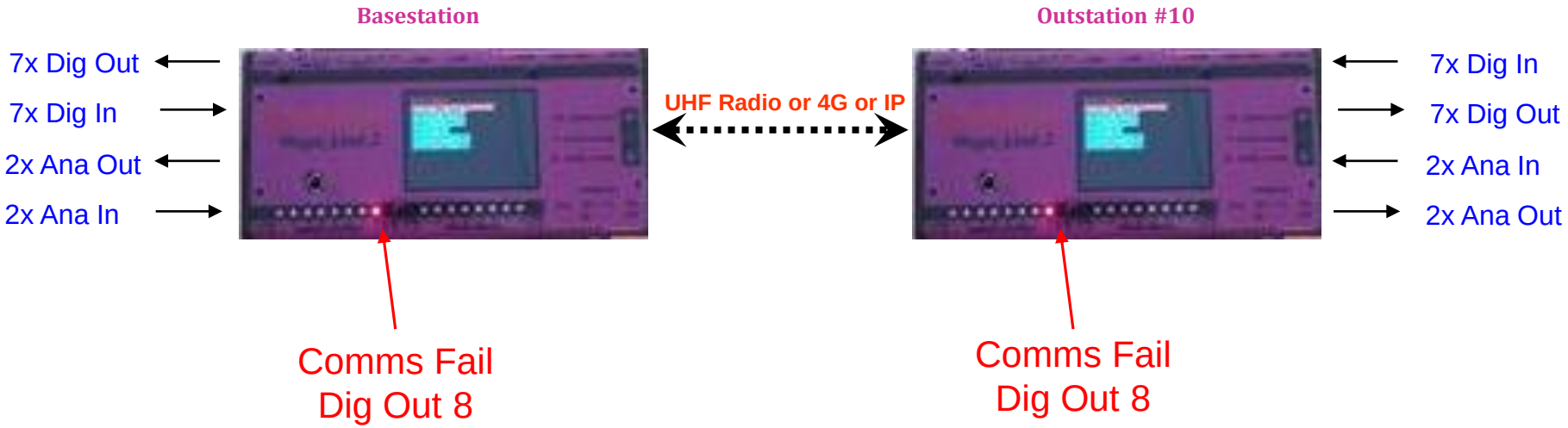
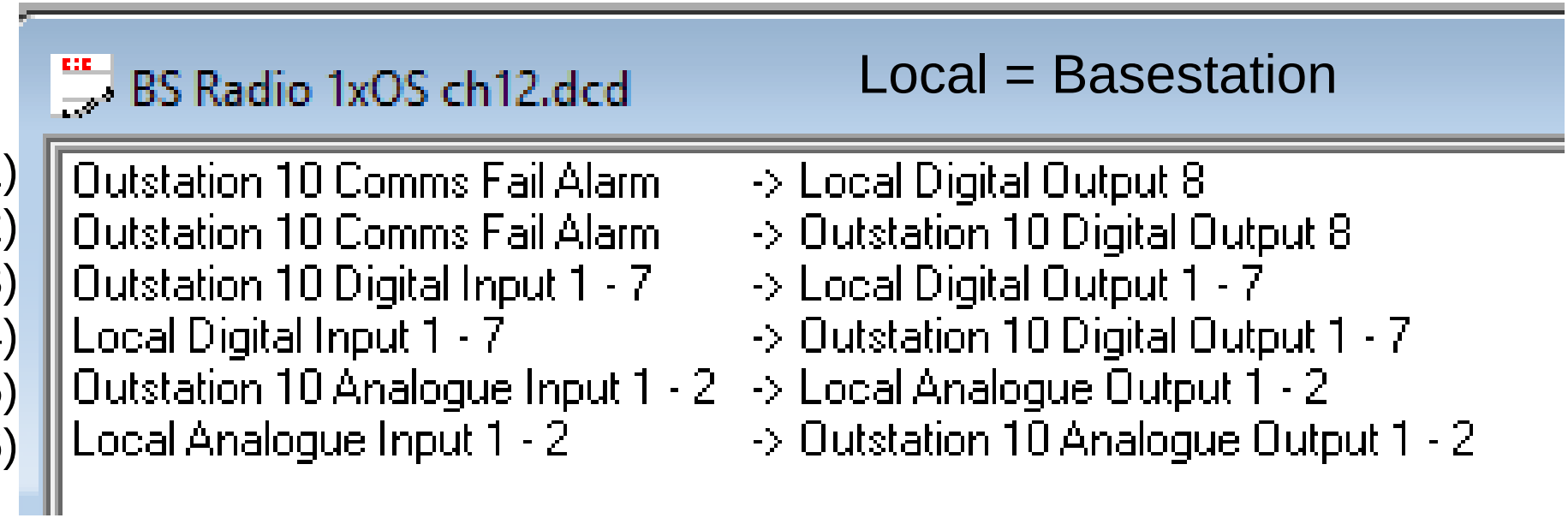
- Basestation and single Outstation #10
  - 1 to 1 data routing configuration



Note:
Comms Fail when output is on (relay energised) actually means “comms healthy”

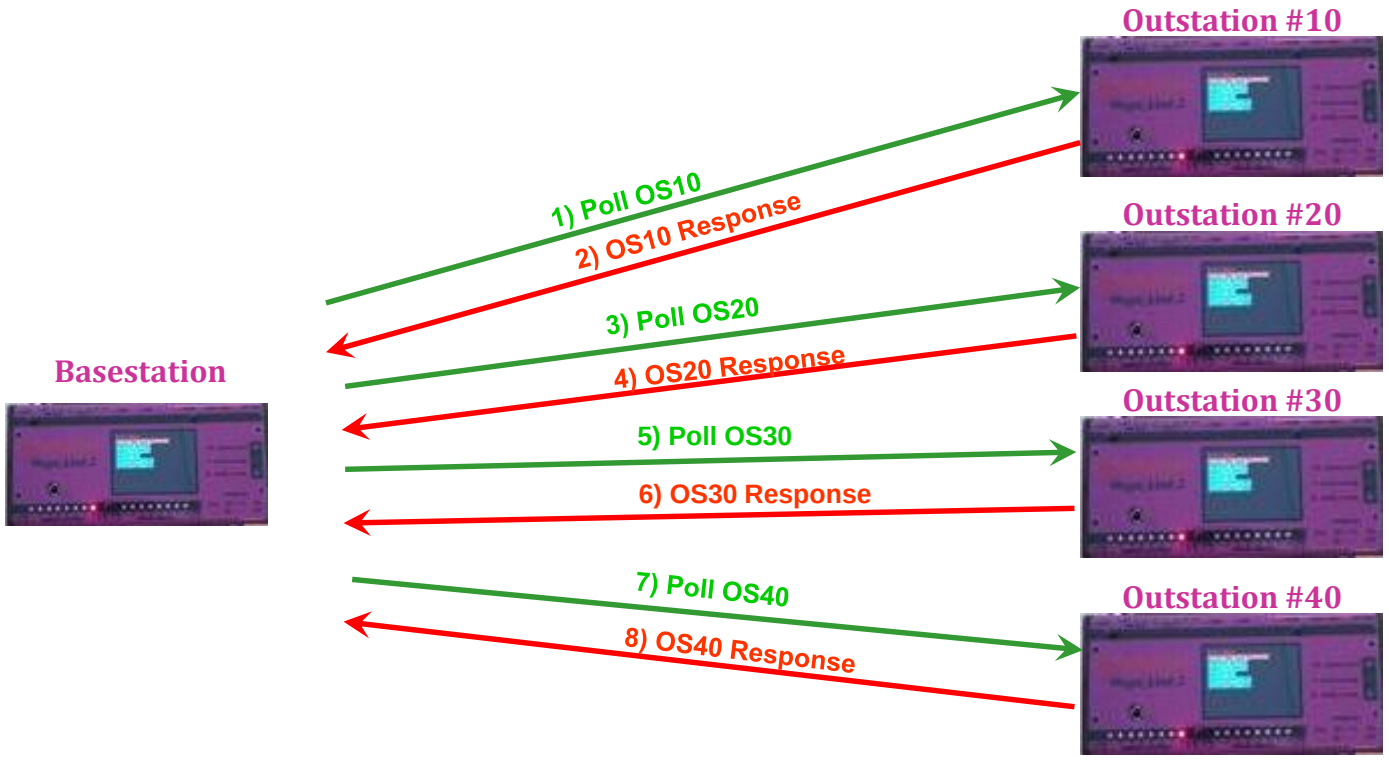
1 to 1 Data Routing Configuration



1) Comms Fail from Outstation 10, goes to Dig Output 8 on Basestation
2) Comms Fail from Outstation 10, goes to Dig Output 8 on Outstation 10
3) 7x Dig Inputs from Outstation 10, go to 7x Dig Outputs on Basestation
4) 7x Dig Inputs from Basestation, go to 7x Dig Outputs on Outstation 10
5) 2x Ana Inputs from Outstation 10, go to 2x Ana Outputs on Basestation
6) 2x Ana Inputs on Basestation, go to 2x Ana Outputs on Outstation 10

PST/FST Application

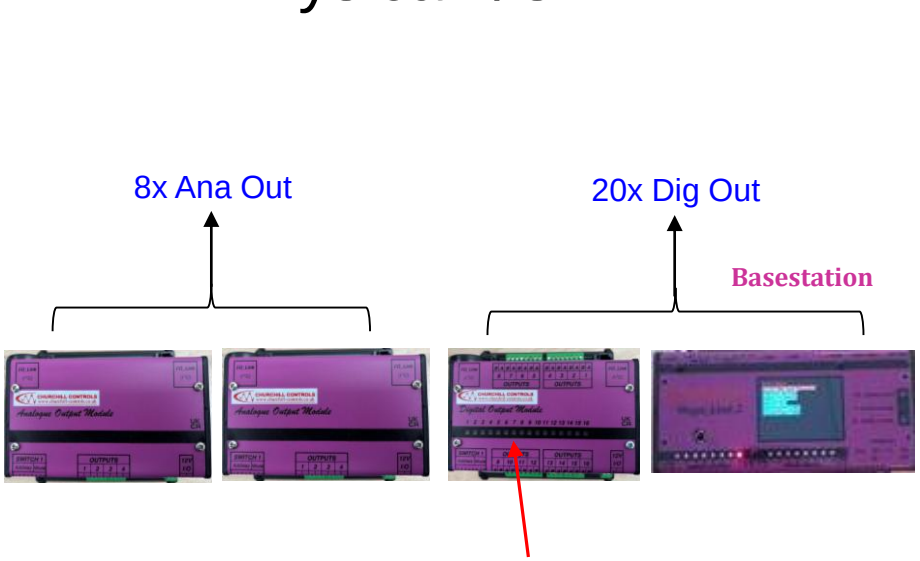
Polling (Scanning)

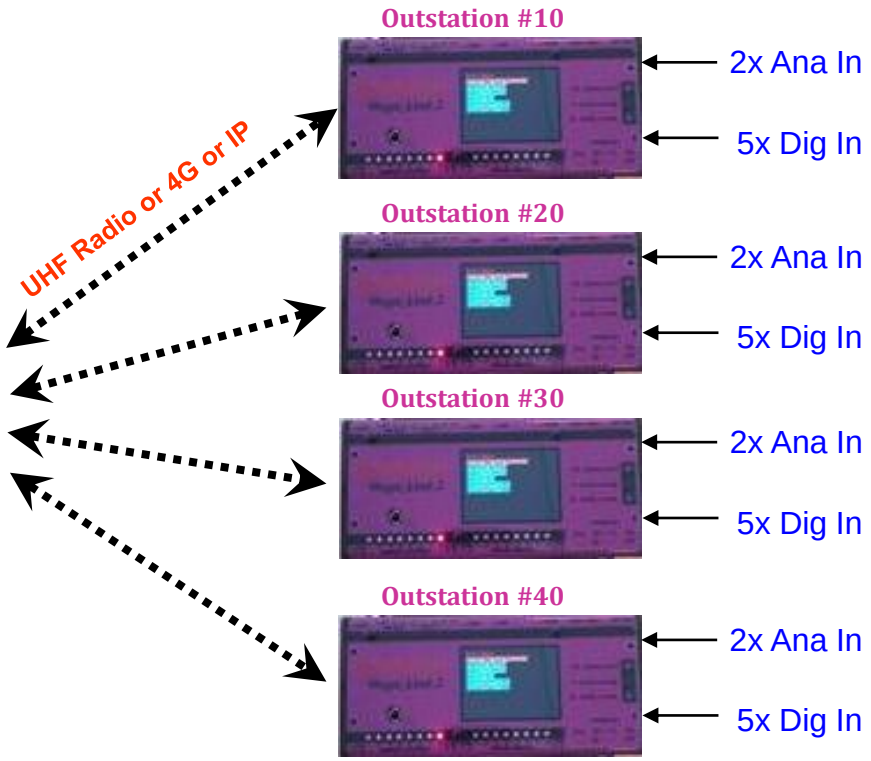


At 10 second poll rate, it takes 4 x 10 = 40 seconds to go around each one.
Can be more if expansion modules are included.

Multi-Outstation (Physical I/O)

- Basestation and Outstations #10, #20, #30, #40
  - Physical I/O





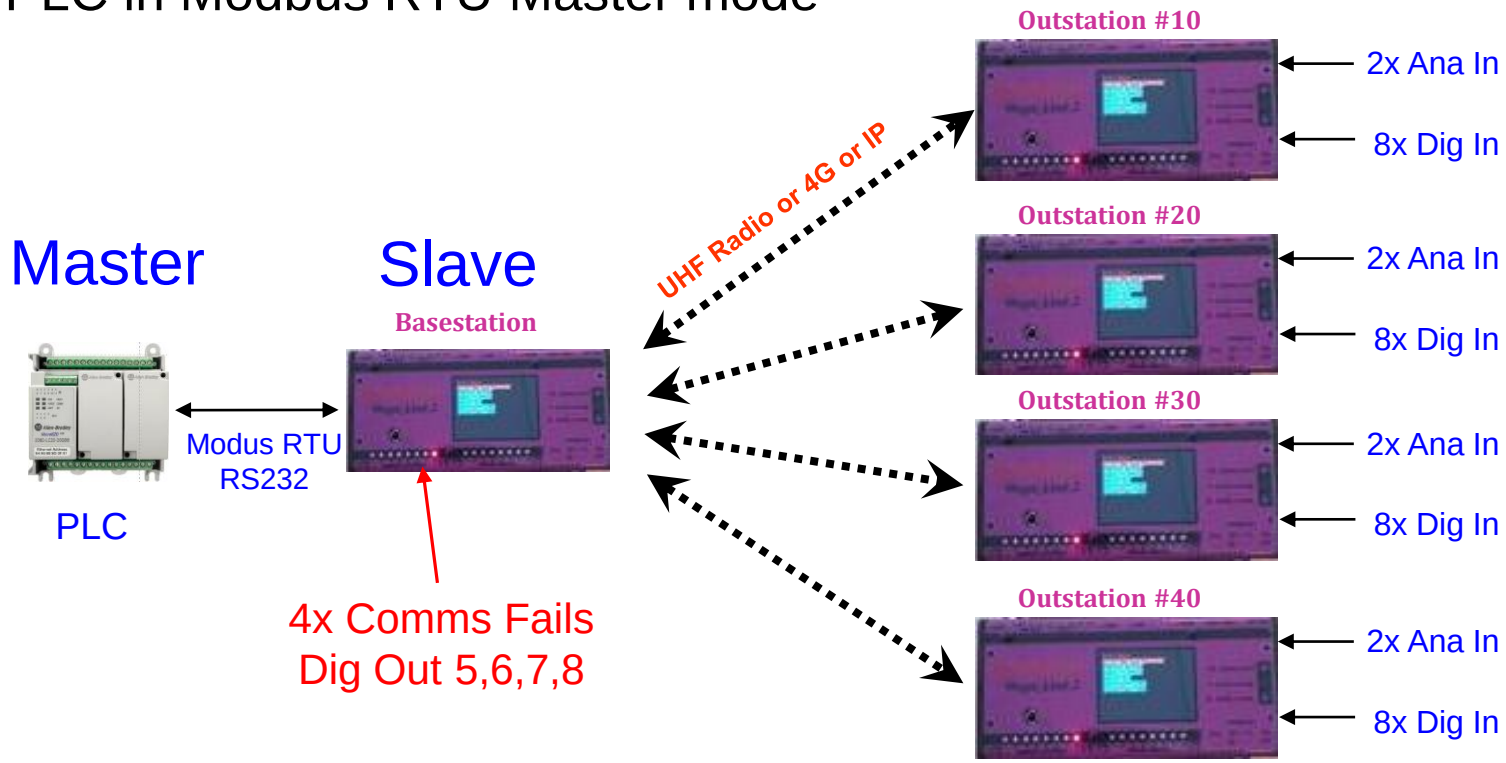
Multi-Outstation (Physical I/O)

BS Radio 4xOS ch19.dcd

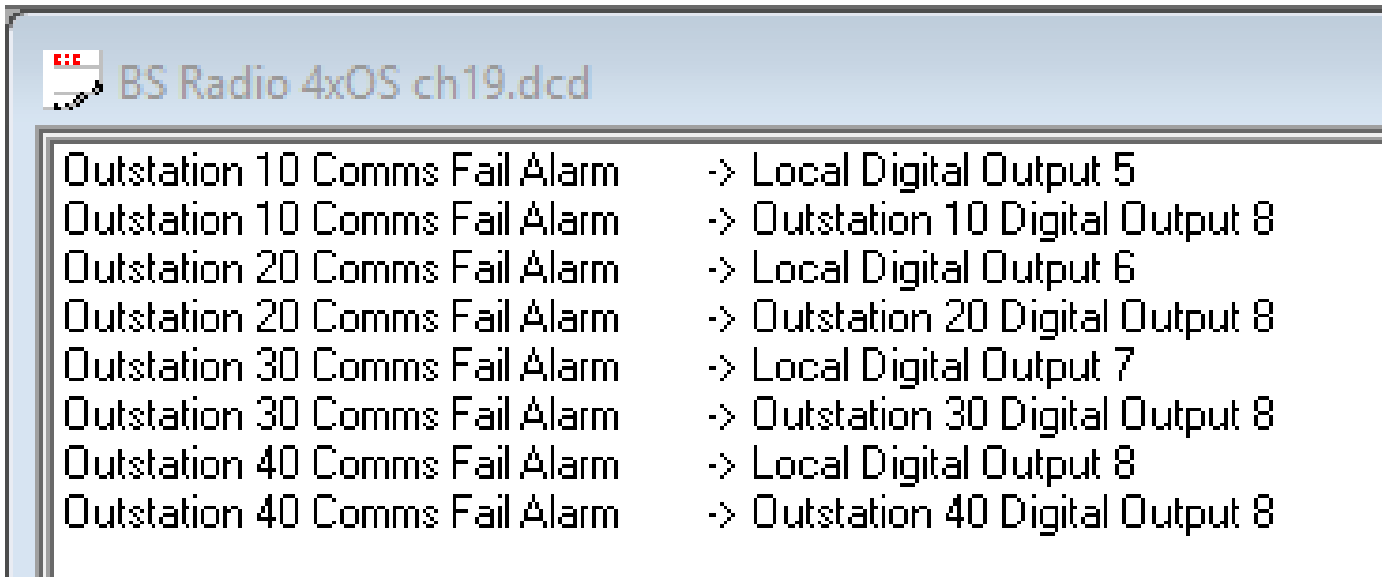
Outstation 10 Comms Fail Alarm	-> Local Digital Output 21
Outstation 10 Comms Fail Alarm	-> Outstation 10 Digital Output 8
Outstation 20 Comms Fail Alarm	-> Local Digital Output 22
Outstation 20 Comms Fail Alarm	-> Outstation 20 Digital Output 8
Outstation 30 Comms Fail Alarm	-> Local Digital Output 23
Outstation 30 Comms Fail Alarm	-> Outstation 30 Digital Output 8
Outstation 40 Comms Fail Alarm	-> Local Digital Output 24
Outstation 40 Comms Fail Alarm	-> Outstation 40 Digital Output 8
Outstation 10 Analogue Input 1 - 2	-> Local Analogue Output 1 - 2
Outstation 20 Analogue Input 1 - 2	-> Local Analogue Output 3 - 4
Outstation 30 Analogue Input 1 - 2	-> Local Analogue Output 5 - 6
Outstation 40 Analogue Input 1 - 2	-> Local Analogue Output 7 - 8
Outstation 10 Digital Input 1 - 5	-> Local Digital Output 1 - 5
Outstation 20 Digital Input 1 - 5	-> Local Digital Output 6 - 10
Outstation 30 Digital Input 1 - 5	-> Local Digital Output 11 - 15
Outstation 40 Digital Input 1 - 5	-> Local Digital Output 16 - 20

Multi-Outstation (Modbus)

- Basestation and Outstations #10, #20, #30, #40
  - Mega_link 2 in Modbus RTU Slave mode
  - PLC in Modbus RTU Master mode



Multi-Outstation (Modbus)



Note:
No further data routing is required.
The Modbus RTU commands sent from master will trigger any more comms necessary to populate database in the basestation ready to be read out.

Multi-Outstation (Modbus)

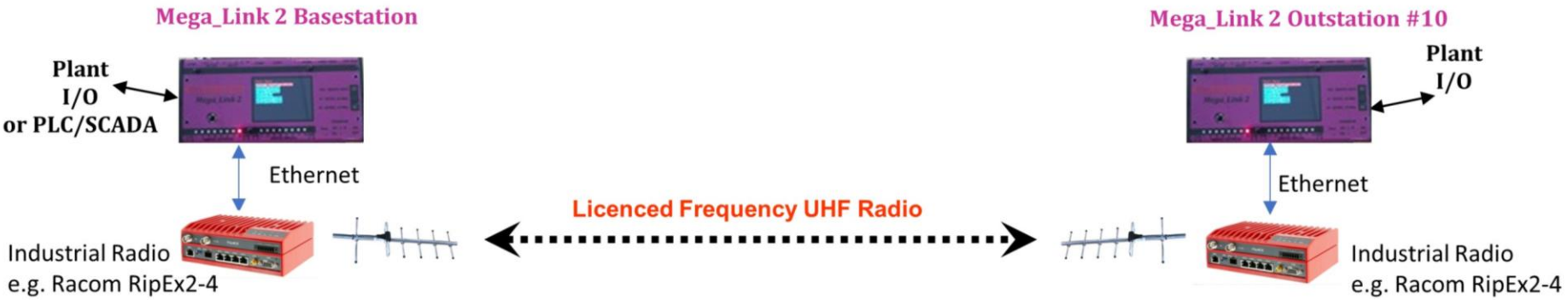
02 Read Discrete Inputs (1x)

Outstation	Signal	Modbus Address
10	Comms Fail	320
20	Comms Fail	640
30	Comms Fail	960
40	Comms Fail	1280
10	Dig IP 1…8	328…335
20	Dig IP 1…8	648…655
30	Dig IP 1…8	968…975
40	Dig IP 1…8	1288…1295

04 Read Input Registers (3x)

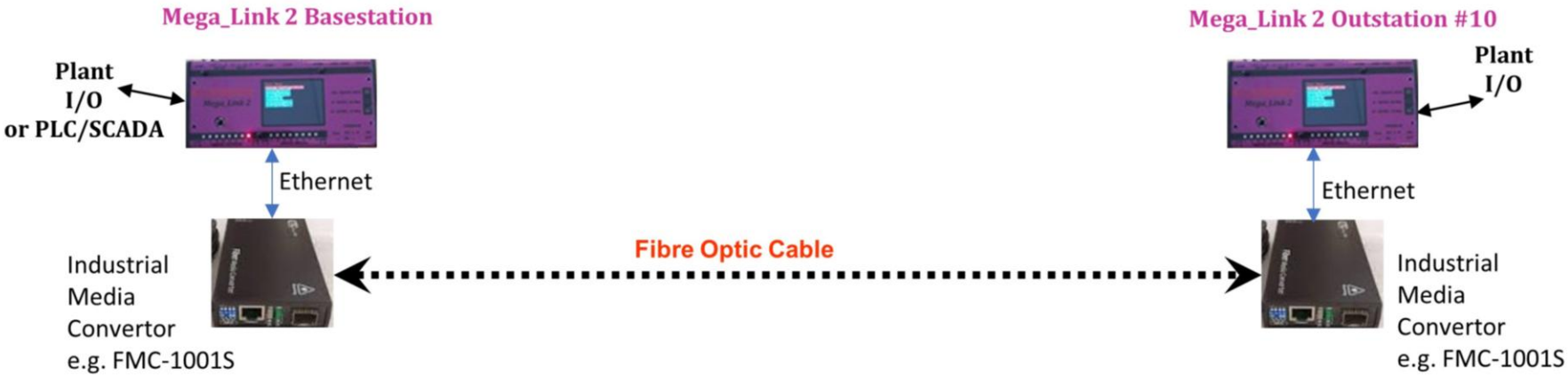
Outstation	Signal	Modbus Address
10	Ana IP 1, 2	86, 87
20	Ana IP 1, 2	166, 167
30	Ana IP 1, 2	246, 247
40	Ana IP 1, 2	326, 327

Licenced External Radio



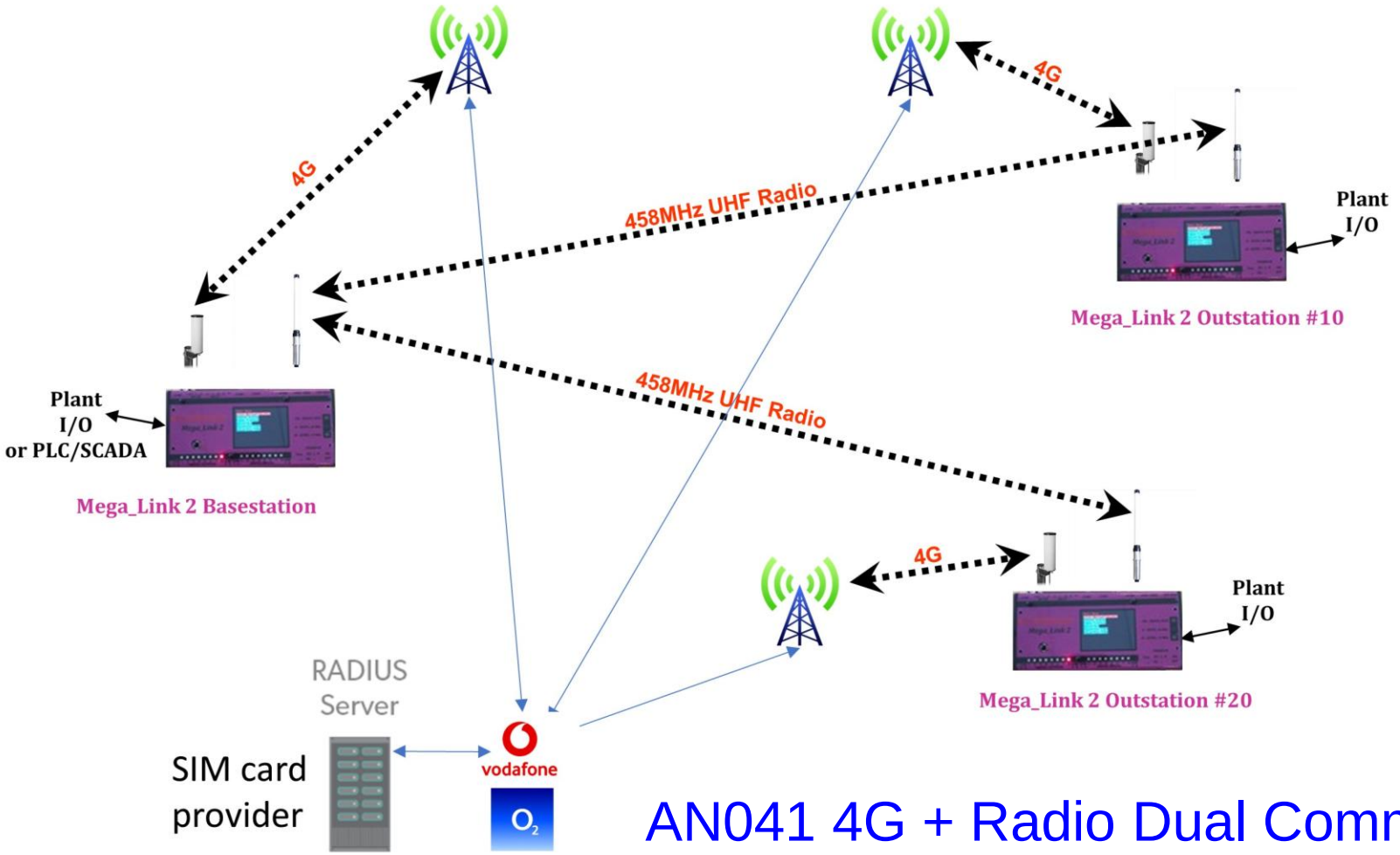
AN040 Licenced Frequency Communications

Fibre Optic Cable



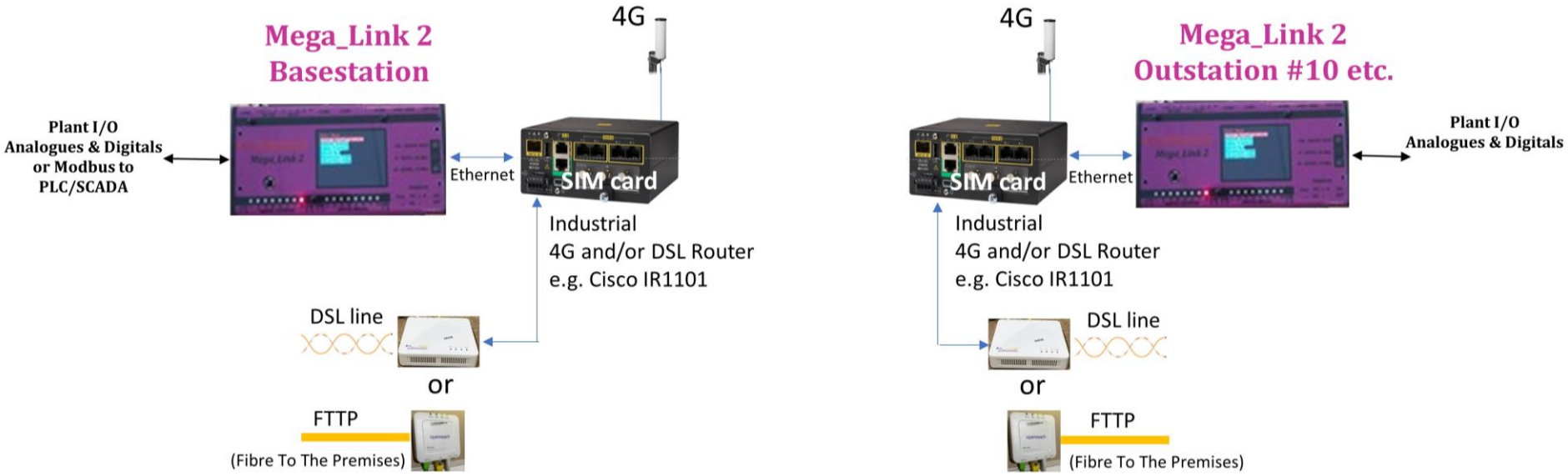
AN029 Fibre Optic Communications

4G + Radio Dual Comms



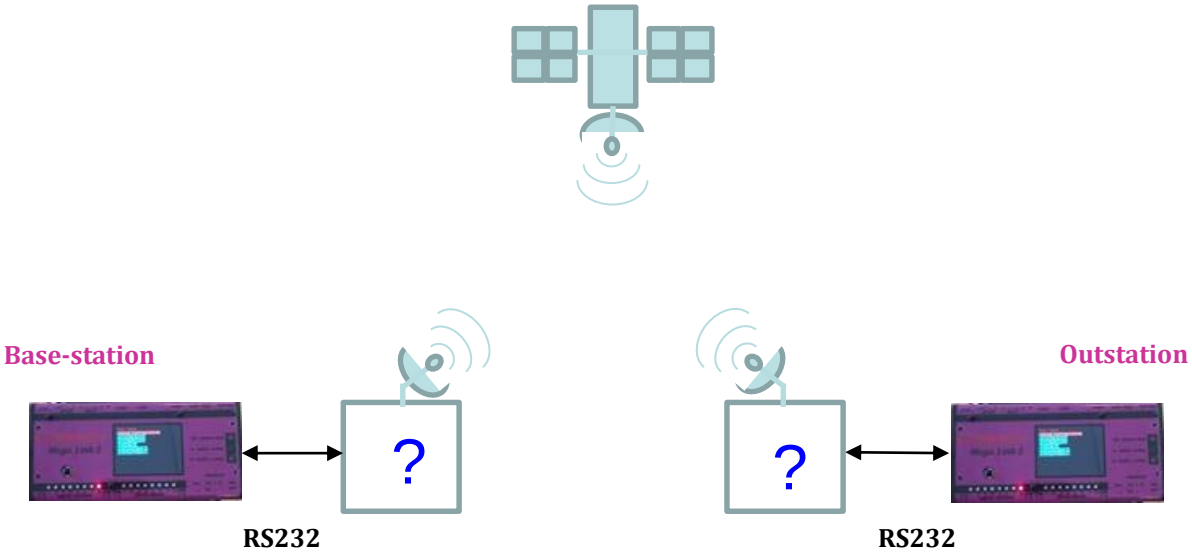
AN041 4G + Radio Dual Comms

4G & VDSL External Router



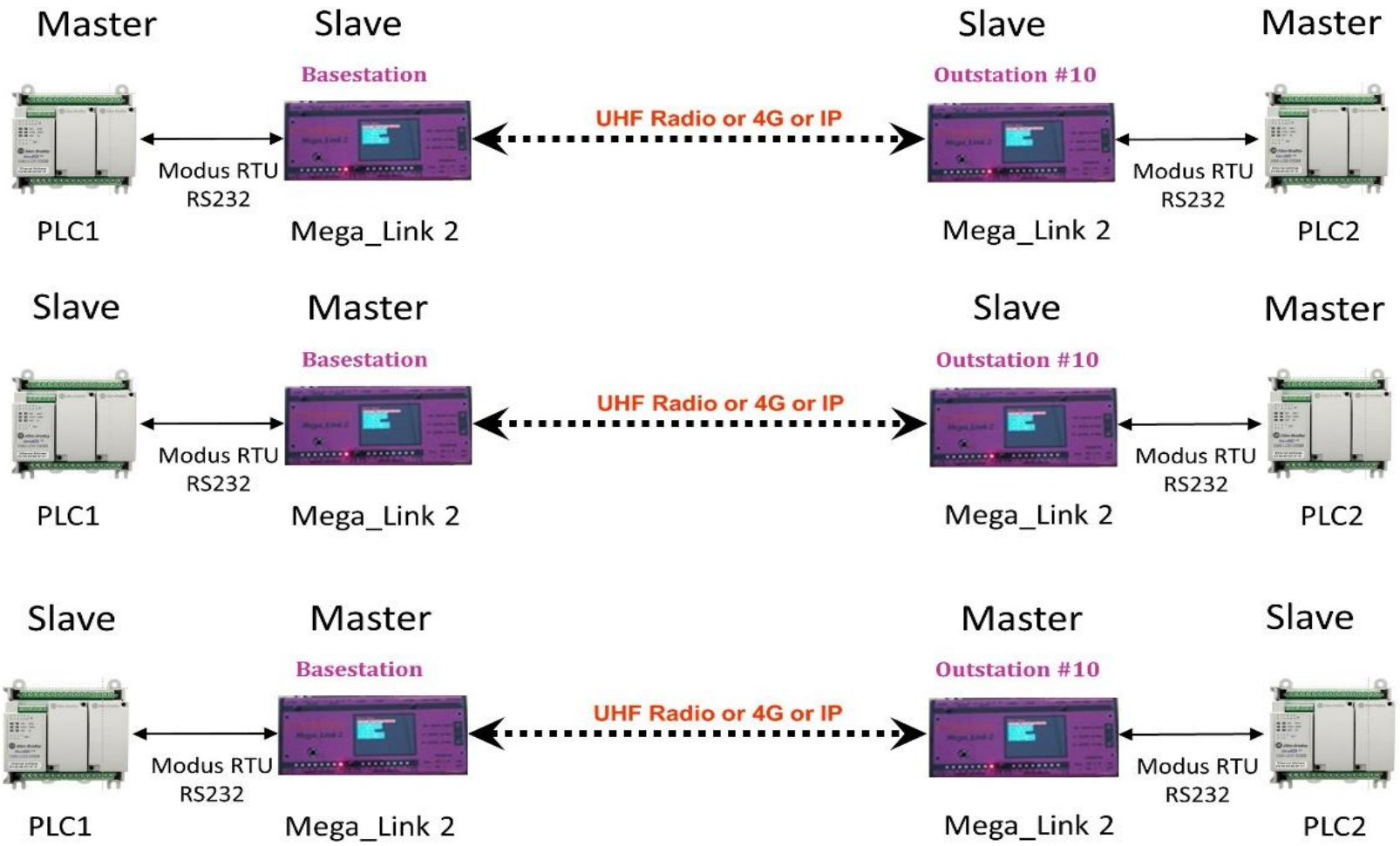
AN042 4G & DSL Router Communications

Satellite



AN0xx WIP

PLC to PLC Register Transfer



AN035 Using Modbus for PLC to PLC Register Transmission