

Solid-state relay, 3-phase, 20 A, 42 - 660 V, DC

Part no. HLR20/3(DC)600V
360046
EL Number 4309357
(Norway)

General specifications	
Product name	Eaton Moeller series HLR solid state relay
Part no.	HLR20/3(DC)600V
EAN	4015081998135
Product Length/Depth	103 millimetre
Product height	110 millimetre
Product width	54 millimetre
Product weight	0.505 kilogram
Compliances	CE Marked RoHS Compliant
Certifications	EAC UL 508 CE CCC UL-File No.: E251034, UL report applies to both US and Canada
Product Tradename	HLR
Product Type	Solid-state relay
Product Sub Type	None
General information	
Degree of protection	IP20
Frequency rating	45 Hz - 65 Hz
Mounting position	Mount device in specified orientation and do not obstruct the heatsink
Number of phases	3
Number of pilot lights	1
Overvoltage category	III
Pollution degree	2
Rated impulse withstand voltage (Uimp)	6 kV (1.2/50 µs)
Series	HLR
Shock resistance	15/11 g/ms (according to EN 50155, EN 61373)
Type	Solid-state relay
Vibration resistance	2 g/axis (2-100 Hz, IEC 60068-2-6, EN 50155, EN 61373)
Voltage type	DC
Features & Functions	
Features	Modular version
Functions	Switching at zero-crossing
Electrical connection type for auxiliary- and control-current circuit	Screw connection
Electrical connection type of main circuit	Screw connection
Climatic environmental conditions	
Altitude	9
Ambient storage temperature - min	-40 °C
Ambient storage temperature - max	100 °C
Climatic proofing	95% relative humidity non-condensing at 40°C
Operating temperature - min	-40 °C
Operating temperature - max	80 °C
Electro magnetic compatibility	
Air discharge	8 kV (according to IEC/EN 61000-4-2)
Burst Impulse	Main: 2 kV, 5 kHz PC 1 (according to IEC/EN 61000-4-4) Control: 1 kV, 5 kHz PC 1 (according to IEC/EN 61000-4-4)
Contact discharge	4 kV (according to IEC/EN 61000-4-2)
Electromagnetic fields	10 V/m, 80 - 1000 MHz and 1.4 - 2.0 GHz, PC 1 (according to IEC/EN 61000-4-3)

		10 V/m, 2.0 - 2.7 GHz, PC 1 (according to IEC/EN 61000-4-3)
Immunity to line-conducted interference		10 V/m, 0.15 - 80 MHz, PC 1 (according to IEC/EN 61000-4-6)
Radio interference class		Class A
Terminal capacities		
Terminal capacity (flexible with ferrule)		Main: 1 x 1-4 mm ² , 2 x 1-4 mm ² Control: 1 x 0.5-2.5 mm ² , 2 x 0.5-2.5 mm ²
Terminal capacity (solid)		Main: 1 x 2.5-6 mm ² , 2 x 2.5-6 mm ² Control: 1 x 0.5-2.5 mm ² , 2 x 0.5-2.5 mm ²
Terminal capacity (solid/stranded AWG)		Main: 1 x 14-10, 2 x 14-10 Control: 1 x 18-12, 2 x 18-12
Terminal capacity (stranded)		Main: 1 x 2.5-6 mm ² , 2 x 2.5-6 mm ² Control: 1 x 0.5-2.5 mm ² , 2 x 0.5-2.5 mm ²
Tightening torque		Main: 2 Nm (17.7 lb-in) Control: 0.5 Nm (4.4 lb-in)
Screwdriver size		Main: Pozidriv 2 Control: Pozidriv 1
Electrical rating		
Operating voltage - max.		660 V
Operating voltage - min.		42 V
Rated operational current (Ie) at AC-1		0 A
Rated operational current (Ie) at AC-3		0 A
Rated operational current (Ie) at AC-51		20 A
Rated operational current (Ie) at AC-53A		10 A
Rated operational current (Ie) at AC-53B		0 A
Rated operational voltage (Ue) at AC - min		42 V
Rated operational voltage (Ue) at AC - max		660 V
Control circuit		
Delay time		1/2 period + 500 microseconds at 24 V DC
Drop-out time		< 20 ms
Drop-out voltage		1 V DC
Input current		29.5 mA at 24 V DC
Pick-up voltage		4.8 V DC
Rated control supply voltage (Us) at AC, 50 Hz - min		0 V
Rated control supply voltage (Us) at AC, 50 Hz - max		0 V
Rated control supply voltage (Us) at AC, 60 Hz - min		0 V
Rated control supply voltage (Us) at AC, 60 Hz - max		0 V
Rated control supply voltage (Us) at DC - min		5 V
Rated control supply voltage (Us) at DC - max		32 V
Motor rating		
Rated operational power at 220/230 V, 50 Hz		2.2 kW
Rated operational power at 400 V, 50 Hz		4 kW
Design verification		
Equipment heat dissipation, current-dependent Pvid		58 W
Heat dissipation per pole, current-dependent Pvid		19.3 W
Rated operational current for specified heat dissipation (In)		20 A
Static heat dissipation, non-current-dependent Pvs		0 W
10.2.2 Corrosion resistance		Meets the product standard's requirements.
10.2.3.1 Verification of thermal stability of enclosures		Meets the product standard's requirements.
10.2.3.2 Verification of resistance of insulating materials to normal heat		Meets the product standard's requirements.
10.2.3.3 Resist. of insul. mat. to abnormal heat/fire by internal elect. effects		Meets the product standard's requirements.
10.2.4 Resistance to ultra-violet (UV) radiation		Please enquire
10.2.5 Lifting		Does not apply, since the entire switchgear needs to be evaluated.
10.2.6 Mechanical impact		Does not apply, since the entire switchgear needs to be evaluated.
10.2.7 Inscriptions		Meets the product standard's requirements.
10.3 Degree of protection of assemblies		Does not apply, since the entire switchgear needs to be evaluated.
10.4 Clearances and creepage distances		Meets the product standard's requirements.
10.5 Protection against electric shock		Does not apply, since the entire switchgear needs to be evaluated.

10.6 Incorporation of switching devices and components		Does not apply, since the entire switchgear needs to be evaluated.
10.7 Internal electrical circuits and connections		Is the panel builder's responsibility.
10.8 Connections for external conductors		Is the panel builder's responsibility.
10.9.2 Power-frequency electric strength		Is the panel builder's responsibility.
10.9.3 Impulse withstand voltage		Is the panel builder's responsibility.
10.9.4 Testing of enclosures made of insulating material		Is the panel builder's responsibility.
10.10 Temperature rise		The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices.
10.11 Short-circuit rating		Is the panel builder's responsibility. The specifications for the switchgear must be observed.
10.12 Electromagnetic compatibility		Is the panel builder's responsibility. The specifications for the switchgear must be observed.
10.13 Mechanical function		The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.

Technical data ETIM 9.0

Relays (EG000019) / Solid state relay (EC002055)			
Electric engineering, automation, process control engineering / Low-voltage switch technology / Contactor (LV) / Solid state relay (ecl@ss13-27-37-10-14 [ACN970016])			
Type of electric connection			Screw connection
Complete with socket			No
With detachable clamps			No
Modular version			Yes
With LED indication			Yes
Rated control supply voltage AC 50 Hz		V	0 - 0
Rated control supply voltage AC 60 Hz		V	0 - 0
Rated control supply voltage DC		V	5 - 32
Voltage type for actuating			DC
Number of phases			3
Model			Other
Type of switch function			
Switching at zero-crossing			Yes
Voltage type (operating voltage)			AC
Operating voltage AC 50 Hz		V	42 - 600
Operating voltage AC 60 Hz		V	42 - 600
Operating voltage DC		V	0 - 0
Rated operation current I _e at AC-1		A	0
Rated operation current I _e at AC-3		A	0
Rated operation current I _e at AC-51		A	20
Rated operation current I _e at AC-53a		A	10
Rated operation current I _e at AC-53b		A	0
Degree of protection (IP)			IP20
Relay technology category according to IEC 61810-7			
Width		mm	54
Height		mm	110
Depth		mm	103