

Noratel Datasheets

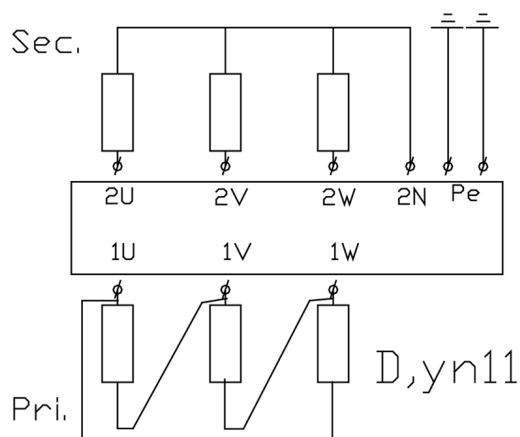
The data presented in this datasheet is approximate and offered as a guideline only for the various types and sizes of transformer available from Noratel. Such data can vary depending on the transformer configuration and application and where critical, information should always be obtained from the data sheets accompanying any specific product. Please contact Noratel if your application requires any specific performance criteria or if you need any application or performance advice on any of our products.

Installation of 3-phase transformers

Noratel standard models - vector group / wiring diagram / marking of terminals

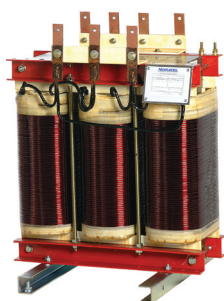
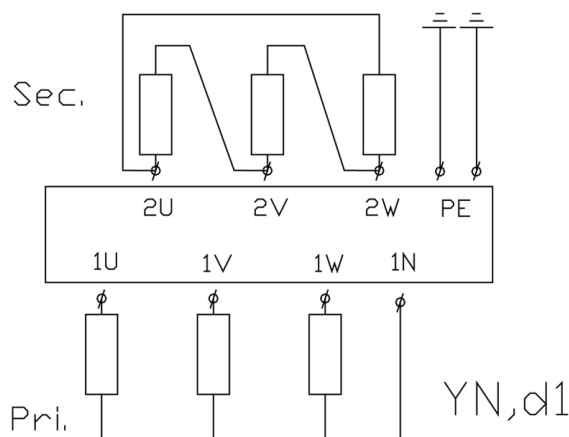
Wiring diagram 1

- Article no. 3-040-xxxxxx
- 3x230/400 Volt



Wiring diagram 2

- Article no. 3-010-xxxxxx
- 3x400/230 Volt



- If the 3x400 Volt secondary voltage is suppose to feed a TN-S network the Neutral conductor (N) must be connected to ground - from this point should then be continued separated as Protective Earth (PE) and Neutral (N) conductor to consuming device

- In the case of 3x400 Volt primary voltage (supply voltage), do not connect the Neutral (N) conductor

In the case of a TN-S network based on a standard European 400 Volt, - where 3x400 Volt is primary voltage (supply voltage) on the transformer, the Neutral (N) conductor is NOT to be connected.

The reason is for this is, if there is a unbalanced load on the secondary side there is a risk of high currents in the Neutral (N) conductor and in some cases primary cables have burned due to improper installation.

Note!

- Accompanying COPAL bimetal sheet (63 kVA->) shall be used when connecting cables with copper lugs.

- Please check and re-tighten the screw terminals some days after installation and thereafter yearly.

Noratel 3-phase standardmodels - terminals / fuses / losses

Noratel Art. no.	Power kVA	Voltage Pri. / Sec. V	Terminal Type	Torque CU-kabel Alu. kabel NM		Wir. diagram no.	Recommended primary fuse 230 V 400 V		No-load loss W	Full load loss W
3-040-600900	0,63	3x230/400	TRKSD 4 OG	*	*	I	4A		23	65
		alt. 3x400/230	TRKSD 4 OG	*	*	I		4A	23	65
3-040-601100	1,25	3x230/400	WKN 4/U	0,5 - 0,7	0,7	I	6A		36	94
		alt. 3x400/230	WKN 4/U	0,5 - 0,7	0,7	I		6A	36	94
3-040-601400	2,5	3x230/400	WKN 4/U	0,5 - 0,7	0,7	I	10A		56	126
		alt. 3x400/230	WKN 4/U	0,5 - 0,7	0,7	I		10A	56	126
3-040-601700	4	3x230/400	WKN 10/U	2,0 - 2,5	2,5	I	16A		90	258
		alt. 3x400/230	WKN 10/U	2,0 - 2,5	2,5	I		16A	90	258
3-040-602150	6,3	3x230/400	WKN 10/U	2,0 - 2,5	2,5	I	20A		128	374
3-010-505740	6,3	3x400/230	WKN 10/U	2,0 - 2,5	2,5	2		13A	128	374
3-040-602306	10	3x230/400	UT 16 GY	2,0 - 2,5	2,5	I	32A		168	462
3-010-505752	10	3x400/230	UT 16 GY	2,0 - 2,5	2,5	2		20A	168	462
3-040-602400	12,5	3x230/400	WKN 16/U	2,0 - 2,5	2,5	I	32A		247	673
3-040-602500	16	3x230/400	WKN 35/U	3,0 - 4,0	4,0	I	50A		270	655
3-010-505760	16	3x400/230	WKN 35/U	3,0 - 4,0	4,0	2		25A	270	655
3-040-602600	20	3x230/400	WKN 35/U	3,0 - 4,0	4,0	I	63A		280	652
3-010-505765	20	3x400/230	WKN 35/U	3,0 - 4,0	4,0	2		40A	280	652
3-040-603100	25	3x230/400	WKN 35/U	3,0 - 4,0	4,0	I	80A		387	883
3-010-505770	25	3x400/230	WKN 35/U	3,0 - 4,0	4,0	2		40A	387	883
3-040-603200	30	3x230/400	WKN 35/U	3,0 - 4,0	4,0	I	80A		494	966
3-010-505780	30	3x400/230	WKN 35/U	3,0 - 4,0	4,0	2		50A	494	966
3-040-700415	40	3x230/400	Alu-bar 30x10	*	*	I	125A		254	1122
		alt. 3x400/230	Alu-bar 30x10	*	*	I		80A		
3-040-700515	50	3x230/400	Alu-bar 30x10	*	*	I	150A		319	948
		alt. 3x400/230	Alu-bar 30x10	*	*	I		100A		
3-040-700615	63	3x230/400	Alu-bar 30x10	*	*	I	200A		361	1225
		alt. 3x400/230	Alu-bar 30x10	*	*	I		125A		
3-040-700815	80	3x230/400	Alu-bar 30x10	*	*	I	250A		444	1328
		alt. 3x400/230	Alu-bar 30x10	*	*	I		160A		
3-040-701015	100	3x230/400	Alu-bar 30x10	*	*	I	315A		486	2186
		alt. 3x400/230	Alu-bar 30x10	*	*	I		160A		
3-040-701215	125	3x230/400	Alu-bar 30x10	*	*	I	355A		604	2176
		alt. 3x400/230	Alu-bar 30x10	*	*	I		250A		
3-040-701615	160	3x230/400	Alu-bar 40x10	*	*	I	500A		733	2632
		alt. 3x400/230	Alu-bar 40x10	*	*	I		315A		
3-040-702015	200	3x230/400	Alu-bar 40x10	*	*	I	630A		878	3135
		alt. 3x400/230	Alu-bar 40x10	*	*	I		400A		
3-040-702515	250	3x230/400	Alu-bar 60x10	*	*	I	800A		1103	3705
		alt. 3x400/230	Alu-bar 60x10	*	*	I		500A		
3-040-703115	315	3x230/400	Alu-bar 60x10	*	*	I	1000A		1260	4818
		alt. 3x400/230	Alu-bar 60x10	*	*	I		630A		

Note!! Please check and re-tighten the screw terminals some days after installation and thereafter yearly.



Transportation & handling

- Any transformer with unprotected windings are exposed to impact and touch. Direct blow to the windings and accessories may cause insulation failure or short circuit
- Use the eye lugs or pallet and a fork lift
Transformer weight specified on the label
- Keep the plastic packaging on for as long as possible even when installing
- Keep the transformer free of rain and similar conditions



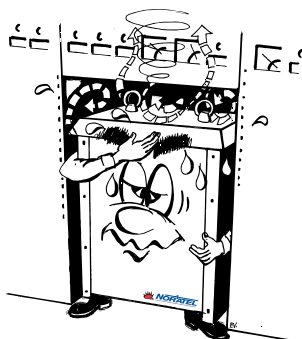
Storage

- The transformers shall be stored in a dry ventilated room (indoor conditions).
- Temperature range 0-40°C, maximum relative humidity 80%
- Do not sit or walk on the capsule
- Do not cover the transformer
- Do not store any heavy equipment on top of the transformer
- Keep the plastic packaging on the storage
- Do not use welding equipment, grinders or similar equipment close to the transformer unless they are surrounded completely with protective wrapping

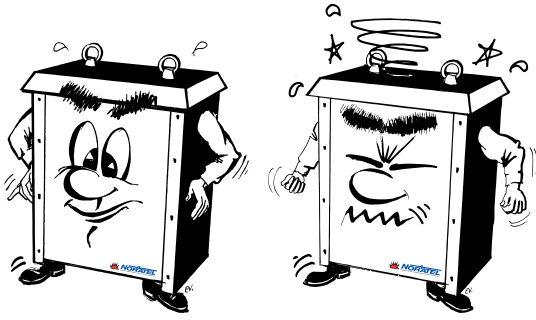


Placement / connection

- If terminal blocks are mounted on the transformer these are approved for connecting both copper and aluminum cables
- Remember that an IP23 transformer is designed for free air flow from around all sides, from bottom to top
- When adding / connecting cables please pay attention to airflow and heat
- Fresh air from below the transformer - Warm air out on the top!
- If specified ambient temperature is exceeded, the operating temperature inside the transformer may cause a reduction in the transformer lifetime
- Accompanying CUPAL bimetal sheet (63 kVA->) shall be used when connecting cables with copper lugs.
- Please check and re-tighten the screw terminals some days after installation and thereafter yearly.
- Required clearance for removal of the capsule and lid and access to the terminals is:



Type	Short end side	Long end side	Top side
3LT			
3LT5.0 - 30.0	400 mm	400 mm	800 mm
3LT40.0 - 80.0	500 mm	500 mm	900 mm
3LT100 - 125	600 mm	900 mm	1000 mm
3LT160 - 315	750 mm	1000 mm	1000 mm



Installation

- Remember that an IP23 transformer is designed for free air flow from around all sides, from bottom to top. Fresh air from below the transformer - Warm air out on the top!
- When adding / connecting cables please pay attention to airflow and heat
- Perforated cover plates for the foot bracket openings on both long end sides are attached to stays under enclosure lid or at the wooden pallet. To be attached after the enclosure is reassembled after installation.
- If terminal blocks are mounted on the transformer these are approved for connecting both copper and aluminum cables
- Accompanying CUPAL bimetal sheet (63 kVA->) shall be used when connecting cables with copper lugs.

Fuses / Protection

- Recommended primary fuse is specified in the table.
- Primary fuse is must be of **slow blow** type (D)
- The transformer must be protected against overload and short circuit in the installation
 - maximum current is indicated on the nameplate

Operation / Maintenance

- Please check and re-tighten the screw-terminals some days after installation and thereafter yearly
- If removing the hatches during operation please be aware of the voltage at the terminals!
- If specified ambient temperature is exceeded, the operating temperature inside the transformer may cause a reduction in the transformer lifetime

Activities after 1 year of operation;

- Vacuum-clean visual humid dust. Use additional compressed air if available
- Tighten up terminal connection, nuts and bolts

If removing the hatches during operation please be aware of the voltage at the terminals!

If specified ambient temperature is exceeded, the operating temperature inside the transformer may cause a reduction in the transformer lifetime.

Bolt	Quality	Torque
3LT		
M6	8.8	9,8 Nm
M8	8.8	24 Nm
M10	8.8	47 Nm
M12	8.8	81 Nm
M16	8.8	168 Nm

Terminals	Cable dim.	Torque
3LT - type		
UT 2,5	2,5 - 4 mm ²	0,5 - 0,6 Nm
UT 4	4 - 6 mm ²	0,5 - 0,8 Nm
UT 6	6 - 10 mm ²	1,5 - 1,8 Nm
UT 10	10 - 16 mm ²	1,5 - 1,8 Nm
UT 16	16 - 25 mm ²	2,5 - 3 Nm
UT 35	35 - 50 mm ²	3,2 - 3,7 Nm
UKH 50	50 - 70 mm ²	6 - 8 Nm
UKH 70	70 - 95 mm ²	8 - 10 Nm
UKH 95	95 mm ²	15 - 20 Nm
UKH 150	150 mm ²	25 - 30 Nm
UKH 240	240 mm ²	25 - 30 Nm

Terminals	Cable dim.	Torque
OTL - type		
OTL 1,5 - 16 mm ²	1,5 mm ²	1,5 Nm
	2,5 - 6 mm ²	3,5 Nm
	10 - 16 mm ²	7 Nm
OTL 2,5 - 35 mm ²	2,5 - 16 mm ²	3 Nm
	25 - 35 mm ²	6 Nm
OTL 1,5 - 50 mm ²	1,5 - 2,5 mm ²	1,5 Nm
	4 - 10 mm ²	5 Nm
	16 - 50 mm ²	10 Nm
OTL 6 - 95 mm ²	6 - 25 mm ²	12 Nm
	35 - 95 mm ²	22 Nm
OTL 25 - 150 mm ²	25 - 50 mm ²	14 Nm
	70 - 150 mm ²	35 Nm
OTL 35 - 240 mm ²	35 - 120 mm ²	26 Nm
	150 - 240 mm ²	46 Nm
OTL 95 - 300 mm ²	95 - 150 mm ²	30 Nm
	185 - 300 mm ²	60 Nm