Manual Phase Shifters

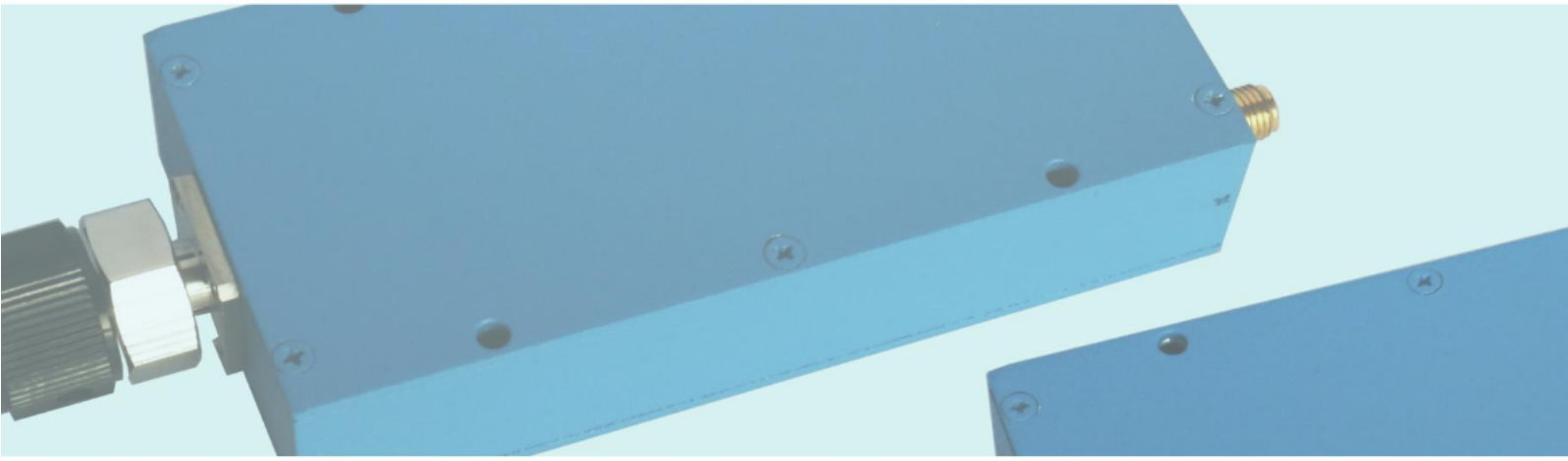


Table of Contents

NMPS5

5.4°/GHz, DC~40GHz

Features:
* Low Insertion Loss
* High Power
* High Reliable

Applications:
* Laboratory Test
* Transmitter
* Instrumentation
* Wireless

Electrical

Frequency:	DC~40GHz
VSWR:	1.5 max.
Insertion Loss:	0.8dB max.
Phase Adjustment:	5.4°/GHz max.
Impedance:	50Ω

Mechanical

RF Connectors:	2.92mm
Outer Conductor:	Passivated stainless steel
Dielectric:	PEI or PTFE
Inner Conductor:	Gold plated beryllium copper

Environmental

Operation Temperature:	-55~+125°C

How To Order

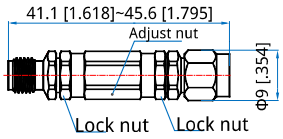
NMPS5-X-Y
X: Frequency in GHz
Y: Connector type

Connector naming rules:
KKF - 2.92mm Male and Female (Outline A)
KFKF - 2.92mm Female (Outline B)
KK - 2.92mm Male (Outline C)

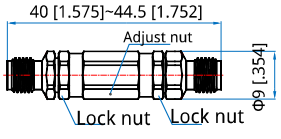
Examples:
To order a phase shifter, DC-40GHz, 2.92mm male to 2.92mm female, specify NMPS5-40-KKF.

Customization is available upon request.

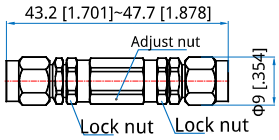
Outline Drawings



Outline A



Outline B



Outline C

Unit: mm [in]
Tolerance: ±0.2mm [±0.008in]

Usage

1. Tighten the lock nuts.
2. Connect both ends to cables.
3. Release the lock nuts.
4. Turn the adjust nut to adjust phase.
5. Tighten the lock nuts.

NMPS10

10.2°/GHz, DC~26.5GHz

Features:
* Low Insertion Loss
* High Power
* High Reliable

Applications:
* Laboratory Test
* Transmitter
* Instrumentation
* Wireless

Electrical

Frequency:	DC~26.5GHz
VSWR:	1.3 max.
Insertion Loss:	0.8dB max.
Phase Adjustment:	10.2°/GHz max.
Impedance:	50Ω

Mechanical

RF Connectors:	SMA
Outer Conductor:	Passivated stainless steel
Dielectric:	PEI or PTFE
Inner Conductor:	Gold plated beryllium copper

Environmental

Operation Temperature:	-55~+125°C

How To Order

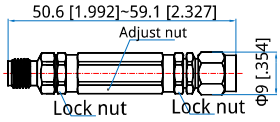
NMPS10-X-Y
X: Frequency in GHz
Y: Connector type

Connector naming rules:
SSF - SMA Male and Female (Outline A)
SFSF - SMA Female (Outline B)
SS - SMA Male (Outline C)

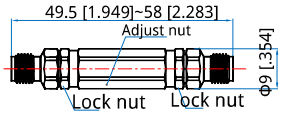
Examples:
To order a phase shifter, DC~26.5GHz, SMA male to SMA female, specify NMPS10-26.5-SSF.

Customization is available upon request.

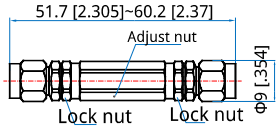
Outline Drawings



Outline A



Outline B



Outline C

Unit: mm [in]
Tolerance: ±0.2mm [±0.008in]

Usage

6. Tighten the lock nuts.
7. Connect both ends to cables.
8. Release the lock nuts.
9. Turn the adjust nut to adjust phase.
10. Tighten the lock nuts.

NMPS20

20°/GHz

Features:
* Low Insertion Loss
* High Power
* High Reliable

Applications:
* Laboratory Test
* Transmitter
* Instrumentation
* Wireless

Electrical

Frequency:	DC~18GHz
Impedance:	50Ω
Average Power:	50W
Peak Power*1:	5KW

[1] Pulse width: 5us, duty cycle: 1%.

Frequency (GHz)	VSWR (max.)	Insertion Loss (dB, max.)	Phase Adjustment*2 (°)
DC~2	1.25	0.35	0~40
DC~3	1.3	0.5	0~60
DC~6	1.4	0.75	0~120
DC~9	1.5	1	0~180
DC~12	1.6	1.25	0~240
DC~18	1.6	1.5	0~360

[2] Phase shift varies linearly corresponding to the frequency. For example, if the maximum phase shift is 360°@18GHz, the maximum phase shift is 180°@9GHz.

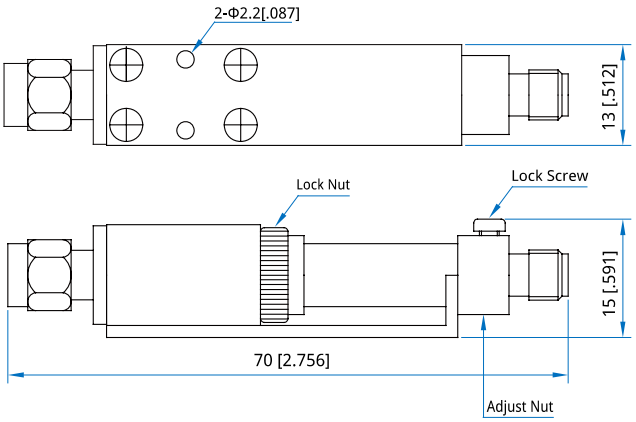
Mechanical

Size:	70*13*15mm 2.756*0.512*0.591in
Weight:	50g
RF Connectors:	SMA
Outer Conductor:	Gold plated brass
Male Inner Conductor:	Gold plated brass
Female Inner Conductor:	Gold plated beryllium copper

Environmental

Operating Temperature:	-10~+50℃
Non-operating Temperature:	-40~+70℃

Outline Drawings



Unit: mm [in]
Tolerance: ±0.2mm [±0.008in]

Usage

11. Tighten the lock nuts.
12. Connect both ends to cables.
13. Release the lock nuts.
14. Turn the adjust nut to adjust phase.
15. Tighten the lock nuts.

How To Order

NMPS20-X-Y
X: Frequency in GHz
Y: Connector type

Connector naming rules:
S - SMA

Examples:
To order a phase shifter, DC~6GHz, SMA male to SMA female, specify NMPS20-6-S.

Customization is available upon request.

NMPS45

45°/GHz

Features:
* Low Insertion Loss
* High Power
* High Reliable

Applications:
* Laboratory Test
* Transmitter
* Instrumentation
* Wireless

Electrical

Frequency:	DC~8GHz
Impedance:	50Ω
Average Power:	50W
Peak Power*1:	5KW

[1] Pulse width: 5us, duty cycle: 1%.

Frequency (GHz)	VSWR (max.)	Insertion Loss (dB, max.)	Phase Adjustment*2 (°)
DC~1	1.2	0.3	0~45
DC~2	1.3	0.5	0~90
DC~4	1.4	0.75	0~180
DC~6	1.5	1	0~270
DC~8	1.5	1.25	0~360

[2] Phase shift varies linearly corresponding to the frequency. For example, if the maximum phase shift is 360°@8GHz, the maximum phase shift is 180°@4GHz.

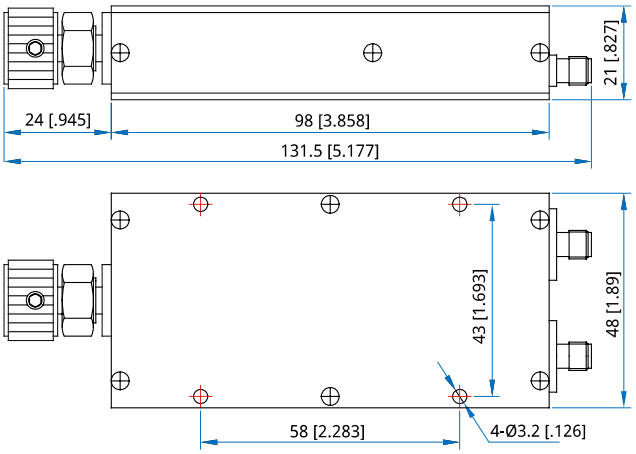
Mechanical

Size:	131.5*48*21mm 5.177*1.89*0.827in
Weight:	200g
RF Connectors:	SMA Female
Outer Conductor:	Gold plated brass
Male Inner Conductor:	Gold plated brass
Female Inner Conductor:	Gold plated beryllium copper
Housing:	Aluminum

Environmental

Operating Temperature:	-10~+50℃
Non-operating Temperature:	-40~+70℃

Outline Drawings



Unit: mm [in]
Tolerance: ±0.2mm [±0.008in]

How To Order

NMPS45-X-Y
X: Frequency in GHz
Y: Connector type

Connector naming rules:
S - SMA

Examples:
To order a phase shifter, DC~6GHz, SMA male to SMA female, specify NMPS45-6-S.

Customization is available upon request.

NMPS60

60°/GHz

Features:
* Low Insertion Loss
* High Power
* High Reliable

Applications:
* Laboratory Test
* Transmitter
* Instrumentation
* Wireless

Electrical

Frequency:	DC~8GHz
Impedance:	50Ω
Average Power:	100W
Peak Power*1:	5KW

[1] Pulse width: 5us, duty cycle: 2%.

Frequency (GHz)	VSWR (max.)	Insertion Loss (dB, max.)	Phase Adjustment*2 (°)
DC~1	1.2	0.3	0~60
DC~2	1.3	0.5	0~120
DC~3	1.4	0.8	0~180
DC~4	1.4	1.0	0~240
DC~6	1.5	1.0	0~360
DC~8	1.5	1.25	0~480

[2] Phase shift varies linearly corresponding to the frequency. For example, if the maximum phase shift is 360°@6GHz, the maximum phase shift is 180°@3GHz.

Mechanical

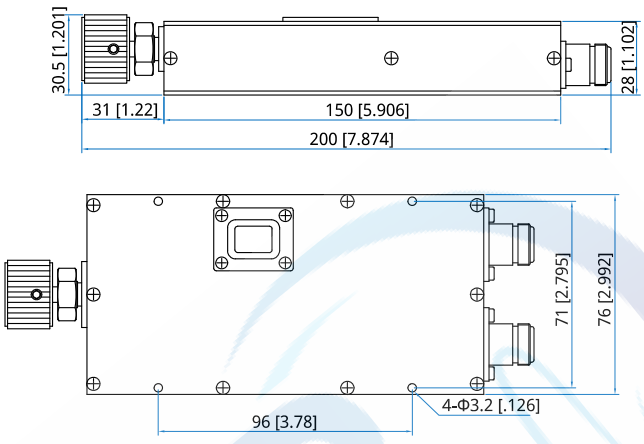
Size*3:	200*76*30.5mm
	7.874*2.992*1.201in
Size*4:	205*76*50.5mm
	8.071*2.992*1.988in
Weight:	490g
RF Connectors:	N Female, SMA Female
Outer Conductor:	Gold Plated Brass
Inner Conductor:	Gold Plated Beryllium Bronze
Housing Material:	Aluminum

[3] Analog.
[4] Digital.

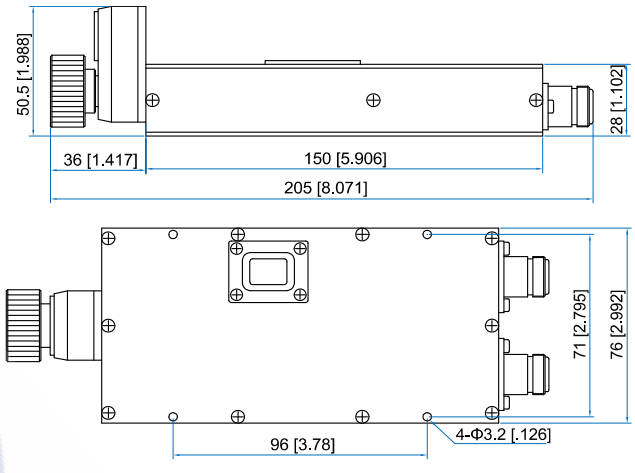
Environmental

Operating Temperature:	-10~+50℃
Non-operating Temperature:	-40~+70℃

Outline Drawings



Qutline A



Qutline B

Unit: mm [in]
Tolerance: ±0.2mm [±0.008in]

How To Order

NMPS60-X-Y-Z
X: Frequency in GHz
Y: Connector type
Z: Display

Connector naming rules:
S - SMA
N - N

Display naming rules:
A - Analog (Outline A)
D - Digital (Outline B)

Examples:
To order a digital phase shifter, DC~4GHz, N female to N female, specify NMPS60-4-N-D.

Customization is available upon request.

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NMPS90

90°/GHz

Features:
* Low Insertion Loss
* High Power
* High Reliable

Applications:
* Laboratory Test
* Transmitter
* Instrumentation
* Wireless

Electrical

Frequency:	DC~8GHz
Impedance:	50Ω
Average Power:	100W
Peak Power*1:	5KW

[1] Pulse width: 5us, duty cycle: 2%.

Frequency (GHz)	VSWR (max.)	Insertion Loss (dB, max.)	Phase Adjustment*2 (°)
DC~1	1.2	0.5	0~90
DC~2	1.3	0.8	0~180
DC~3	1.4	1.2	0~270
DC~4	1.4	1.2	0~360
DC~6	1.5	1.4	0~540
DC~8	1.5	1.5	0~720

[2] Phase shift varies linearly corresponding to the frequency. For example, if the maximum phase shift is 360°@6GHz, the maximum phase shift is 180°@3GHz.

Mechanical

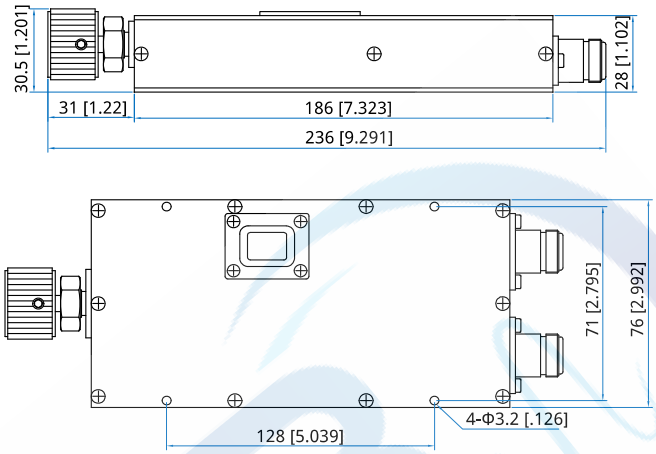
Size*3:	236*76*30.5mm
	9.291*2.992*1.201in
Size*4:	241*76*50.5mm
	9.488*2.992*1.988in
Weight:	550g
RF Connectors:	N Female, SMA Female
Outer Conductor:	Nickle Plated Brass
Inner Conductor:	Gold Plated Beryllium Bronze
Housing Material:	Aluminum

[3] Analog.
[4] Digital.

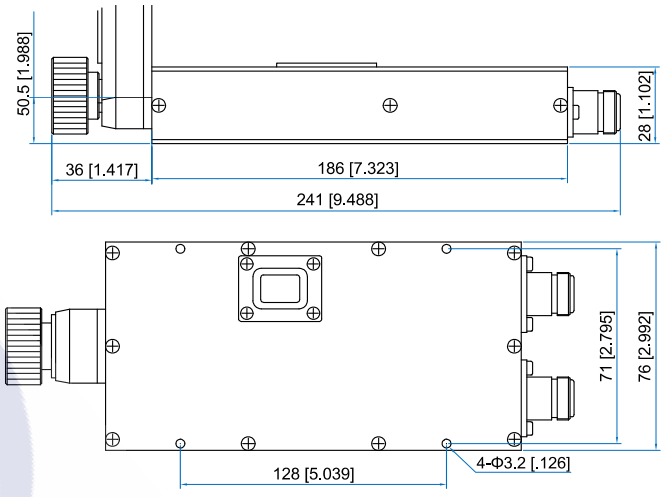
Environmental

Operating Temperature:	-10~+50℃
Non-operating Temperature:	-40~+70℃

Outline Drawings



Outline A



Outline B

Unit: mm [in]
Tolerance: ±0.2mm [±0.008in]

How To Order

NMPS90-X-Y-Z
X: Frequency in GHz
Y: Connector type
Z: Display

Connector naming rules:
S - SMA
N - N

Display naming rules:
A - Analog (Outline A)
D - Digital (Outline B)

Examples:
To order a digital phase shifter, DC~4GHz, N female to N female, specify NMPS90-4-N-D.

Customization is available upon request.

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NMPS180

180°/GHz

Features:
* Low Insertion Loss
* High Power
* High Reliable

Applications:
* Laboratory Test
* Transmitter
* Instrumentation
* Wireless

Electrical

Frequency:	DC~4GHz
Impedance:	50Ω
Average Power:	100W
Peak Power*1:	5KW

[1] Pulse width: 5us, duty cycle: 2%.

Frequency (GHz)	VSWR (max.)	Insertion Loss (dB, max.)	Phase Adjustment*2 (°)
DC~1	1.4	1.0	0~180
DC~2	1.5	1.5	0~360
DC~3	1.5	1.75	0~540
DC~4	1.5	2.0	0~720

[2] Phase shift varies linearly corresponding to the frequency. For example, if the maximum phase shift is 360°@2GHz, the maximum phase shift is 180°@1GHz.

Mechanical

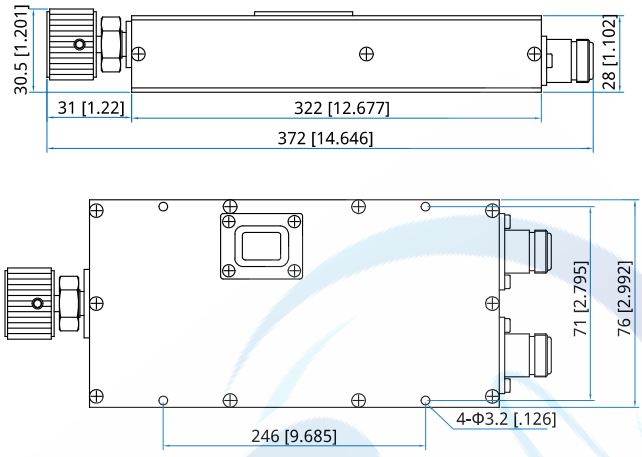
Size*3:	372*76*30.5mm
	14.646*2.992*1.201in
Size*4:	377*76*50.5mm
	14.843*2.992*1.988in
Weight:	795g
RF Connectors:	N Female, SMA Female
Outer Conductor:	Nickle Plated Brass
Inner Conductor:	Gold Plated Beryllium Bronze
Housing Material:	Aluminum

[3] Analog.
[4] Digital.

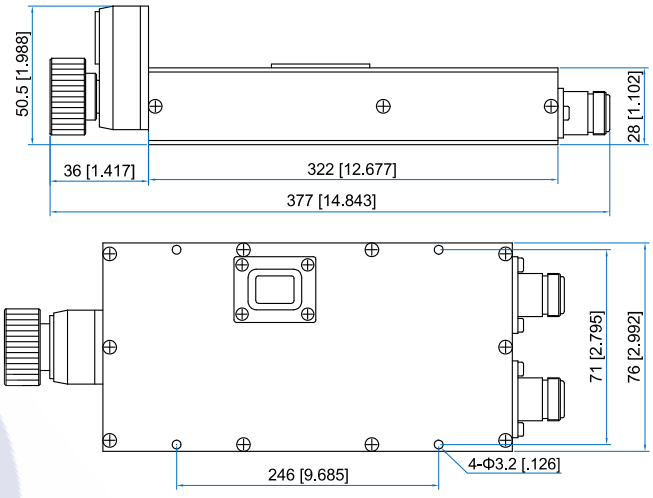
Environmental

Operating Temperature:	-10~+50°C
Non-operating Temperature:	-40~+70°C

Outline Drawings



Outline A



Outline B

Unit: mm [in]
Tolerance: ±0.2mm [±0.008in]

How To Order

NMPS180-X-Y-Z
X: Frequency in GHz
Y: Connector type
Z: Display

Connector naming rules:
S - SMA
N - N

Display naming rules:
A - Analog (Outline A)
D - Digital (Outline B)

Examples:
To order a digital phase shifter, DC~3GHz, N female to N female, specify NMPS180-3-N-D.

Customization is available upon request.

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Manual Phase Shifters

NMPS360

360°/GHz

Features:
* Low Insertion Loss
* High Power
* High Reliable

Applications:
* Laboratory Test
* Transmitter
* Instrumentation
* Wireless

Electrical

Frequency:	DC~2GHz
Impedance:	50Ω
Average Power:	100W
Peak Power*1:	5KW

[1] Pulse width: 5us, duty cycle: 2%.

Frequency (GHz)	VSWR (max.)	Insertion Loss (dB, max.)	Phase Adjustment*2 (°)
DC~1	1.4	1.5	0~360
DC~2	1.5	2.0	0~720

[3] Phase shift varies linearly corresponding to the frequency. For example, if the maximum phase shift is 720°@2GHz, the maximum phase shift is 360°@1GHz.

Mechanical

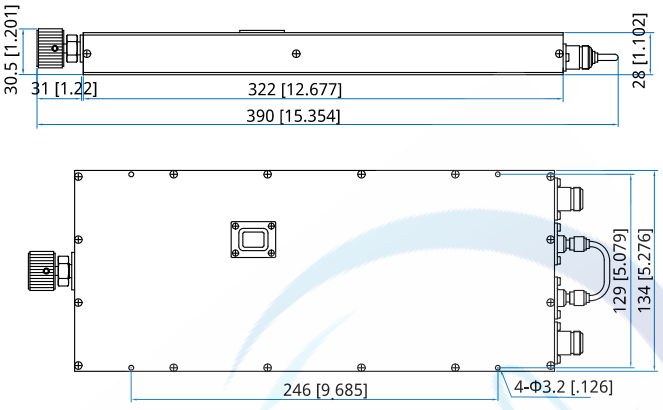
Size*3:	390*134*30.5mm
	15.354*5.276*1.201in
Size*4:	395*134*50.5mm
	15.551*5.276*1.988in
Weight:	1800g
RF Connectors:	N Female, SMA Female
Outer Conductor:	Nickle Plated Brass
Inner Conductor:	Gold Plated Beryllium Bronze
Housing Material:	Aluminum

[3] Analog.
[4] Digital.

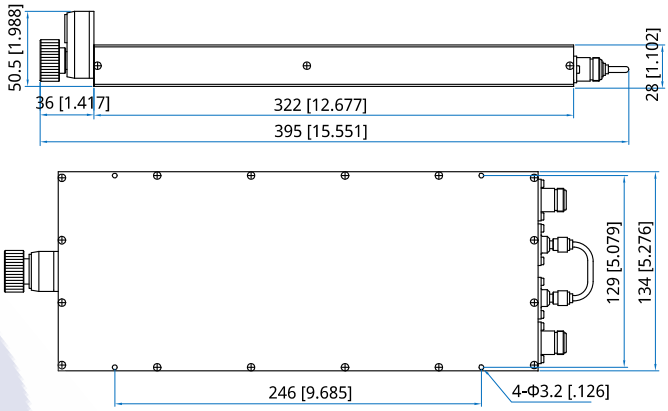
Environmental

Operating Temperature:	-10~+50℃
Non-operating Temperature:	-40~+70℃

Outline Drawings



Outline A



Outline B

Unit: mm [in]
Tolerance: ±0.2mm [±0.008in]

How To Order

NMPS360-X-Y-Z
X: Frequency in GHz
Y: Connector type
Z: Display

Examples:
To order a digital phase shifter, DC~1GHz, N female to N female, specify NMPS360-1-N-D.

Customization is available upon request.

Connector naming rules:
S - SMA
N - N

Display naming rules:
A - Analog (Outline A)
D - Digital (Outline B)

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NMPS900

900°/GHz

Features:
* Low Insertion Loss
* High Power
* High Reliable

Applications:
* Laboratory Test
* Transmitter
* Instrumentation
* Wireless

Electrical

Frequency:	DC~1GHz
Impedance:	50Ω
Average Power:	100W
Peak Power*1:	5KW
VSWR:	1.5 max.
Insertion Loss:	2.5dB max.
Phase Adjustment:	0~900°

[1] Pulse width: 5us, duty cycle: 2%.

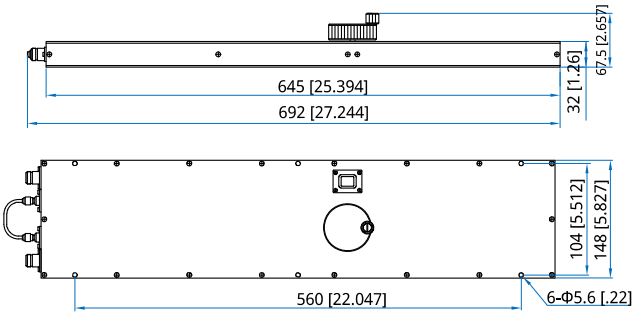
Mechanical

Size:	692*148*67.5mm 27.244*5.827*2.657in
Weight:	2700g
RF Connectors:	N Female, SMA Female
Outer Conductor:	Nickel Plated Brass
Inner Conductor:	Gold Plated Beryllium Bronze
Housing Material:	Aluminum

Environmental

Operating Temperature:	-10~+50℃
Non-operating Temperature:	-40~+70℃

Outline Drawings



Analog

Unit: mm [in]
Tolerance: ±0.2mm [±0.008in]

How To Order

NMPS900-X-Y
X: Frequency in GHz
Y: Connector type
Z: Display

Examples:
To order an analog phase shifter, DC~1GHz, N female to N female, specify NMPS900-1-N-A.

Connector naming rules:
S - SMA
N - N

Display naming rules:
A - Analog
D - Digital

Customization is available upon request.