

UNITROL® F Technical Data

Input values

Power supply for control electronics:

From AC voltage with external transformer	
Rated voltage 1	115 V _{AC}
Voltage range	93 to 127 V _{AC}
or	
Rated voltage 2	230 V _{AC}
Voltage range	185 to 260 V _{AC}
Rated frequency f _n	50 to 600 Hz
Frequency range	
continuous	80 to 120 % f _n
dynamically	< 150 % f _n
Power consumption	≤ 70 VA

From DC voltage for back-up purpose

Battery voltage range U _B	24 to 48 V _{DC} or 110 to 250 V _{DC}
Tolerance range	± 25 % U _B
Power consumption	≤ 50 W

Measuring inputs:

Rated voltage U _n	1 or 3 × 100 to 120 V _{AC}
Max. continuous voltage	1.3 × U _n
Short-time overvoltage	
during 1 s	1.7 × U _n
during 1 ms	2.75 × √2 × U _n
Rated frequency f _n	50/60 Hz
Frequency range	
continuous	80 to 120 % f _n
dynamically	< 150 % f _n
Power consumption per phase	≤ 0.5 VA
Rated current I _n	1 × 1 A or 5 A
Overcurrent continuous	1.5 × I _n
Overcurrent dyn. 1 second	25 × I _n ; < 75 A
Rated frequency f _n	50/60 Hz
Frequency range	80 to 120 % f _n
Power consumption per measuring circuit	≤ 0.5 VA

Analog inputs:

Rated input voltage	–10 to +10 V
Rated input current	–20 to +20 mA

Digital inputs:

Rated input voltage	24 V _{DC}
Rated input current	5 to 10 mA

Output values

Power converter:

Output current	
AVR	see tables on the rear
SES	see tables on the rear
Maximum output voltage	
AVR using IGBT (Chopper)	330 V _{DC}
AVR using thyristors	650 V _{DC}
SES with 500 V _{AC} supply	650 V _{DC}

Signalization contacts:

Max. switching voltage AC/DC	250 V
Max. switching current	2 A
Max. switching power	
with ≤ 250 V _{AC}	500 VA
with 250 V _{DC}	50 W

Miscellaneous data

Test voltages:

Power supply for control electronics and measuring circuits against ground or electronic circuits	
	2.0 kV _{AC} , 1 min
DC control circuits	1.5 kV _{AC} , 1 min
Power circuits AVR	2.0 kV _{AC} , 1 min
Power circuits SES	2,5 kV _{AC} , 1 min
Surge voltage	
acc. to IEC 801-5	1.2/50 μs, 1.8 kV

Electromagnetic compatibility:

Radiated Interference Immunity	10 mV/m
acc. to IEC 801-3	27 to 1000 MHz
Fast Transient Immunity	500 V _{peak}
acc. to IEC 801-4	

Ambient values:

Continuous permissible ambient temperature	0 to +55 °C
Derating for output current with ambient temperature	> 45 °C
Permissible ambient temperature for storage	–25 to +55 °C
Climatic withstand capability	
acc. to IEC 68, class	25/055/21

Quality assurance system acc. ISO 9001
UNITROL F systems fully comply with the CE regulations.

UNITROL® F Excitation Systems

Voltage Regulating Systems (AVR) – Standard Design

UNITROL F type	Maximum supply voltage	Rated excitation current	Continuous current limit	Ceiling current 160%, 10s	Dimensions B x H x T [mm]	Weight [kg]
AVR with IGBT [SFE/AFT]-O/C5P0-F25 [SFE/AFT]-O/C5P1-F25 [SFE/AFT]-O/C5P3-F25 AVR with thyristors [SFE/AFT]-O/C1N1-F45 [SFE/AFT]-O/C1N3-F45	330 V= 240 V~, 1ph upto 600 Hz 240 V~, 3ph upto 400 Hz	} 22 A	25 A	35 A	799 x 2096 x 802	[S] 380 [A] 430
	500 V~, 1ph 50/60 Hz 500 V~, 3ph 50/60 Hz	31 A 40 A	35 A 44 A	50 A 64 A	799 x 2096 x 802	[S] 380 [A] 430

[SFE], [S]: Single channel system [AFT], [A]: Dual channel system

Static Excitation Systems (SES) – Standard Design with C2 power converter(s)

UNITROL F type	Maximum supply voltage	Rated excitation current	Continuous current limit	Ceiling current 160%, 10s	Dimensions B x H x T [mm]	Weight [kg]
[SFE/AFT]-O/C211-A250	500 V~, 3ph 50/60 Hz	205 A	225 A	328 A	[S] 1198 x 2096 x 802 [A] 1398 x 2096 x 802	[S] 730 [A] 810
[SFE/AFT]-O/C211-A370	500 V~, 3ph 50/60 Hz	290 A	319 A	464 A		
[SFE/AFT]-O/C211-A630	500 V~, 3ph 50/60 Hz	463 A	510 A	741 A		
[SFE/AFT]-O/C211-A630	500 V~, 3ph 50/60 Hz	565 A	622 A	904 A		
[SFE/AFT]-O/C211-A800	500 V~, 3ph 50/60 Hz	624 A	687 A	1000 A		

Further systems with higher supply voltage and/or higher output power on demand.

Design characteristics for AVR systems

Cubicle system
Standard cubicle color
Standard protection class

RITTAL
RAL 7035
IP21/IP31

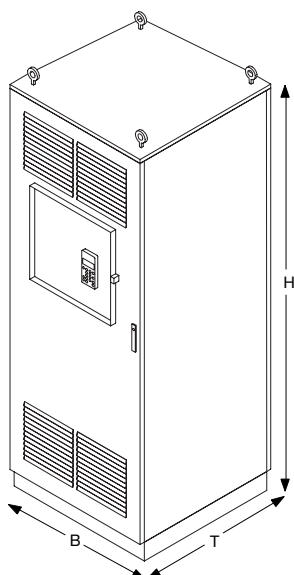


Fig. 1
Complete cubicle with voltage regulator

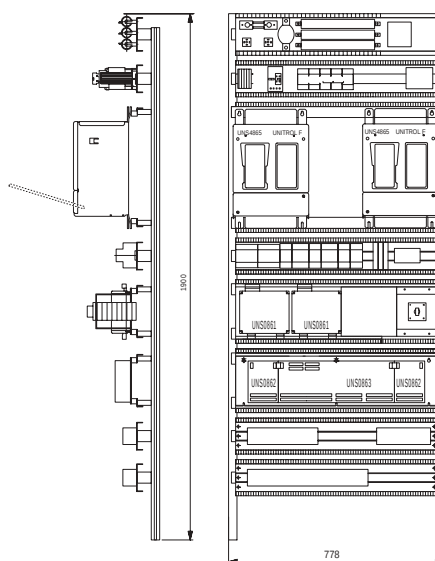


Fig. 2
All components are mounted on a "Lütze" frame. The complete frame can also be ordered without cubicle