

## SPE Weigh Modules

### Robust, Flexible, Fast



#### Reliable Long-Term Operation

The durable design and high overload protection in all directions protect the weigh module during installation and operation.



#### As Flexible As Your Machine Design

High modularity reduces procurement and stock-keeping complexity. Select the optimal configuration and accessories for your different needs.



#### Optimized Machine Throughput

Maximize throughput in high-speed applications with our fast update rate and impressive settling time for direct feedback loops.



#### Effortless Engineering and Installation

Minimize programming time with standardized interface implementation, device description files and sample codes.



EtherNet/IP

#### SPE Weigh Modules

#### The Standard for Automation Precision

The SPE weigh modules combine a fortified design with high-precision weighing performance and convenient modularity.

Main features:

- Weighing range up to 7,000 g
- Resolution of 0.1 to 10 mg
- Multiline installation (60 mm pitch distance)
- Durable design with large lockable weighing pan
- PROFINET, EtherNet/IP fully integrated
- PoE with daisy chain
- High update rate of 488 Hz

## Model specific weighing data

Type information	SPE404-C	SPE403-C	SPE2003-C	SPE4002-C	SPE7002-C
Nominal capacity / nominal load	400 g	400 g	2,000 g	4,000 g	7,000 g
Maximum capacity	420 g	420 g	2,100 g	4,100 g	7,100 g
Maximum preload <sup>M1)</sup>	30 g	30 g	1,000 g	500 g	0 g
Maximum preload for internal adjustment	200 g	200 g	1,000 g	2,000 g	3,500 g
Readability	0.1 mg	1 mg	1 mg	10 mg	10 mg
Internal adjustment	✓	✓	✓	✓	✓

**Limit values <sup>M2)</sup>**

Repeatability ( $\sigma$ ) (@nominal load) <sup>M3)</sup> ≤	0.1 mg	0.8 mg	1.3 mg	10 mg	8 mg
Linearity deviation ≤	0.3 mg	2 mg	4 mg	20 mg	20 mg
Eccentric load deviation (@test load) ≤	0.5 mg (200)	1 mg (200)	6 mg (1,000)	25 mg (2,000)	40 mg (5,000)

**Typical values <sup>M5)</sup>**

Repeatability ( $\sigma$ ) (@nominal load) ≤	0.08 mg	0.6 mg	0.8 mg	8 mg	5 mg
Settling time, nominal <sup>M6)</sup> ≤	2.2 s	2.1 s	4.0 s	2.8 s	3.0 s
Settling time, fast <sup>M7)</sup> ≤	0.9 s	0.8 s	1.2 s	0.9 s	1.0 s

**Ambient conditions**

Compensated temperature range <sup>M8)</sup>	10° C to 30° C (50° F to 86° F)
Operating temperature range	5° C to 40° C (41° F to 104° F)
Storage temperature range	-20° C to 70° C (-4° F to 158° F)
Relative air humidity range <sup>M6)</sup>	20 % to 80 %
Warm-up time after power-on <sup>M6)</sup>	60 minutes

<sup>M1)</sup> Maximum preload on top of weighing pan to maintain maximum capacity (weight of standard weighing pan + weighing pan support = 110 g).

<sup>M2)</sup> Applicable for stationary conditions within compensated temperature and relative air humidity range.

<sup>M3)</sup>  $\sigma$  = standard deviation (68% of weighing results within  $\pm \sigma$ ).

<sup>M4)</sup> Weighing tests according to OIML R76 A.5.3 at stationary conditions.

<sup>M5)</sup> Applicable for stable environmental conditions and optimal filter settings.

<sup>M6)</sup> Time until weight value is repeatable (measured at nominal load).

<sup>M7)</sup> Time until weighing signal is within  $\pm 2 \times$  readability of end value (measured at 1/4 nominal load).

<sup>M8)</sup> Condition to meet the specified limit values.

## General data

**Electrical connection**

Power supply	Power over Ethernet (IEEE 802.3af) Class 1 PD (< 3.84 W)
Electrical connection	M12, 4 pins, D-coded, female
Communication interface	PROFINET, EtherNet/IP, TCP/IP
Maximum weight update rate	Send: 122 values/s and 488 values/s <sup>61)</sup> Receive: 122 values/s and 244 values/s <sup>61)</sup>

**IP protection**

Module during weighing	IP54
Module during cleaning <sup>62)</sup>	IP66

**Materials**

Weighing pan/platform	Stainless steel (1.4435 / 316L)
Weigh module housing	Stainless steel (1.4404 / 316L)
Seals	FPM, FDA compliant
Typical service life of seals	2 years
Washdown bellows	NBR

**Air connection**

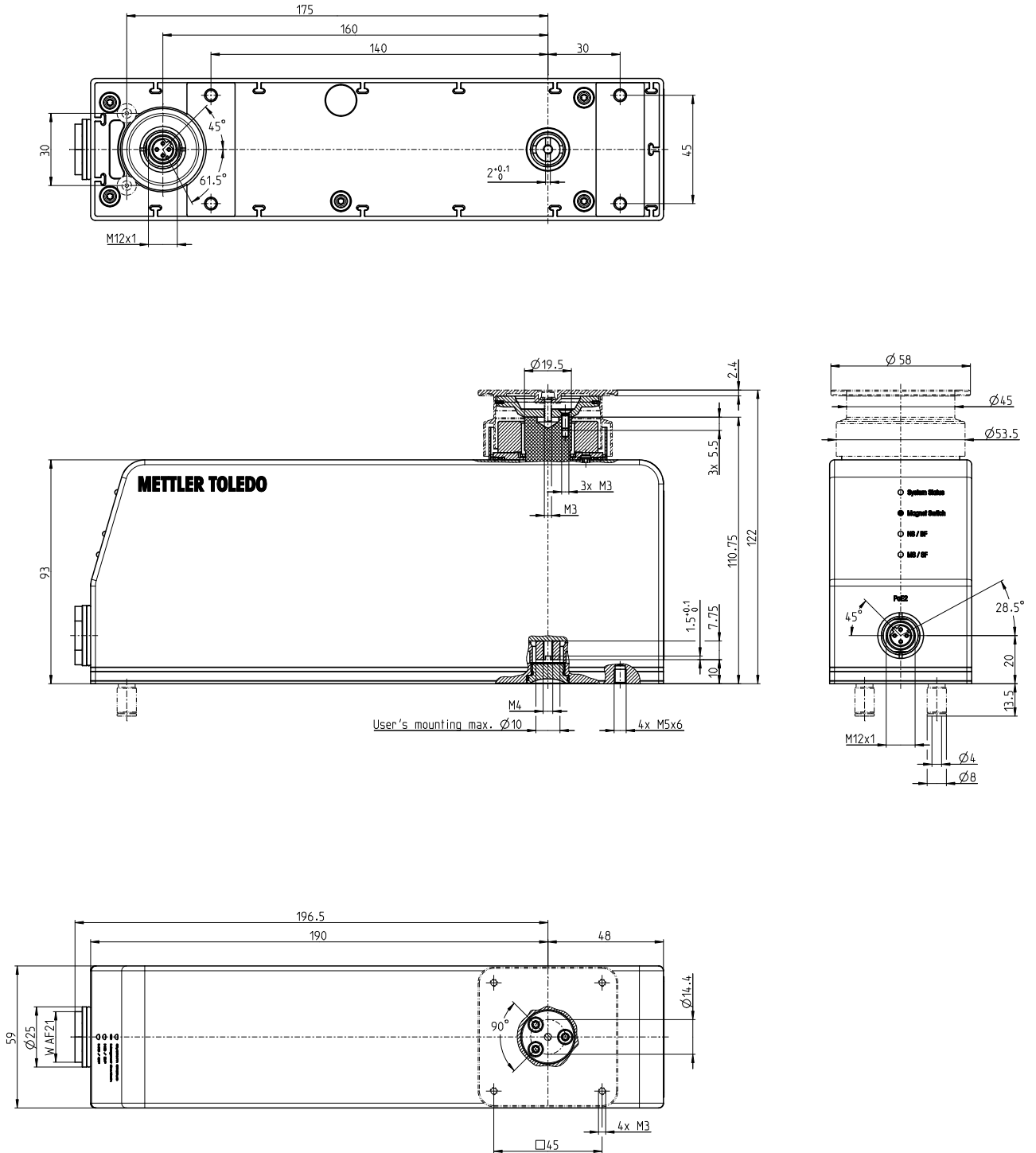
Tube diameter external	4 mm (5/32 inch)
Air pressure for washdown	1 bar(g) (14.5 psi(g))

<sup>61)</sup> Fast Weight Update Channel via PROFINET, EtherNet/IP.

<sup>62)</sup> Only with optional washdown configuration.

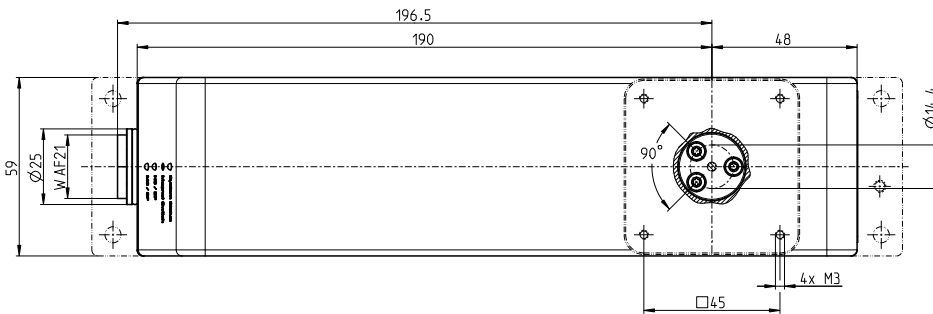
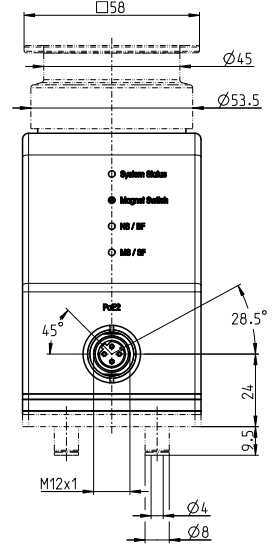
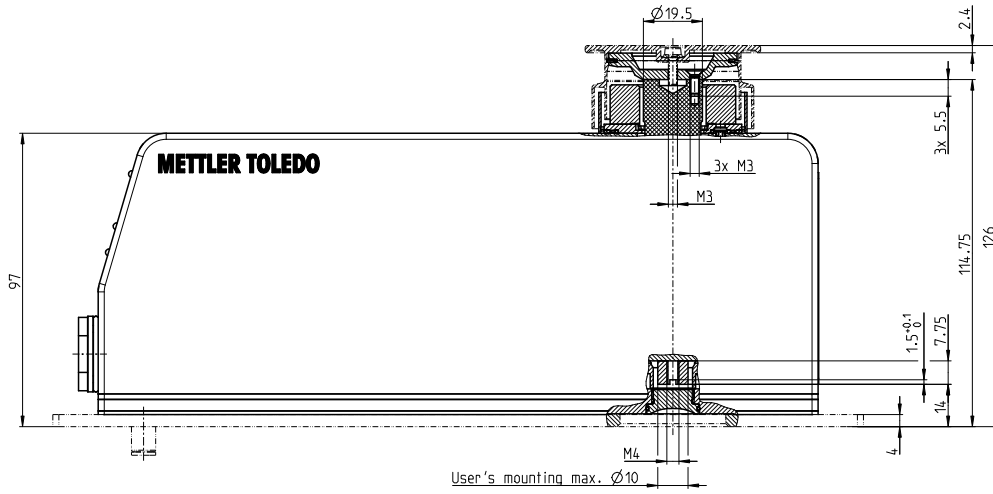
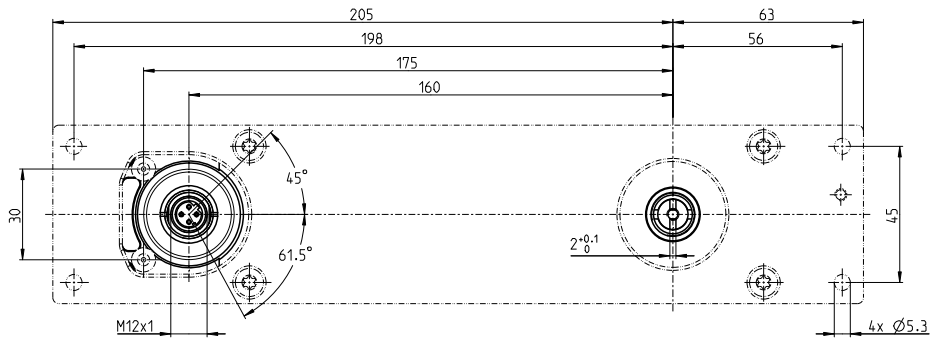
Drawings (mm)

Short base plate

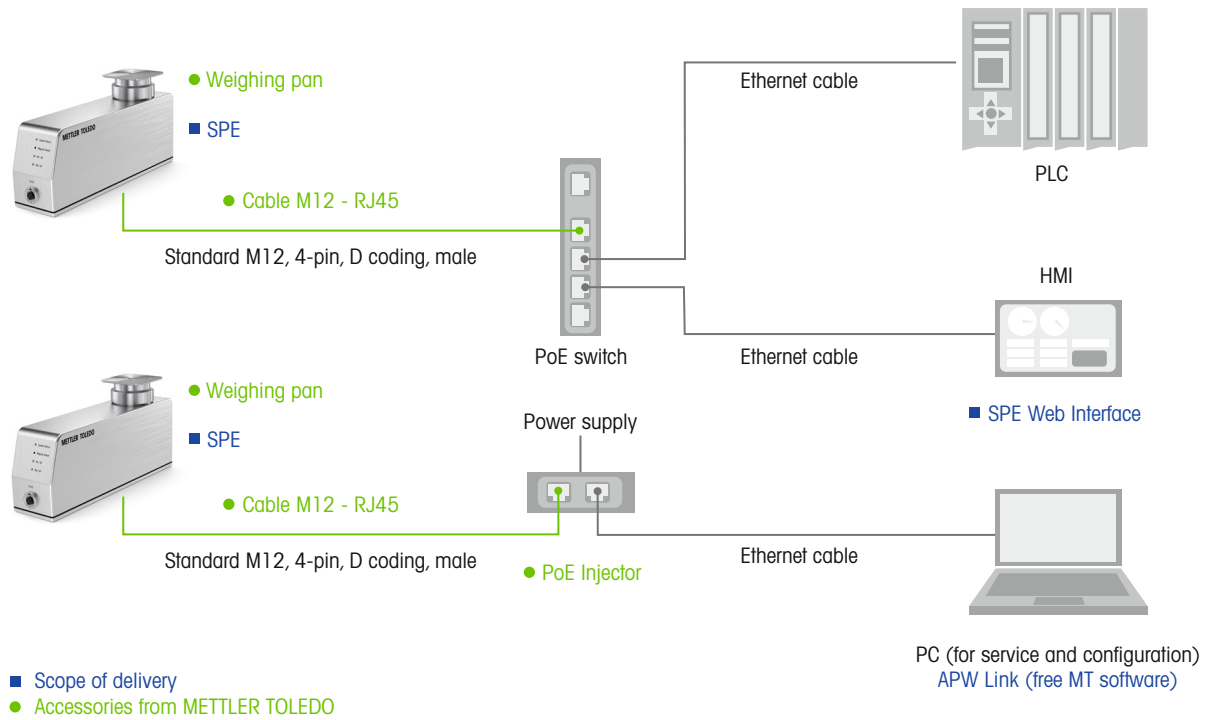


Drawings (mm)

Long base plate



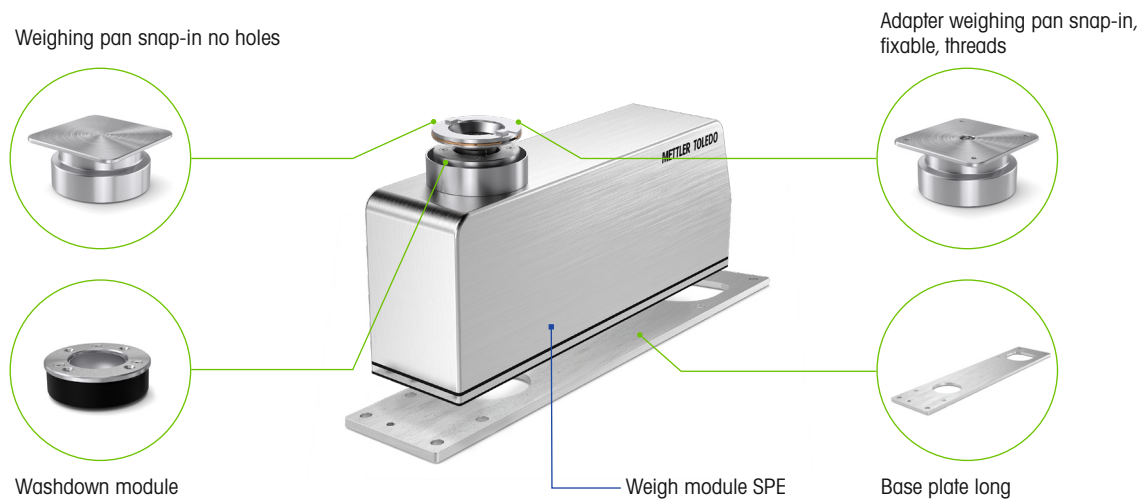
## Typical configurations



## Scope of delivery

Item	Description
SPE	Weigh module (without weighing pan)
Production certificate	-
Declaration of conformity	-
Quick Guide	-
Safety information	-

## Optional module configuration



- Scope of delivery
- Accessories from METTLER TOLEDO

## Accessories

Item	Description	Item number	Picture
Weighing pan	Square 58 x 58 mm, snap-in, no holes	30840642	
Adapter weighing pan	Square 58 x 58 mm, snap-in, fixable, threaded holes	30840643	
Base plate long	Plate for top mounting	30840644	
Washdown module	Including washdown bellow, air connectors, 4 x M2 (Torx T6)	30827014	
Cover	Covering upper weighing interface, when "weighing from below interface" is used	30840659	
Cable	4p 2m (M12m180°-RJ45)	30856163	
Cable	4p 5m (M12m180°-RJ45)	30856164	
Cable	4p 10m (M12m180°-RJ45)	30856165	
Cable	4p 2 m (M12m90°DN-RJ45)	30856166	
Cable	4p 5 m (M12m90°DN-RJ45)	30856167	
Cable	4p 10 m (M12m90°DN-RJ45)	30856288	
Cable	4p 0.5m (M12m180°-M12m180°)	30856290	
Ethernet/USB converter		30326110	
PoE injector RJ45		30326111	
Converter TCP/IP to RS232		30590563	

## Order information

Module	Capacity / Readability	Item number
SPE404-C	400 g / 0.1 mg	30823970
SPE403-C	400 g / 1 mg	30823971
SPE2003-C	2000 g / 1 mg	30823973
SPE4002-C	4000 g / 10 mg	30823974
SPE7002-C	7000 g / 10 mg	30823972

## Explore Our Service Solutions

### Tailored to Fit Your Equipment Needs

METTLER TOLEDO Service delivers resources to enhance your efficiency, performance, and productivity by providing service packages that fit your operational needs, maximize your equipment lifetime, and protect your investment.

► [www.mt.com/IND-Service](http://www.mt.com/IND-Service)



#### Start with professional installation

Installation services include support for your unique production situation:

- Professional IQ/OQ/PQ/MQ documentation
- Initial calibration and confirmation of fit-for-purpose
- Hazardous area installations



#### Extend your warranty coverage

Add two years of preventive maintenance and repair coverage to protect your equipment purchase and achieve maximum productivity and budget control.



#### Calibrate for quality and compliance

The professional Accuracy Calibration Certificate (ACC) determines measurement uncertainty in use over the entire weighing range. Corresponding annexes give a clear pass/fail statement for specific tolerances applied, such as fit-for-purpose (GWP®), OIML R76, NTEP HB44, or further regulations.



#### Schedule maintenance

Full preventative maintenance plans offer inspection, functional testing, and proactive replacement of worn parts.

Health inspections offer a full assessment of current equipment condition with professional maintenance recommendations.



#### Maintain accuracy over time

Receive professional guidance (GWP® Verification™), including a routine testing plan that specifies four key factors to maximize your efficiency and ensure quality:

- Tests to perform
- Weights to use
- Testing frequency
- Tolerances to apply

## METTLER TOLEDO Service

Our extensive service network is among the best in the world and ensures maximum availability and service life of your product.

[www.mt.com/SPE](http://www.mt.com/SPE)

For more information

#### METTLER TOLEDO Group

Industrial Division

Local contact: [www.mt.com/contacts](http://www.mt.com/contacts)

Subject to technical changes

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