

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



Part no. **HLR20/3(DC)600V**
360046

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
Short-circuit rating		
Rated conditional short-circuit current, type 1, 600 Y/347 V		kA
Rated conditional short-circuit current (Iq), type 2, 230 V		kA
Rated conditional short-circuit current (Iq), type 2, 380 V, 400 V, 415 V		kA
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 8.0

Relays (EG000019) / Solid state relay (EC002055)		
Electric engineering, automation, process control engineering / Low-voltage switch technology / Contactor (LV) / Solid state relay (ecl@ss10.0.1-27-37-10-14 [ACN970011])		
Rated control supply voltage U_s at AC 50HZ	V	0 - 0
Rated control supply voltage U_s at AC 60HZ	V	0 - 0
Rated control supply voltage U_s at DC	V	5 - 32
Voltage type for actuating		DC
Operating voltage	V	42 - 660
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
Number of phases		3
Modular version		Yes
Switching at zero-crossing		Yes