

W4MS-NKU is an reflective 4-Port Matrix Switch module Powered by Ideal Switch® technology from Menlo Microsystems.

W4MS-NKU provides 9W CW power handling, low insertion loss and high linearity from DC to 20 GHz and is powered and controlled through USB type-C connector and external connectors include 2.92mm-vertical launch connector for all RF port.

W4MS-NKU is ideal solution for RF signal routing in wireless infrastructure and wireless applications.



■ Features

- DC to 20 GHz frequency range
- 9W CW power handling
- Low insertion loss : 2.9 dB @ 20 GHz
- High linearity, IIP3 > 95 dBm
- High Reliability > 3 billion Switching Operations
- ESD rating : 2kV HBM between RF port and GND

■ Applications

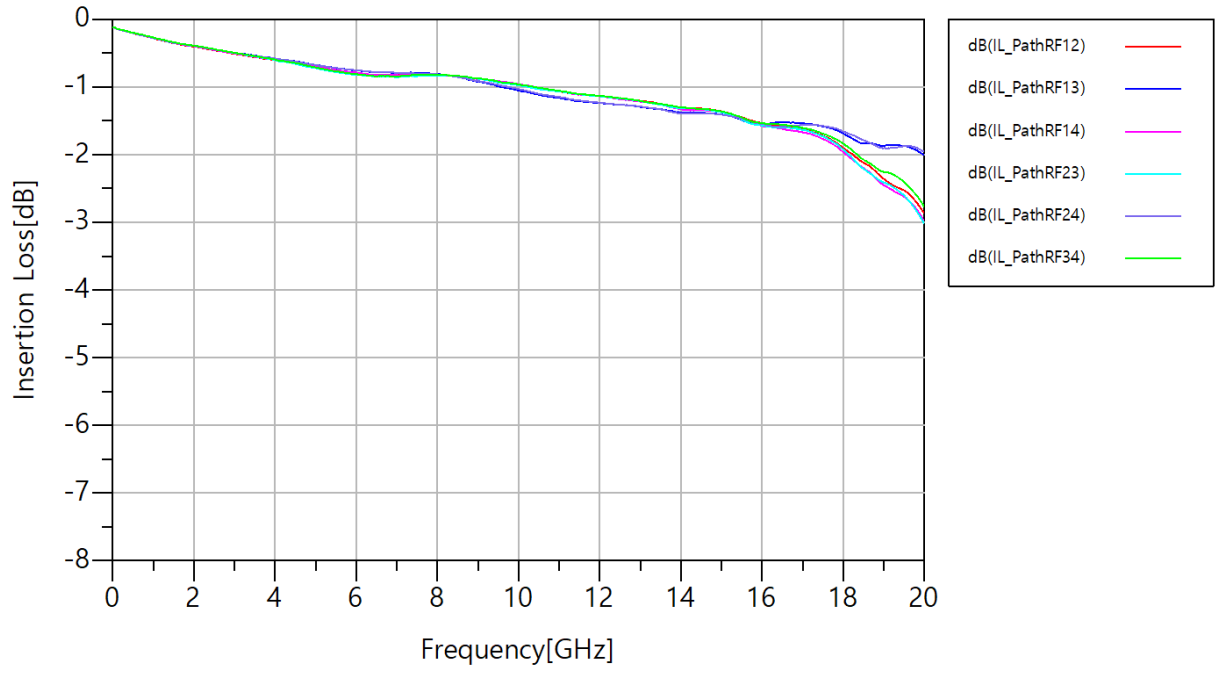
- Test & Measurement
- High Power RF Front-ends
- Antenna Tuning and Beam Steering
- 5G Wireless Communication
- RF signal routing

Electrical Specifications

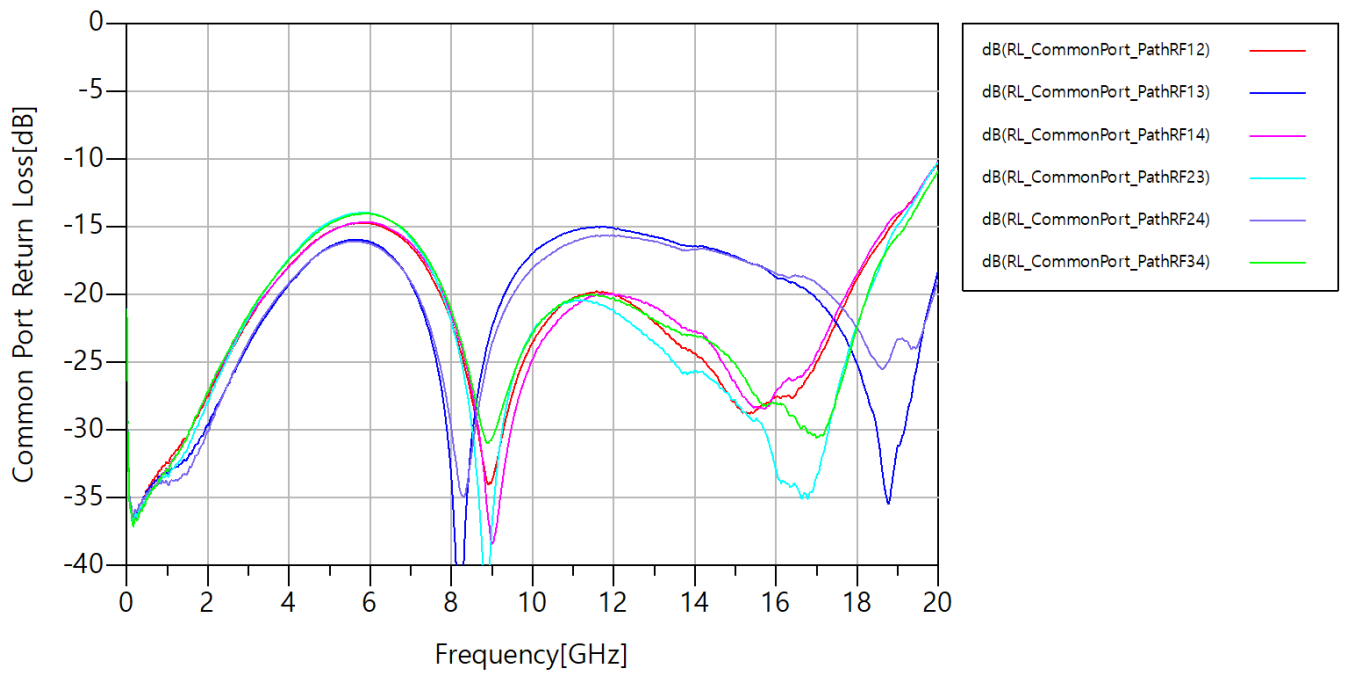
Parameter	Condition	Min	Typ	Max	Unit
Operation Frequency		DC		20	GHz
Insertion loss	@ 10 GHz, All RF port terminated		1.0		dB
	@ 20 GHz, All RF port terminated		2.9		
Return loss (common port)	@ 10 GHz, All RF port terminated		14		dB
	@ 20 GHz, All RF port terminated		10		
Return loss (active port)	@ 10 GHz, All RF port terminated		14		dB
	@ 20 GHz, All RF port terminated		10		
Isolation	@ 10 GHz, All RF port terminated		27		dB
	@ 20 GHz, All RF port terminated		17		
CW Input Power @ 6 GHz	Measured at +85°C			9	W
Input IP3	Measured at +25°C		95		dBm
Switching Time	COM port control time @Window10		200		us
On/Off Operations	Measured at 5 kHz cycling rate, measured at +25°C	3x10 ⁹	30x10 ⁹		Cycle
Hot Switch Restrictions	DC	-0.5		0.5	V
	RF	-		15	dBm
Current consumption	USB type-C		85		mA
Power Supply	USB type-C		5		V
Baud Rate	USB COM port		115200		bps
RF Connectors	2.92mm-female				
ESD HBM	RF port		2		kV
	USB port		16		
Operating Temperature		-40		85	°C

■ Typical Performance Data

< Insertion Loss >

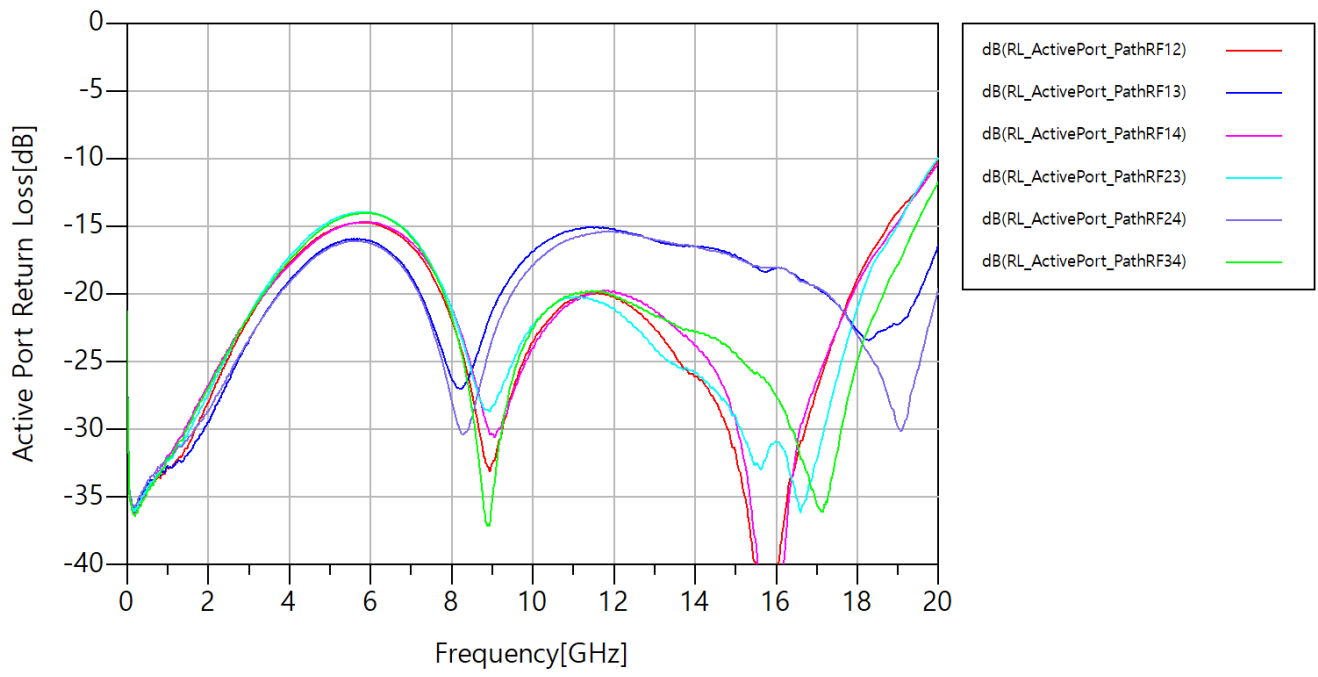


< Common Port Return Loss >

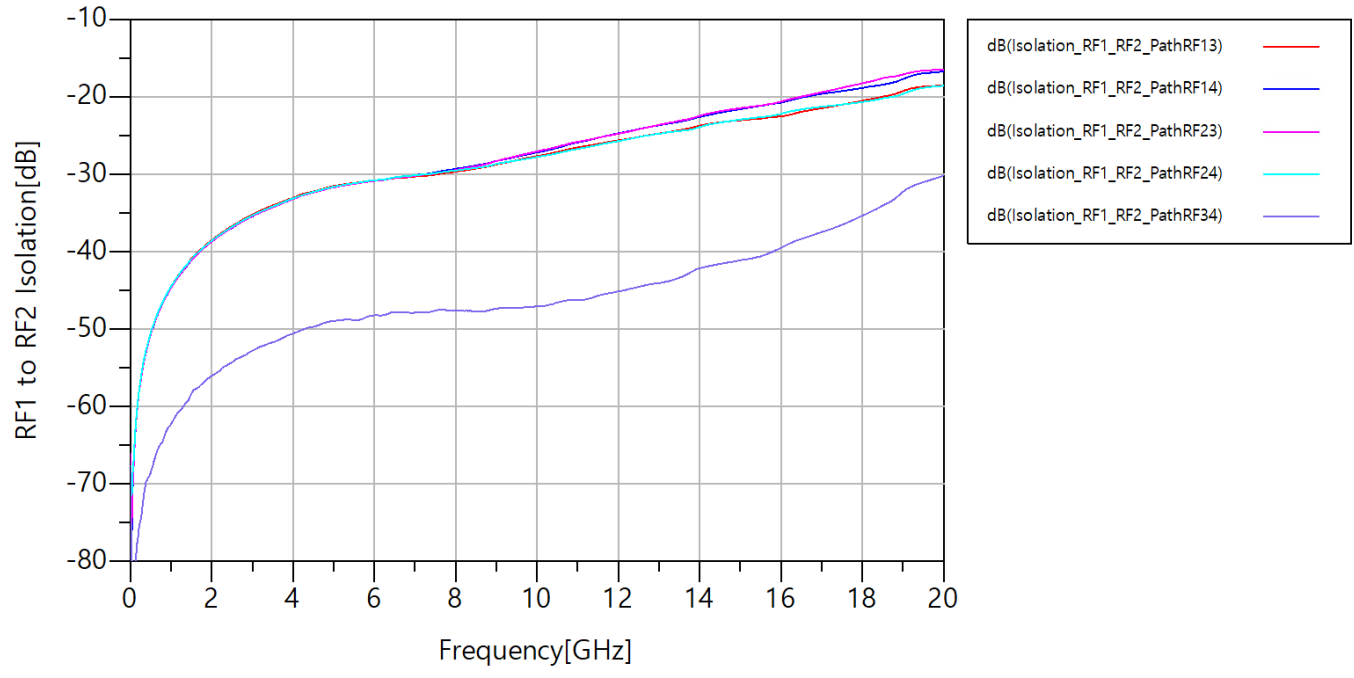


■ **Typical Performance Data**

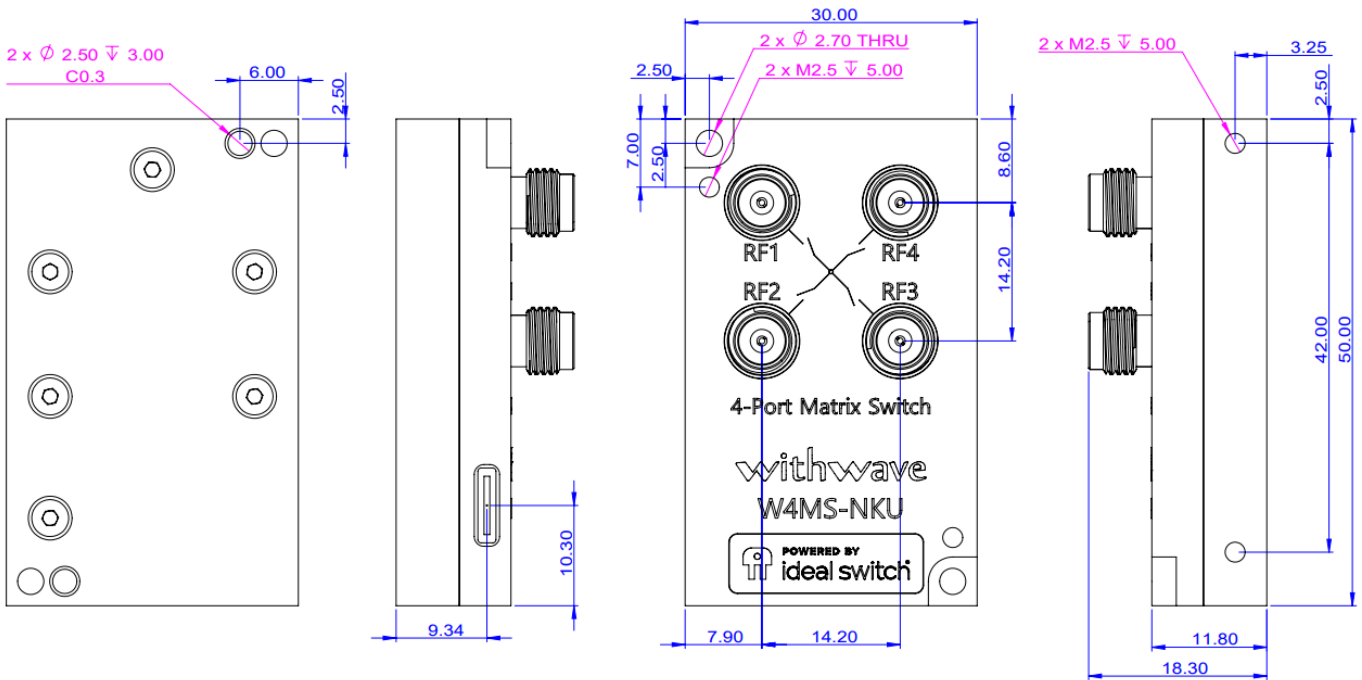
< Active Port Return Loss >



< RF1 to RF2 Isolation @ PathRFx >



■ **Dimension**



■ Control Description

Command Format	COM port configuration
All commands must end with a semicolon. All commands are capitalized only. Port number should be 2-digit decimal.	Baud Rate :115200 Data bits : 8 Parity : None Stop bits : 1 Flow Type :None

■ Command Specification

Index	Command	Description	Return	Example
1	*IDN?;	Query product information	Product PN, Manufacturer , W4MS-NKU, Withwave SW version, Serial number co, Ltd., V1.0, SN0001	
2	RESET;	Reset the product	RESET;	RESET;
3	Pxy;	Switching to RFx to RFy Port number(xy) should be 2-digit decimal	Pxy;	P12;
4	OFF;	All off state	OFF;	OFF;

■ Error Code

Index	Return	Description
1	E1;	Semicolon missing
2	E2;	Incorrect commands

■ **Revision History**

Revision	Date	Changes
Ver 1.0	2023-05-31	Initial work
Ver 1.1	2023-08-16	Add hot switch restrictions, modify some electrical specifications