

## PRODUCT SPECIFICATION



## ION-M7P/17EP/19P

### Multi-band, Multi-operator Remote Optical System *Support of AWS-3 Spectrum*

ION® is the unified platform for all conceivable optical distribution scenarios.

The ION optical distribution system leads the industry in flexibility while minimizing overall deployment cost.

CommScope's ION-M7P/17EP/19P is a multi-band, multi-operator remote unit configuration used in conjunction with a master unit in the ION optical distribution system. By supporting the entire AWS-3 spectrum, faster and more reliable wireless service is ensured and network quality can be improved.

This system transports up to four frequency bands simultaneously (700 MHz, 1700/2100 MHz, 1900 MHz), providing a cost-effective solution for distributing capacity from one or more base stations.

The ION system transports signals on the RF layer in a very cost-effective manner enabling

multiple operators to use multiple technologies and move their signals simultaneously from a cluster of base station to a number of remote locations over the same fiber.

The ION-M optical distribution system is a cost-effective coverage solution for dense urban areas, tunnels, subways, airports, convention centers, high-rise buildings and other locations where physical structures increase path loss.

The combination of these units gives maximum flexibility while providing a scalable solution. The system is optimized for GSM, LTE, CDMA and WCDMA signals in the 700 MHz, 1900 MHz and 1700/2100 MHz bands. Furthermore it is provisioned for future modulation schemes and frequency bands.

The ION can be easily set-up and supervised from a graphical user interface (GUI). Remote units are commissioned through the use of built-in test equipment. An auto leveling function compensates for the optical link loss making installation easy and quick.

The entire system as well as complete network of systems can be managed remotely most efficiently by CommScope's A.I.M.O.S., which includes alarm monitoring, task automation, statistics, inventory management and

many more features. Should a sophisticated interface not be required, the master unit can be directly connected to the alarm interface of a base station via its contact relay.

- Reduced visual impact form factor
- Optimized power consumption
- Efficient, high power amplifier
- Multi-operator support
- Complete operations and management system for configuration and alarming
- OMC with SNMP according to X.733 standard
- With reference to 3GPP TS25.143/ TS25.106/ 36.143/TS36.106 and 3GPP2C.S0051-0
- Single fiber for multiple bands and multiple remotes
- Easy installation and commissioning

## ION-M7P/17EP/19P - Product Specification

## Electrical

|                          |            |
|--------------------------|------------|
| Mains power, Vac         |            |
| nominal                  | 100 to 240 |
| operating                | 85 to 264  |
| Mains power, Vdc         |            |
| nominal                  | 48 to 60   |
| operating                | 36 to 72   |
| Power consumption, Watts | 850        |

## Optical

|                                               |                       |
|-----------------------------------------------|-----------------------|
| Optical Link Connectors                       | E2000/APC 8°          |
| Optical return loss, dB                       | 45                    |
| Fibre type                                    | Single mode E9/125 µm |
| Optical link budget, dB                       | 0 to 10               |
| Composite input power @ OTRx master side, dBm |                       |
| 700 MHz                                       | 3.0 nominal           |
| AWS1700/2100                                  | 3.0 / 2.5 nominal     |
| PCS1900                                       | 3.0 / 2.5 nominal     |

## Interface

|                                     |                        |
|-------------------------------------|------------------------|
| BTS Side (SMA)                      |                        |
| Number of connectors                | Standard               |
| 700 MHz                             | 4                      |
| AWS1700/2100                        | 4                      |
| PCS1900                             | 4                      |
| System optimized for BTS power, dBm |                        |
|                                     | 33                     |
|                                     | 46                     |
| Antenna port                        |                        |
| Connector                           | 4.3-10                 |
| RF output power                     | see band specification |
| Return loss, dB                     | 15                     |

## Commercial 700 MHz

|                      |            |
|----------------------|------------|
| Frequency range, MHz |            |
| Uplink               | 698 to 716 |
|                      | 776 to 787 |
| Downlink             | 728 to 757 |

RF output power per carrier, dBm\*\*\*

| Number of Carriers | 1  | 2   | 4  | 8  |
|--------------------|----|-----|----|----|
| LTE                | 43 | 40* | 37 | 34 |

|                                          |      |
|------------------------------------------|------|
| DL output tolerance over frequency, dB   | ±1   |
| DL output tolerance over temperature, dB | ±0.5 |

|                   |                  |
|-------------------|------------------|
| Spurious emission | <-13 dBm / 1 MHz |
|-------------------|------------------|

|                        |          |
|------------------------|----------|
| Input ICP3, dBm**      |          |
| ICP3 optimized         | -11 min. |
| Noise figure optimized | -18 min. |

|                        |          |
|------------------------|----------|
| Noise figure, dB**     |          |
| ICP3 optimized         | +10 max. |
| Noise figure optimized | +6 max.  |
|                        | 4.5      |

## AWS1700/2100

|                      |              |
|----------------------|--------------|
| Frequency range, MHz |              |
| Uplink               | 1710 to 1780 |
| Downlink             | 2110 to 2180 |

RF output power per carrier, dBm\*\*\*

| Number of Carriers | 1    | 2    | 4    | 8    |
|--------------------|------|------|------|------|
| CDMA               | 42.5 | 39.5 | 36.5 | 33.5 |
| LTE                | 43   | 40*  | 37   | 34   |
| UMTS               | 42.5 | 39.5 | 36.5 | 33.5 |

|                                          |      |
|------------------------------------------|------|
| DL output tolerance over frequency, dB   | ±1.1 |
| DL output tolerance over temperature, dB | ±0.5 |

|                   |                  |
|-------------------|------------------|
| Spurious emission | <-13 dBm / 1 MHz |
|-------------------|------------------|

|                        |          |
|------------------------|----------|
| Input ICP3, dBm**      |          |
| ICP3 optimized         | -12 min. |
| Noise figure optimized | -18 min. |

|                        |          |
|------------------------|----------|
| Noise figure, dB**     |          |
| ICP3 optimized         | +11 max. |
| Noise figure optimized | +6 max.  |
|                        | 4.5      |

\* 2 dB reduction of Pout @ carrier bandwidth &lt; 5 MHz

\*\* from Reference point B to A

\*\*\* PAR 7.5 dB @ 0.1 %

All figures are typical values unless otherwise stated

## ION-M7P/17EP/19P - Product Specification

## PCS1900

Frequency range, MHz

|          |              |
|----------|--------------|
| Uplink   | 1850 to 1915 |
| Downlink | 1930 to 1995 |

RF output power per carrier, dBm\*\*\*

| Number of Carriers | 1    | 2    | 4    | 8    |
|--------------------|------|------|------|------|
| GSM                | 43   | 40   | 37   | 34   |
| CDMA               | 42.5 | 39.5 | 36.5 | 33.5 |
| LTE                | 43   | 40*  | 37   | 34   |
| UMTS               | 42.5 | 39.5 | 36.5 | 33.5 |

DL output tolerance over frequency, dB . . . . . ±1.1

DL output tolerance over temperature, dB . . . . . ±0.5

Spectrum emission mask . . . . . &lt;-13 dBm / 1 MHz

Input ICP3, dBm\*\*

|                        |          |
|------------------------|----------|
| ICP3 optimized         | -12 min. |
| Noise figure optimized | -18 min. |

Noise figure, dB\*\*

|                        |          |
|------------------------|----------|
| ICP3 optimized         | +11 max. |
| Noise figure optimized | +6 max.  |
|                        | 4.5      |

## System Supervision and Control

|             |                           |
|-------------|---------------------------|
| Commands    | RF on/off                 |
|             | 4 external control ports  |
| Alarms      | Summary                   |
|             | Power Supply              |
|             | Optical UL and DL failure |
|             | RF UL and DL failure      |
|             | Temperature               |
|             | 4 external alarm inputs   |
| Supervision | Composite output power    |

## Mechanical\*\*\*\*

Height, width, depth, mm (in) . . . . . 824 x 176 x 220  
(32.4 x 6.9 x 8.7)

Weight, kg (lb) . . . . . 27 (59.4)

## Environmental

Operating temperature range, °C . . . . . -33 to +50

Ingress protection

|          |      |
|----------|------|
| RF part  | IP67 |
| Fan part | IP55 |

## Minimum SW Requirements for Basic Support

ION-M SW V7.0.1

## Ordering Information

ION-M7P/17EP/19P . . . . . 7714179\*\*\*\*\*  
 Depending on the selected options and the configuration the ordering material number contains an identifying suffix.

## Extension Unit Options

No connection to extension unit possible.

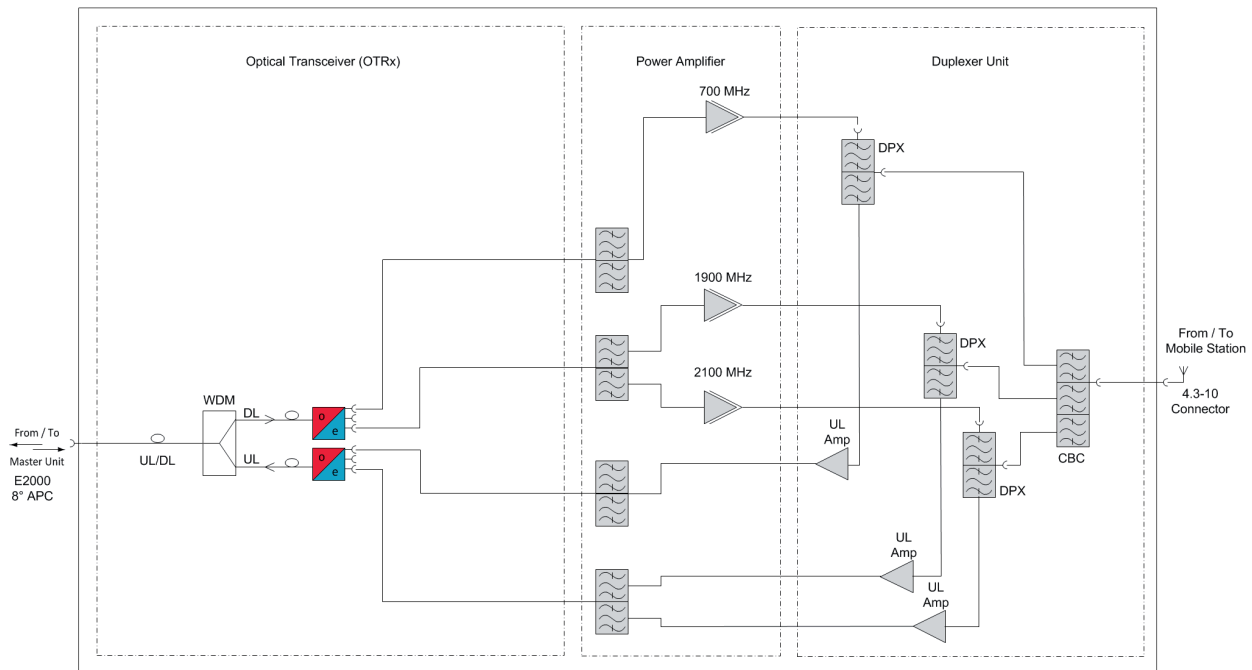
## Corresponding Master Unit OTRx

OTRx 70-85/90/17-21 MU-G . . . . . 7604304-XX

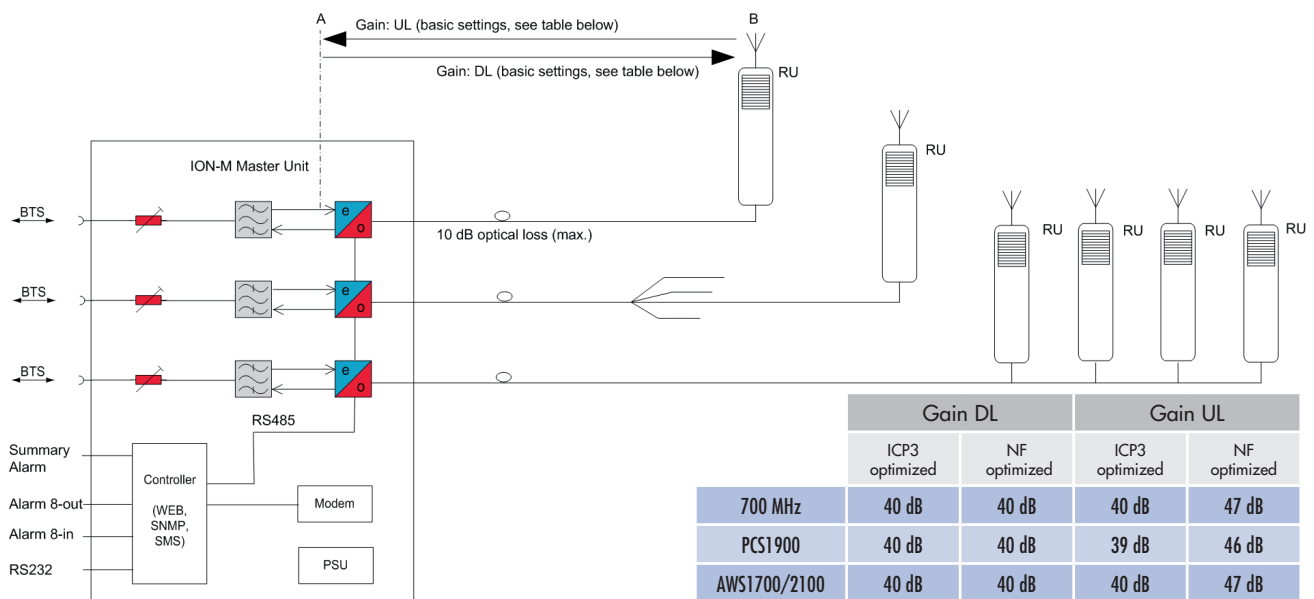
- \* 2 dB reduction of Pout @ carrier bandwidth < 5 MHz  
 \*\* from Reference point B to A  
 \*\*\* PAR 7.5 dB @ 0.1 %  
 \*\*\*\* Spacing required 50 mm (1.97 in) around unit  
 \*\*\*\*\* Subpopulations possible

All figures are typical values, unless otherwise stated.

## ION-M7P/17EP/19P - Product Specification



ION-M7P/17EP/19P Remote Unit Design Principle - Combined Antenna Port



## Design Principle ION System

**WARNING:**

*This is NOT a CONSUMER device. It is designed for installation by FCC LICENSEES and QUALIFIED INSTALLERS.*

*You MUST have an FCC LICENSE or express consent of an FCC LICENSE to operate this device.*

*Unauthorized use may result in significant forfeiture penalties, including penalties in excess of \$ 100,000 for each continuing violation.*

# COMMScope®

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