

Measuring System 3000

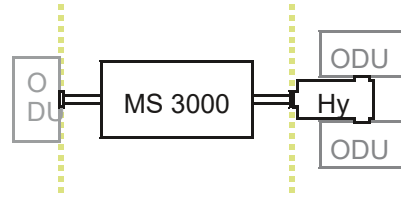
Introduction

MS 3000 is a professional microwave measuring system for testing a complete microwave link in laboratory conditions.

Besides testing under normal conditions, special investigations on effects of fading can also be performed, while transmission spectrum may be monitored by analyzers via coaxial probes (optional).

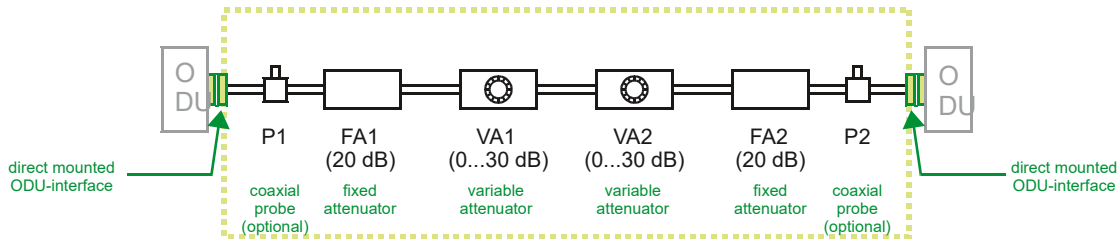
MS 3000 measuring system connects directly to out-door radio units (ODUs) and/or hybrid couplers via direct mounted ODU-interface.

MS 3000 series measuring systems are available in both single polarized (MS 3100) and dual polarized (MS 3200) versions.



Measuring System 3000 with ODU (left) and with hybrid coupler and ODUs (right)

System Description – Single Polarized System (MS 3100)



Block Scheme of Measuring System 3100 with Typical Attenuation Values and Coaxial Probes

The two main connection interfaces of MS 3100 are the direct mounted ODU-interfaces where outdoor radio units or hybrid couplers can be directly mounted as simply as to a direct mounted antenna.

Fixed attenuators (FA1,FA2, 2×20 dB) protects the Rx modules of the ODUs from high power levels, while variable attenuators (VA1, VA2, 2×0...30 dB) – together with the fixed ones – model free-space attenuation and fading in the dynamic range of 40 to 100 dB (different dynamic range is available upon request). Small attenuation values may be used for testing normal operation, while fading may also be simulated by increasing the overall attenuation of the fine-tunable variable attenuators.

The spectrum of the microwave link may be monitored via coaxial probes (P1 and P2, optional). Besides testing single-ODU (1+0) link configurations, one may connect direct mounted hybrid combiners to the ODU-interface, and investigate (1+1) hot standby systems.

Specifications – Single Polarized System (MS 3100)

| Type | Frequency Range | Attenuators* | Coaxial Probes** |
|----------------|-------------------|--------------------|------------------|
| MS 3100 5971 | 5.925–7.1250 GHz | 2×20 + 2×0...30 dB | optional |
| MS 3100 7185 | 7.125–8.500 GHz | 2×20 + 2×0...30 dB | optional |
| MS 3100 100110 | 10.100–11.700 GHz | 2×20 + 2×0...30 dB | optional |
| MS 3100 130150 | 12.750–15.350 GHz | 2×20 + 2×0...30 dB | optional |
| MS 3100 180230 | 17.700–23.600 GHz | 2×20 + 2×0...30 dB | optional |
| MS 3100 260 | 24.500–26.500 GHz | 2×20 + 2×0...30 dB | optional |
| MS 3100 280 | 27.500–29.500 GHz | 2×20 + 2×0...30 dB | optional |
| MS 3100 320380 | 31.000–39.500 GHz | 2×20 + 2×0...30 dB | optional |
| MS 3100 420 | 40.500–43.500 GHz | 2×20 + 2×0...30 dB | optional |
| MS 3100 800 | 71.000–86.000 GHz | 2×20 + 2×0...30 dB | n.a. |



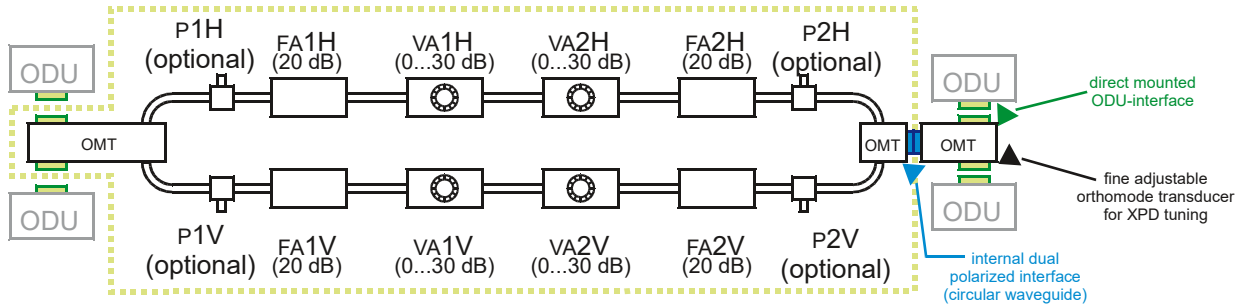
MS 3100 180230

* Different attenuators are available upon request.

** Coaxial probe types: 3.5 mm (SMA), 2.92 mm (K), 2.4 mm or other upon request.

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System Description – Dual Polarized System (MS 3200)

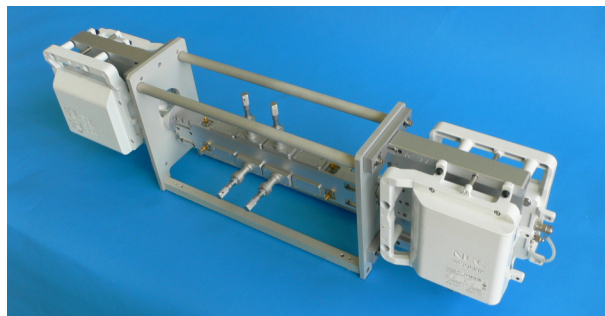


Block Scheme of Measuring System 3200 with Typical Attenuation Values and Coaxial Probes

Similarly to MS 3100, the main connection interfaces of MS 3200 are the direct mounted ODU-interfaces where outdoor radio units can be directly mounted. However, there is a significant difference: MS 3200 is equipped with dual polarized interface, therefore, four radio units can be connected by default (two on each side).

The signals of the radio units are combined together in a circular waveguide and immediately separated to two rectangular waveguides using orthomode transducers, giving the possibility to fine-tune the cross-polar discrimination of the microwave link.

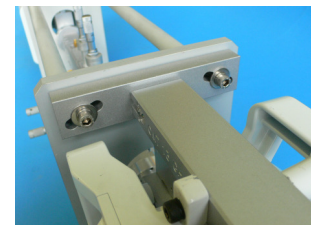
The attenuation scheme of both the horizontal and vertical branches are the same as for MS 3100, the attenuators can be adjusted independently.



MS 3200 130

Specifications – Dual Polarized System (MS 3200)

| Type | Frequency Range | Attenuators* | Coaxial Probes** |
|----------------|-------------------|--------------------|------------------|
| MS 3200 5971 | 5.925–7.1250 GHz | 2×20 + 2×0...30 dB | optional |
| MS 3200 7185 | 7.125–8.500 GHz | 2×20 + 2×0...30 dB | optional |
| MS 3200 100110 | 10.100–11.700 GHz | 2×20 + 2×0...30 dB | optional |
| MS 3200 130 | 12.750–13.250 GHz | 2×20 + 2×0...30 dB | optional |
| MS 3200 150 | 14.200–15.350 GHz | 2×20 + 2×0...30 dB | optional |
| MS 3200 180 | 17.700–19.700 GHz | 2×20 + 2×0...30 dB | optional |
| MS 3200 230 | 21.200–23.600 GHz | 2×20 + 2×0...30 dB | optional |
| MS 3200 260 | 24.500–26.500 GHz | 2×20 + 2×0...30 dB | optional |
| MS 3200 280 | 27.500–29.500 GHz | 2×20 + 2×0...30 dB | optional |
| MS 3200 320 | 31.000–33.400 GHz | 2×20 + 2×0...30 dB | optional |
| MS 3200 380 | 37.000–39.500 GHz | 2×20 + 2×0...30 dB | optional |
| MS 3200 420 | 40.500–43.500 GHz | 2×20 + 2×0...30 dB | optional |
| MS 3200 800 | 71.000–86.000 GHz | 2×20 + 2×0...30 dB | n.a. |



fine XPD adjustment

* Different attenuators are available upon request.

** Coaxial probe types: 3.5 mm (SMA), 2.92 mm (K), 2.4 mm or other upon request.