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Project 06CA09517

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REPORT

on

PROGRAMMABLE CONTROLLERS

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DESCRIPTION

PRODUCT COVERED:

*USL, CNL - Listed programmable controller, open type, compact switch, cat. no. RS20-, **RS22-,** RS30**-, or RS32-,** followed by 4 numbers, followed by a T or M or N or S or L or O or G or U or V **or E**, followed by a number or G or L or M or N or O or U or V **or E**, followed by a T or M or S or L or G or O or Z **or E,** followed by a number or Z, followed by S or T or E, followed by D **or P**, followed by two letters may be followed by additional suffixes.
Cat No. RS40- followed by 0009, followed by CCCC, followed by S or T or E, followed by a D, followed by A or B or H, followed by a letter, may be followed by additional suffixes.

GENERAL:

These devices (RS20 / **RS22** / RS30 / **RS32** / RS40-Family) are industrial control Ethernet LAN components **in aluminum or plastic housing** for rail mounting and intended for use in industrial automation applications. They are to be supplied by a Class 2 source only and communicate via interfaces through wire or fiber optics. **The devices RS22- and RS32- are additionally provided with PoE ports. (Power over Ethernet)**

ELECTRICAL RATINGS:

Main supply voltage: 9.6 – 60 Vdc, Class 2 or optional
18 – 30 Vac, Class 2
48 Vac, Class 2 (for devices RS22- and RS32- only)

Max. surrounding air temperature:

type S: 0°C up to 60°C max.
types T or E: -40°C up to 70°C max.
-40°C up to 50°C max. (for devices RS22- and RS32- only)

Note: types see item VI of **nomenclature** breakdown

Table 1: Power supply indication on modul label

Module Type									Power supply current, A			
									U_{in} = 9.6 Vdc	U_{in} = 60.0 Vdc	U_{in} = 18.0 Vac	U_{in} = 30.0 Vac
RS20-	04 08	00	T1 T5	T1 T5	x	D	x	x	0.6	0.1	0.3	0.2
RS20-	04 08	00	T1 T5	M2 M4 S2 S4 **E2** L2 G2	x	D	x	x	0.7	0.2	0.4	0.3
RS20-	04 08	00	M2 M4 S2 S4 **E2** L2 G2	T1 T5	x	D	x	x				
RS20-	04 08	00	M2 M4 S2 S4 **E2** L2 G2	M2 M4 S2 S4 **E2** L2 G2	x	D	x	x	0.8	0.2	0.5	0.3
RS20-	09	00	MM NN VV UU **EE** LL GG	M2 M4 S2 S4 **E2** L2 G2	x	D	x	x	1.0	0.2	0.6	0.4
RS20-	16	00	T1 T5	T1 T5	x	D	x	x	1.0	0.2	0.6	0.4
*												

Table 1 (CONT'D)

RS20-	16	00	T1 T5	M2 M4 S2 S4 E2 L2 G2	x	D	x	x	1.1	0.2	0.6	0.4
RS20-	16	00	M2 M4 S2 S4 E2 L2 G2	T1 T5	x	D	x	x				
RS20-	16	00	M2 M4 S2 S4 E2 L2 G2	M2 M4 S2 S4 E2 L2 G2	x	D	x	x	1.2	0.2	0.7	0.4

Table 1 (CONT'D)

RS20-	17	00	MM NN VV UU **EE** LL GG	M2 M4 S2 S4 **E2** L2 G2	x	D	x	x	1.4	0.3	0.8	0.5
RS20-	24	00	T1 T5	T1 T5	x	D	x	x	1.3	0.2	0.7	0.4
RS20-	24	00	T1 T5	M2 M4 S2 S4 **E2** L2 G2	x	D	x	x	1.4	0.3	0.8	0.5
RS20-	24	00	M2 M4 S2 S4 **E2** L2 G2	T1 T5	x	D	x	X				
RS20-	24	00	M2 M4 S2 S4 **E2** L2 G2	M2 M4 S2 S4 **E2** L2 G2	x	D	x	x	1.5	0.3	0.8	0.5
RS20-	25	00	MM NN VV UU **EE** LL GG	M2 M4 S2 S4 **E2** L2 G2	x	D	x	x	1.7	0.3	1.0	0.6
RS30-	08	02	T1 O6	T1 O6	x	D	x	x	1.0	0.2	0.5	0.3
RS30-	08	02	OO	ZZ	x	D	x	x	1.3	0.3	0.7	0.5
RS30-	16	02	T1 O6	T1 O6	x	D	x	x	1.4	0.3	0.8	0.5
RS30-	16	02	OO	ZZ	x	D	x	x	1.8	0.3	1.0	0.6
RS30-	24	02	x	x	x	D	x	x	1.7	0.3	0.9	0.6
RS30-	24	02	OO	ZZ	x	D	x	x	2.1	0.4	1.1	0.7
RS40-	00	09	CC	CC	x	D	x	x	2.1	0.4	1.1	0.7

*

Table 1 (CONT'D)

Module Type									Power supply current, A
									U_{in} = 48 Vdc
RS22-	08	00	T1	T1	x	P	x	x	1.5
RS22-	08	00	T1	M2 M4 S2 S4 E2 L2 G2	x	P	x	x	1.6
RS22-	08	00	M2 M4 S2 S4 E2 L2 G2	T1	x	P	x	x	
RS22-	08	00	M2 M4 S2 S4 E2 L2 G2	M2 M4 S2 S4 E2 L2 G2	x	P	x	x	1.7
RS22-	09	00	MM NN VV UU EE LL GG	M2 M4 S2 S4 E2 L2 G2	x	P	x	x	1.6
RS22-	16	00	T1	T1	x	P	x	x	

Table 1 (CONT'D)

RS22-	16	00	T1	M2 M4 S2 S4 E2 L2 G2	x	P	x	x	1.7
RS22-	16	00	M2 M4 S2 S4 E2 L2 G2	T1	x	P	x	x	
RS22-	16	00	M2 M4 S2 S4 E2 L2 G2	M2 M4 S2 S4 E2 L2 G2	x	P	x	x	1.8

Table 1 (CONT'D)

Module Type									Power supply current, A
									U_{in} = 48 Vdc
RS22-	17	00	MM NN VV UU EE LL GG	M2 M4 S2 S4 E2 L2 G2	x	P	x	x	1.7
RS22-	24	00	T1	T1	x	P	x	x	
RS22-	24	00	T1	M2 M4 S2 S4 E2 L2 G2	x	P	x	x	1.8
RS22-	24	00	M2 M4 S2 S4 E2 L2 G2	T1	x	P	x	x	
RS22-	24	00	M2 M4 S2 S4 E2 L2 G2	M2 M4 S2 S4 E2 L2 G2	x	P	x	x	1.9
RS22-	25	00	MM NN VV UU EE LL GG	M2 M4 S2 S4 E2 L2 G2	x	P	x	x	1.8
RS32-	08	02	T1 O6	T1 O6	x	P	x	x	1.6
RS32-	08	02	OO	ZZ	x	P	x	x	1.7
RS32-	16	02	T1 O6	T1 O6	x	P	x	x	
RS32-	16	02	OO	ZZ	x	P	x	x	1.8
RS32-	24	02	x	x	x	P	x	x	
RS32-	24	02	OO	ZZ	x	P	x	x	1.9

ENGINEERING CONSIDERATIONS (NOT FOR UL REPRESENTATIVE'S USE):

CNL - Indicates investigation to Canadian National Standard(s) C22.2 No. 142-M1987.

USL - Indicates investigation to United States Standard UL 508, 17th edition (Industrial Control Equipment).

Note: CNL = Canadian National Standards - Listed.
USL = United States Standards - Listed.

CONSTRUCTION DETAILS:

General - The details of construction are covered in the following photographs and accompanying descriptive pages and illustrations.

Corrosion Protection - All parts of corrosion resistant materials are painted or plated as corrosion protection.

Class 2 circuit - The investigation has been conducted under consideration of the Class 2 requirements. The investigation of spacings and components has been waived due to the connection to a Class 2 power supply.

Installation Instructions - Shall be provided and include a wiring diagram. It must include a statement ”Only for connection with a Class 2 power supply” or equivalent.

Warning Markings - See Section General for details.

Markings - Listed company name or trademark, model number, electrical ratings, and wiring diagram is required. Terminal identifications shall be provided on the device.

"For Use In Class 2 Circuits" or equivalent statement. This may be provided in the installation instructions separately instead of marked on the device.

The following markings are also be provided on the device or as part of the installation instructions:

”Use 60/75 or 75^{o}C copper (CU) wire only”

A programmable controller intended for use in a surrounding air temperature greater than 25°C shall be marked with the maximum specified surrounding air temperature on the device or in the installation instructions. When surrounding air temperature information is available to the public via the manufacturers internet site, the installation instructions shall specify the complete internet address to directly access the required information.

NOMENCLATURE BREAKDOWN:

RS30-	24	02	T1	06	S	D	B	P	H	H	01.0	00
I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII

I: Switch type
RS20- Compact Switch, Fast–ETHERNET uplinks
RS22- Compact Switch, Fast-ETHERNET uplinks, with PoE
RS30- Compact Switch, Gigabit–ETHERNET uplinks
RS32- Compact Switch, Gigabit-ETHERNET uplinks, with PoE
RS40- Compact Switch, Gigabit–ETHERNET ports

II: Number of Fast-ETHERNET ports
00 none (RS40 modules only)
04 4x100 Mbit
08 8x100 Mbit
09 9x100 Mbit
16 16x100 Mbit
17 17x100 Mbit
24 24x100 Mbit
25 25x100 Mbit

III: Number of Gigabit-ETHERNET ports
00 none
02 2x1000 Mbit
09 9x1000 Mbit (RS40 modules only)

*IV: Type 1 uplink port(s)
T1 twisted pair / RJ45 (100 or 1000 Mbit)
T5 twisted pair / M12 (100 Mbit)
M2 multimode / SC (100 Mbit)
M4 multimode / ST (100 Mbit)
S2 singlemode / SC (100 Mbit)
S4 singlemode / ST (100 Mbit)
L2 singlemode LH / SC (100 Mbit)
E2 singlemode SM+ (100 Mbit) (RS20 or RS22 switch type only)
G2 singlemode LH / SC (100 Mbit), 200 km
O6 SFP slot / SFP (1000Mbit)
MM 2xmultimode / SC (100 Mbit)
NN 2xmultimode / ST (100 Mbit)
VV 2xsinglemode / SC (100 Mbit)
UU 2xsinglemode / ST (100 Mbit)
LL 2xsinglemode LH / SC (100 Mbit)
EE 2xsinglemode SM+ (100 Mbit) (RS20 or RS22 switch type only)
GG 2xsinglemode LH / SC (100 Mbit), 200 km
OO 2xSFP slot / SFP (1000Mbit)
RS40-types only: 1. and 2. uplink port / connector type
CC Combo Port Gigabit Ethernet (SFP or TX 1000 Mbit)

NOMENCLATURE BREAKDOWN (Continued):

V: Type 2 uplink port(s)

T1	twisted pair / RJ45 (100 or 1000 Mbit)
T5	twisted pair / M12 (100 Mbit)
M2	multimode / SC (100 Mbit)
M4	multimode / ST (100 Mbit)
S2	singlemode / SC (100 Mbit)
S4	singlemode / ST (100 Mbit)
L2	singlemode LH / SC (100 Mbit)
E2	singlemode SM+ (100 Mbit) (RS20 or RS22 switch type only)
G2	singlemode LH / SC (100 Mbit), 200 km
O6	SFP slot / SFP (1000Mbit)
ZZ	2xSFP slot / SFP (100Mbit)

RS40-types only: 3. and 4. uplink port / connector type

CC	Combo Port Gigabit Ethernet (SFP or TX 1000 Mbit)

VI: Surrounding air temperature range & coating

S	0°C up to +60°C **0°C up to +50°C restricted for devices RS22- and RS32- only**
T	-40°C up to +70°C -40°C up to +50°C restricted for devices RS22- and RS32- only
E	-40°C up to +70°C inclusive conformal coating of PCB´s -40°C up to +50°C restricted for devices RS22- and RS32- only

VII: Power supply rating

D	9.6 – 60 Vdc or 18 – 30 Vac optional
P	48 Vdc for devices RS22- and RS32 only

VIII: Approvals / Qualification

A	cUL 508, cUL 1604 Class 1 Div. 2
B	cUL 508, cUL 1604 Class 1 Div. 2, German Lloyd, IEC 61850 Substations Railway standards EN 50121-4 / EN 50155, ATEX 100a Zone 2
H	cUL 508, cUL 1604 Class 1 Div. 2, German Lloyd, IEC 61850 Substations Railway standard EN 50121-4
C	cUL 508, cUL 1604 Class 1 Div. 2, German Lloyd, IEC 61850 Substations Railway standard EN 50121-4, EN50155

IX: Software version

Any letter, no influence to the investigation

X: optional: configuration

H	Standard
F	Metal housing
P	Polymer housing
X	Customer specific (X: any letter)

NOMENCLATURE BREAKDOWN (Continued):

XI: optional: OEM type
- H Standard
- X Customer specific (X: any letter)

XII: optional: Software release
- 01.0 Software release 1.0

XIII: optional: Bugfix
- 00 bugfix version 00