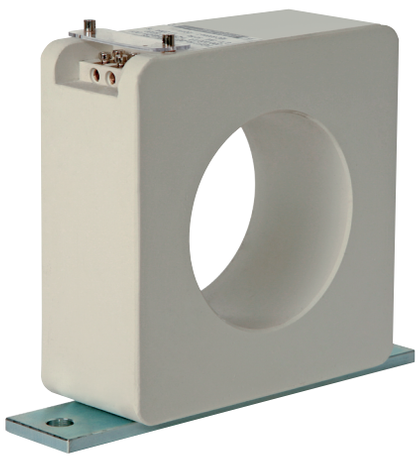
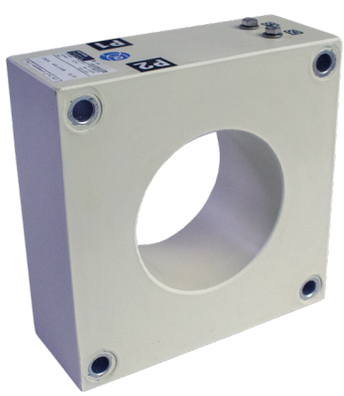
Current transformers

for rail applications



TGF 4
JK 210



PFIFFNER

Current and voltage – our passion

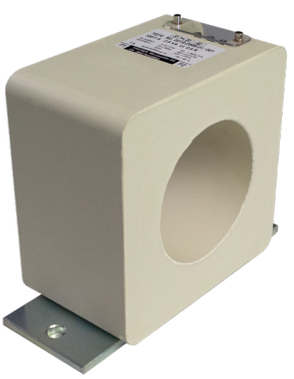
General description

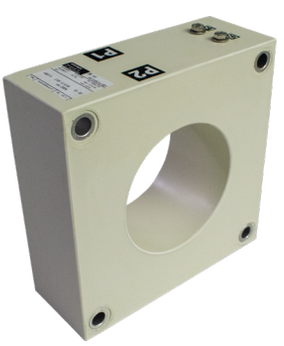
The traction energy of a trainset used to be determined based on empirical values from model trains, expressed in gross tonne-kilometres per journey. In the future, the actual traction energy of a trainset will be logged and calculated online, including cross-border rail traffic. To this end, motive power units are being (retro)fitted with measuring systems required to comply with the standard EN 50463-2, "Railway applications – Energy measurement on board trains". Evidence of this compliance is audited by an accredited certification body and confirmed with a declaration of conformity. PFIFFNER supplies low-voltage current transformers for these measuring systems. The transformers made by PFIFFNER Switzerland are of very high quality and produced following with ISO 9001 standards.
They can be accredited to additional standards in line with customers' requirements.

Benefits of the current transformers

The transformers have been approved for use on rail vehicles in accordance with the following standards:

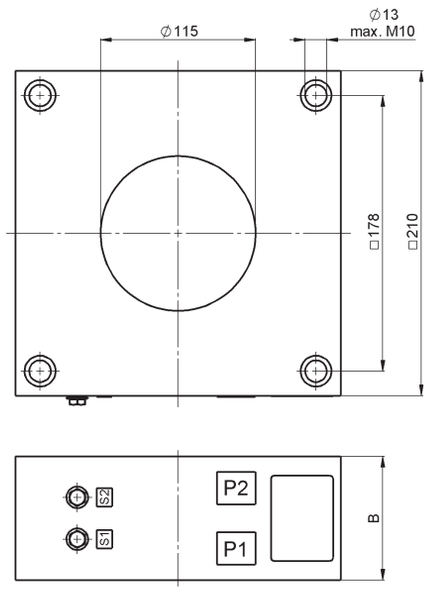
- EN 50155 Railway applications – Electronic equipment used on rolling stock
- EN 50463-2 Railway applications – Energy measurement on board trains
- IEC 61869-2 Instrument transformers
- Accuracy requirement in accordance with EN 50463-2 cl. 0.5 R
- Ambient temperature class -40 to +60°C
- Rated frequency 16.7 Hz / 50 Hz
- Easy installation via ready-made cables
- Made in Switzerland





Technical data

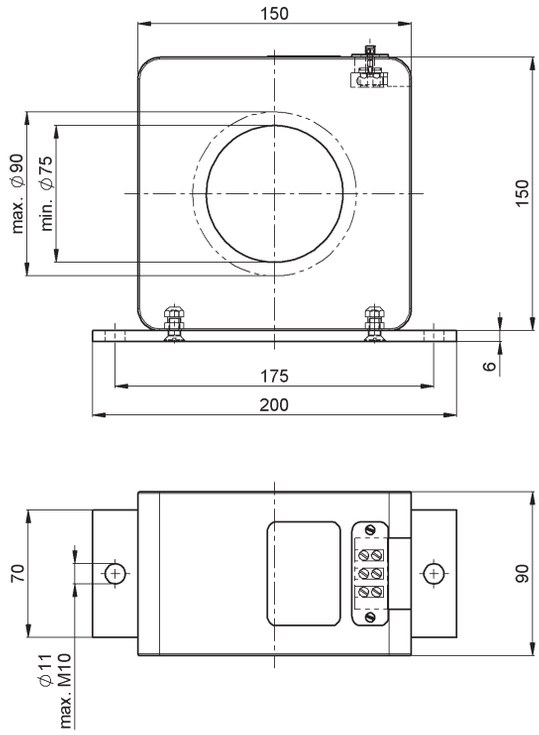
JK 210



Type JK 210		JK 210 75 / 1 A	JK 210 100 / 1 A	JK 210 275 / 5 A	JK 210 500 / 5 A
Technical data in accordance with EN 50463-2 and EN 61869-2					
Maximum voltage for equipment U_m (RMS)	kV	0.72			
Power frequency withstand voltage (RMS)	kV	3			
Rated frequency f_n	Hz	16.7	16.7 / 50	16.7 / 50	16.7
Width B	mm	140	80	80	80
Primary/secondary rated current I_{pr}/I_{sr}	A	75/1	100/1	275/5	500/5
Accuracy class		0.5 R	0.5 R	0.5 R	0.5 R
Extended measurement range	% of I_{pr}	-	200	16.7 Hz: 150 50 Hz: 200	-
Rated load S_r	VA	1	16.7 Hz: 1 50 Hz: 3	16.7 Hz: 4 50 Hz: 10	-
Load range	VA	0.04 – 1	16.7 Hz: 0.04 – 1 50 Hz: 0.12 – 3	16.7 Hz: 1 – 4 50 Hz: 1 – 10	1.25 – 5
Rated thermal short-time current I_{th}	kA/s	40 / 0.3			
Rated surge current I_{dyn}	kAp	100			
Rated thermal long-time current I_{cth}		1.2 Ipr	2.0 Ipr	2.0 Ipr	1.2 Ipr
Ambient temperature	°C	-40 to +60			
Insulating material		Polyurethane			
Insulating material class		B			
Permissible interfering field		AC: 16.7 / 50 Hz: 2 m T DC: 10 m T			
Insulation coordination in accordance with EN 50124-1					
Overvoltage category		OV1			
Degree of pollution		PD3A			
Fire behaviour in accordance with CEN/TS 45545-2 and CLC/TS 45545-5					
Evidenced requirement / Hazard level		+R22 / HL3 and R26 / V0			
Mechanical strength in accordance with EN 61373					
Noise-induced vibration, service life test and shock test		Category 1, class B			

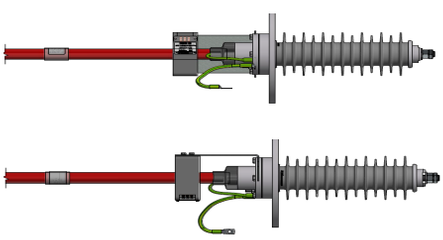
Technical data

TGF 4



Type TGF		TGF 4		
Technical data in accordance with EN 50463-2 and EN 61869-2				
Maximum voltage for equipment U_m (RMS)	kV	0.72		
Power frequency withstand voltage (RMS)	kV	3		
Rated frequency f_n	Hz	16.7 / 50	16.7	50
Primary/secondary rated current I_{pr}/I_{sr}	A	100/1	300/1	300/1
Accuracy class		0.5 R		
Rated load S_r	VA	2.5	2.5	10
Rated thermal short-time current I_{th}	kA/s	40 / 0.3		
Rated surge current I_{dyn}	kAp	100		
Rated thermal long-time current I_{cth}		1.2 Ipr	2.0 Ipr	2.0 Ipr
Ambient temperature	°C	-40 to +60		
Insulating material		Polyurethane		
Insulating material class		B		
Permissible interfering field		AC: 16.7 and 50 Hz: 2 mT DC: 10 mT		
Insulation coordination in accordance with EN 50124-1				
Overvoltage category		OV1		
Degree of pollution		PD3A		
Fire behaviour in accordance with CEN/TS 45545-2 and CLC/TS 45545-5				
Evidenced requirement / Hazard level		R22 / HL3 and R26 / HL3		
Mechanical strength in accordance with EN 61373				
Noise-induced vibration, service life test and shock test		Category 1, class B		

Highlights



Service life

This inductive, fully encapsulated analogue and passive current transformer boasts a high level of reliability and a long service life.

Case study: connector systems with current transformer

ALPHA-ET has been a member of the PFIFFNER Group since 2015. Working together allows us to devise and deliver projects involving connector systems and current transformers, as shown in the image above. Thanks to its exceptional level of quality and flexibility, the PFIFFNER Group has secured an impressive selection of Swiss and international references from the railway sector in recent years.

References

- Stadler Rail AG, Bussnang - CH
- Stadler Pankow GmbH, Berlin - DE
- Stadler Polska Sp. z o.o., Siedlce - PL
- Stadler Praha s.r.o., Prague - CZ
- Stadler US inc., Utah - USA
- SBB AG, Bern - CH
- CFF SA, Yverdon-les-Bains - CH
- Railtec System, Hergiswil - CH
- BLS Ltd., Spiez - CH
- ALPHA Elektrotechnik AG, Grenchen - CH
- Plasser & Theurer, Linz - AT
- Molinari Rail Austria GmbH, Schwaz - AT
- Harsco Rail Europe GmbH, Düsseldorf - DE
- Bombardier Transportation, Zurich - CH
- Bombardier CPC, Changzhou - CN

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PFIFFNER

Current and voltage – our passion

HV HIGH VOLTAGE
MV MEDIUM VOLTAGE
LV LOW VOLTAGE