

AMPLIFIED FORCE TRANSDUCER



TENSION &
COMPRESSION

Type: **micro TC5-AMP**

- 1 kN TO 10 kN
- OUTPUT $\pm 10\text{ V}$ OR $\pm 5\text{ V}$
- STAINLESS STEEL · IP67
- RESPONSE ABOUT 1 kHz



IP67



Stainless
Steel



Analogsignal

ORDERING

In kN	CTC5AMP631KN (1 kN) · CTC5AMP632KN5 (2.5 kN) · CTC5AMP635KN (5 kN) · CTC5AMP6310KN (10 kN)
In kg and t	CTC5AMP63100K (100 kg) · CTC5AMP63250K (250 kg) · CTC5AMP63500K (500 kg) · CTC5AMP631T (1 t)
Output	standard $\pm 10\text{ V}$ with 18 ... 24 V DC · option $\pm 5\text{ V}$ with 12 ... 24 V DC
Cable	CONNM12FV5 — 3 m moulded shielded cable with M12 socket
Fuse	a fast blow fuse of 100 to 200 mA belongs in the positive of the supply

An octagon order code has not yet been defined; please state nominal load and output voltage.



OVERVIEW

The micro TC5-AMP is a flat ring transducer with the amplifier built in. It answers with $\pm 10 \text{ V}$ — or $\pm 5 \text{ V}$ in the option — instead of millivolts, so no measuring amplifier is needed behind it and an ordinary analogue input of a PLC reads the force directly. Nominal loads run from 1 to 10 kN in tension and in compression. Linearity and hysteresis stay within $\pm 0.05 \%$ of full scale, the response frequency is about 1 kHz, and the body of stainless steel is sealed to IP67 with an M12 connector. The transducer is screwed down through six holes on its rim and takes the force on the central M12 thread — and it is that thread, not the rim, through which a dynamic load must be applied.

MEASUREMENT AND OUTPUT

- Nominal load 1, 2.5, 5, 10 kN
- Tension and compression in one body
- Output $\pm 10 \text{ V}$, option $\pm 5 \text{ V}$
- Linearity and hysteresis $\leq \pm 0.05 \%$ FS
- Calibration tolerance $\leq \pm 0.1 \%$ FS
- Response frequency about 1 kHz
- Supply 18 ... 24 V DC, maximum 28 V DC
- Service temperature $-10 \dots +70 \text{ }^{\circ}\text{C}$

MECHANICS, SEALING AND MOUNTING

- Stainless steel body, IP67 to EN 60529
- Service load 120 %, breaking load $> 300 \%$
- Max. transverse load 100 % of nominal load
- Max. dynamic load 70 %, on the central thread
- Displacement about 0.06 mm at nominal load
- Six fixing holes $\varnothing 5.3 \text{ mm}$, screws M5 class 12.9
- Tightening torque of the fixing screws 8 Nm
- M12 connector, 5 poles, male



TECHNICAL DATA

MEASUREMENT

Nominal load	1, 2.5, 5 and 10 kN — the order codes also name 100 kg, 250 kg, 500 kg and 1 t
Linearity	$\leq \pm 0.05$ % of full scale
Hysteresis	$\leq \pm 0.05$ % of full scale
Calibration tolerance	$\leq \pm 0.1$ % of full scale
Zero balance	$\leq \pm 1$ %
Temperature effect per 10 °C	on zero $\leq \pm 0.028$ % FS · on sensitivity $\leq \pm 0.024$ % FS
Calibration	tests and calibration are performed in compression, with the transducer mounted on a bearing support and the clamping screws correctly tightened

MECHANICAL LIMITS

Service load	120 % of the nominal load
Maximum permissible load	150 %
Breaking load	> 300 %
Maximum transverse load	100 %
Maximum dynamic load	70 % — to be applied to the central thread of the transducer, not to the external fixing rim
Displacement at nominal load	about 0.06 mm
Fixing screws	M5, class 12.9, tightening torque 8 Nm — check that screws and accessories are correctly tightened

OUTPUT AND SUPPLY

Nominal sensitivity	± 10 V — option ± 5 V
Nominal power supply	18 ... 24 V DC for ± 10 V · 12 ... 24 V DC for ± 5 V
Maximum power supply	28 V DC
Maximum absorption	30 mA
Loading resistance	minimum 3 k Ω
Insulation resistance	> 2 G Ω
Response frequency	about 1 kHz

TEMPERATURE AND SEALING

Reference temperature	+23 °C
Nominal temperature range	-10 ... +40 °C
Service temperature	-10 ... +70 °C
Storage temperature	-20 ... +80 °C
Protection class	IP67 to EN 60529
Material	stainless steel · accessories of stainless steel with Rm 90 kg/mm ²
Connector	M12, 5 poles, male

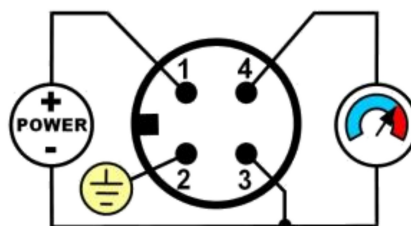
MOUNTING

Force introduction	central thread M12 × 1, on both sides
Fixing	six holes $\varnothing$ 5.3 mm on the rim
Protection of the supply	protect the positive of the supply with an external fast blow fuse of 100 to 200 mA
Cable	CONNM12FV5 — female M12 × 1, 5 poles, with 3 m moulded shielded cable
Shield	connected to the lock nut of the connector
Dimensions	see the drawing — the transducer has one size only



ELECTRICAL CONNECTION

Transducer	Cable
Power +	red
Power -	black
Output	white
Shield	connected to the lock nut



The pin picture is the one of the manufacturer document. The table gives the colours of the cable, which the document names; the shield goes to the lock nut of the connector. Protect the positive of the supply with an external fast blow fuse of 100 to 200 mA.

ACCESSORIES

Cable CONNM12FV5	female M12 × 1, 5 poles, straight, with 3 m moulded shielded PVC cable
Option ± 5 V	output ± 5 V with a nominal supply of 12 ... 24 V DC
Loading accessories	stainless steel with Rm 90 kg/mm ² — check that they are correctly tightened

The accessories carry the force; a loose screw shifts the zero long before it breaks anything.

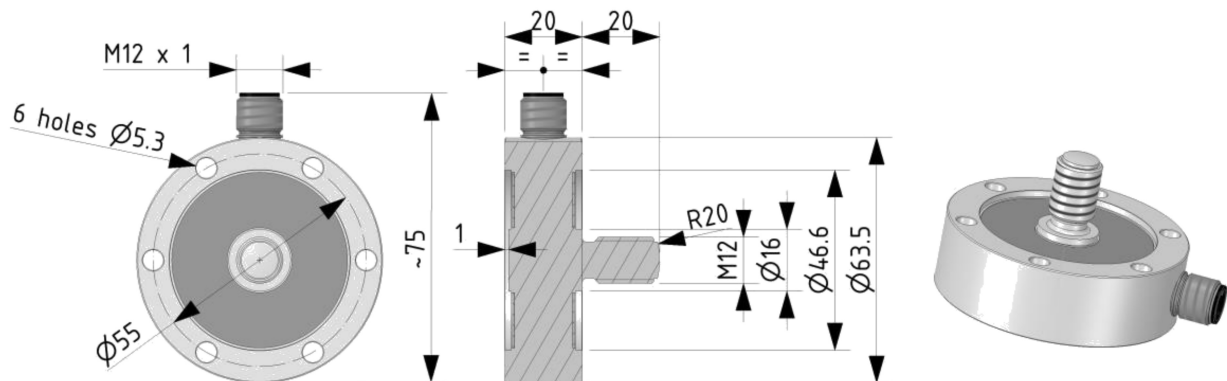
COMPLIANCE

 IP67	Sealing	IP67 to EN 60529 · M12 connector, 5 poles
 Stainless Steel	Material	stainless steel body and accessories
 Analog signal	Output	± 10 V or ± 5 V · load from 3 kΩ · response about 1 kHz

The manufacturer states no OIML class for this transducer; linearity, hysteresis and calibration tolerance stand in their place. The EAC certificate in the product folder covers the AEP transducers; please ask octogon before relying on a marking for a particular application.



DIMENSIONS (mm)



The drawing is the one of the manufacturer document. It carries numbers and not letters, because this transducer has one size only; there is therefore no table beside it.

