

## compact multi dimensional translation stages

### series PXY D12

- up to 200µm range of motion in xy
- high resonant frequency
- option: optimization for minimum z-motion

#### applications:

- scanning systems
- STM and AFM microscopy
- wafer handling
- micro electronics

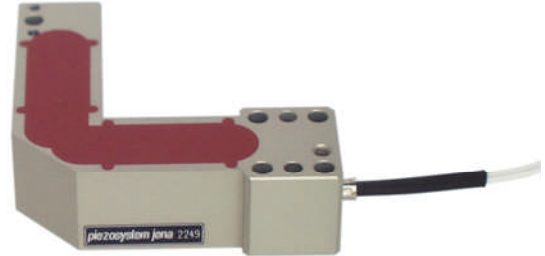


fig.: PXY 80 D12

#### Concept

The elements of the PXY D12 series were developed for STM and AFM applications. These systems are optimized for high resonant frequency and high stiffness in both axes.

As an option for applications like AFM microscopy the systems can be equipped with a z-axis stage.

The PZ D12 element then provides a motion of 8µm or 20µm in z-direction. Equipped with a special adapter, it can be mounted directly on the PXY D12 element. The PZ8 D12 element has a superior resonant frequency of 3 kHz.

#### Specials

For special applications, the elements can be optimized for minimum z-motion of lower than 30nm while moving in x- and y- direction (part no. S-605-11).

The elements of the PXY D12 series can be equipped with an integrated measurement system. As a result, the effects of creep and hysteresis will be overcome.

Also, the systems may be specially prepared for vacuum and/or cryogenic applications.

#### Mounting/Installation

For stage mounting there are 4 through holes and 2 pin holes available.

Another 2 tapped holes are available to mount components.

**Technical Data:**

series PXY D12		unit	PXY 40 D12	PXY 80 D12	PXY 200 D12	PZ 8 D12	PZ 20 D12	
part no.		-	S-605-37	S-605-10	S-605-20	S-605-60	S-605-63	
axes		-	x, y			z		
motion open loop ( $\pm 10\%$ )*		x, y	$\mu\text{m}$	40	80	200	8	20
capacitance ( $\pm 20\%$ **)		x, y	$\mu\text{F}$	0.7	1.7	2.6	0.7	0.7
resolution open loop***		x, y	nm	0.08	0.16	0.4	0.01	0.06
resonant frequency		x, y	Hz	1100 / 1300	900 / 1200	400 / 600	-	-
		z	Hz	-	3	-	3000	1800
stiffness		x, y	N/ $\mu\text{m}$	1.5 / 1.8	0.8 / 0.55	0.3 / 0.2	4.7	3.3
dimensions		length l	mm	54	54	57.5	20.5	20.5
		width w	mm	53.5	53.5	64	26	26
		height h	mm	20	16	16	15	15
voltage range		V	-20 ... +130					
connector		voltage	-	LEMO 0S.302				
cable length		m	1.0					
min. bend radius of cable		mm	>15					
temperature range		$^{\circ}\text{C}$	-20 ... +80					
material		-	stainless steel					
weight		g	90	90	160	15	20	

series PXY D12 with integrated feedback sensor		unit	PXY 80 D12 SG	PXY 200 D12 SG	PZ 8 D12 SG	PZ 20 D12 SG	
part no.		-	S-605-14	S-605-21	S-605-61	S-605-64	
motion open loop ( $\pm 10\%$ )*		x, y	$\mu\text{m}$	80	200	8	20
motion closed loop ( $\pm 0,2\%$ )*		x, y	$\mu\text{m}$	65	160	6.4	16
feedback sensor		-	strain gauge				
resolution closed loop ***		x, y	nm	35			
typ. repeatability		nm	16	25	22	7	
connector		voltage	-	LEMO 0S.302			
		sensor	-	LEMO 0S.304			
cable length		m	1.2				
weight		g	105	175	30	45	

series PXY D12 with integrated feedback sensor		unit	PXY 80 D12 CAP	PXY 200 D12 CAP		
part no.		-	S-605-16	S-605-26		
motion open loop ( $\pm 10\%$ )*		x, y	$\mu\text{m}$	80	200	
motion closed loop ( $\pm 0,2\%$ )*		x, y	$\mu\text{m}$	65	160	
feedback sensor			capacitive			
resolution closed loop ***		x, y	nm	1		
typ. repeatability		nm	15	20		
dimensions		length l	mm	64	75.5	
		width w	mm	63.5	69	
		height h	mm	22	27	
connector		voltage		LEMO 0S.302		
		sensor		LEMO 0S.605		
cable length		m	1.6			
weight		g	155	225		

\* typical value measured with NV 40/3 amplifier (closed loop: NV 40/3 CLE amplifier )

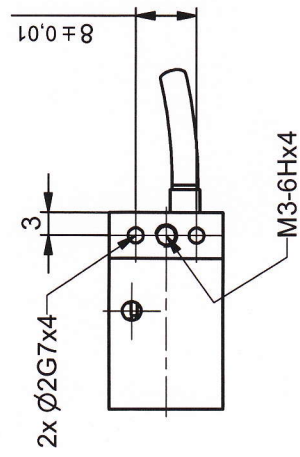
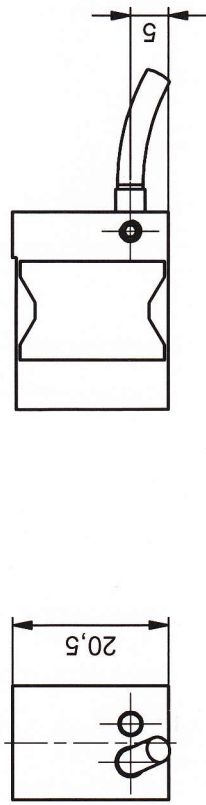
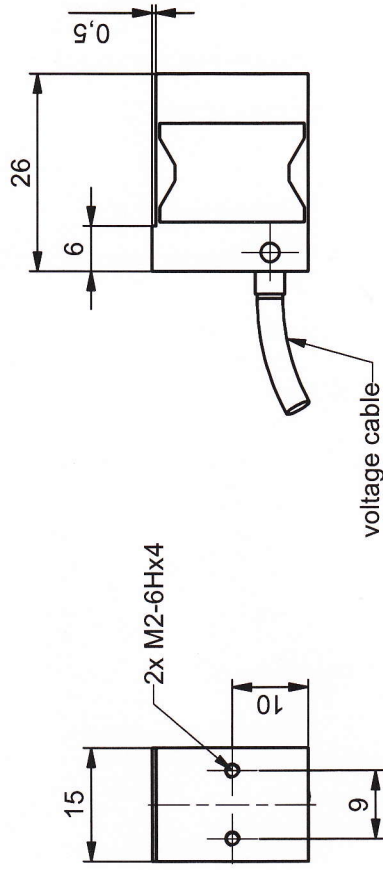
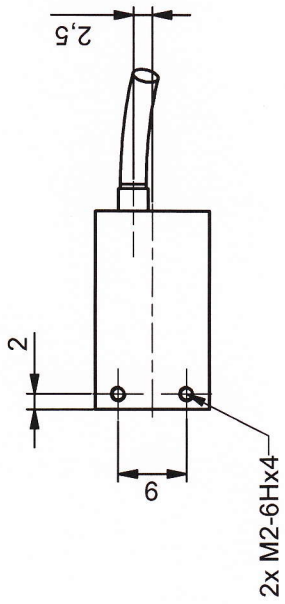
\*\* typical value for small electrical field strength

\*\*\* The resolution is only limited by the noise of the power amplifier and metrology.

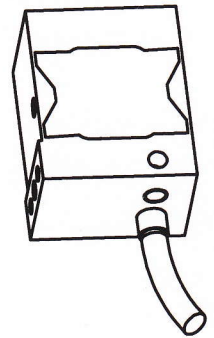
**recommended configurations:**



actuator	<b>PXY 200 D12</b>	S-605-20
actuator	<b>PZ 8 D12</b>	S-605-60
amplifier/controller	<b>NV 40/3</b>	E-101-20

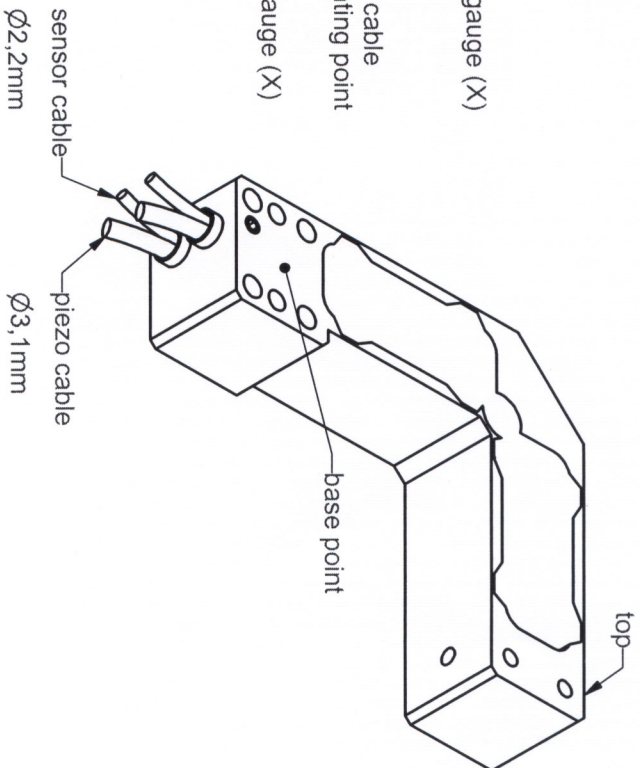
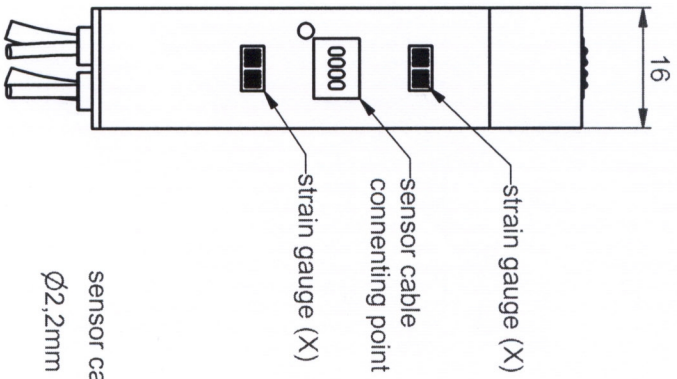
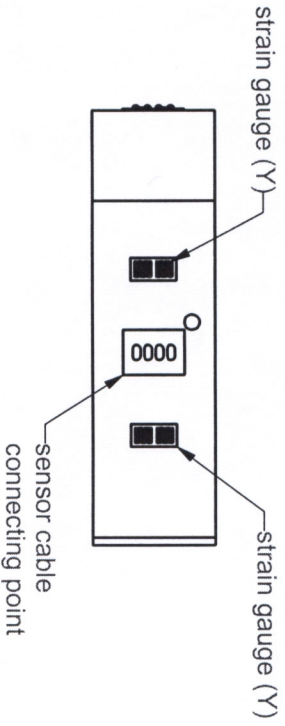
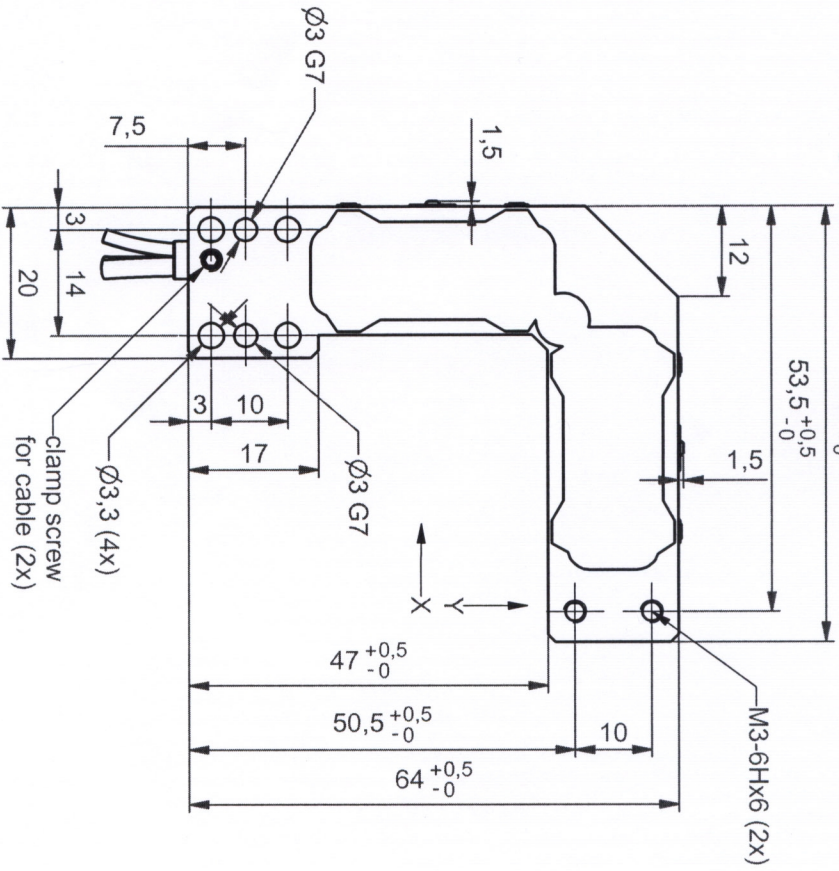
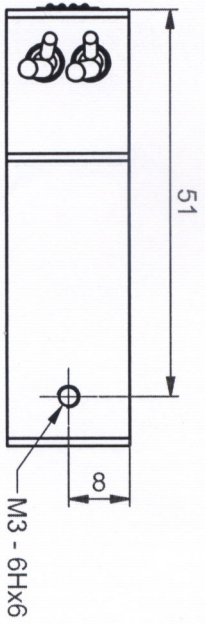
Please pay attention to our “notes for mounting”, which are available as download on our homepage.



**ORIGINAL**



part.-no.	S-605-63	part.-name	PZ 20 D12
file name	PS 605 63	OK: date/sign.	04. SEP. 2009
		scale	1:1
		customers drawing	piezosystem jena



cable length 1,2m

part.-no.	S-605-21	part.-name	PXY200 D12 SG
file name	PS60521	OK: date/sign.	2 0. DEZ. 2005
scale	REV 1	customers drawing	piezosystem jena
1:1			