# 7300S

MODEL

# True Three Phase Solid State **Contactor** for use with Short Wave Infrared or Resistive Loads

## Specification Sheet

- **Current range from 16 to 160 amps at 45°C**
- **Voltage up to 500V**
- **CE, UL, cUL approvals**
- **Inputs:**
  **- AC or DC**
  **- Analogue 4-20mA**
- **Suitable for SWIR or resistive loads**
- **Overtemperature shutdown for fan cooled units (over 100 amps)**
- **Alarm options include:**
  **- Thyristor short circuit**
  **- Overtemperature**
  **- Diagnostic load failure detection**

A range of three phase, three leg solid state contactors for use with short wave infrared (SWIR) and Low Temperature Coefficient resistive loads.

### Ratings

The current ratings of the 7300S cover the range from 16 to 160 amps. The voltage rating extends to a maximum of 500 volts.

### Inputs

These units can, depending on the order code, be driven by either DC or AC Logic signals or an analogue 4-20mA input which gives a linear time proportional output.

### Fusing

In all cases the output is zero voltage switching. High speed fuses are mounted external to the unit for 100 amps and below, internal above 100 amps. They can be ordered as part of the 7300S order code. Spare fuses or complete fuse and fuseholder assemblies can also be ordered separately.

### Alarm

The 7300S has an optional thyristor short circuit and total load failure alarm.

An overtemperature shut down is provided for fan cooled units (over 100 amps). An optional overtemperature alarm is also available.

Diagnostic Load Failure detection is an option which alarms on the loss of one or more parallel heating elements (resistive or SWIR). The sensitivity is maximum one out of four. It is auto-setting via a front panel push button.

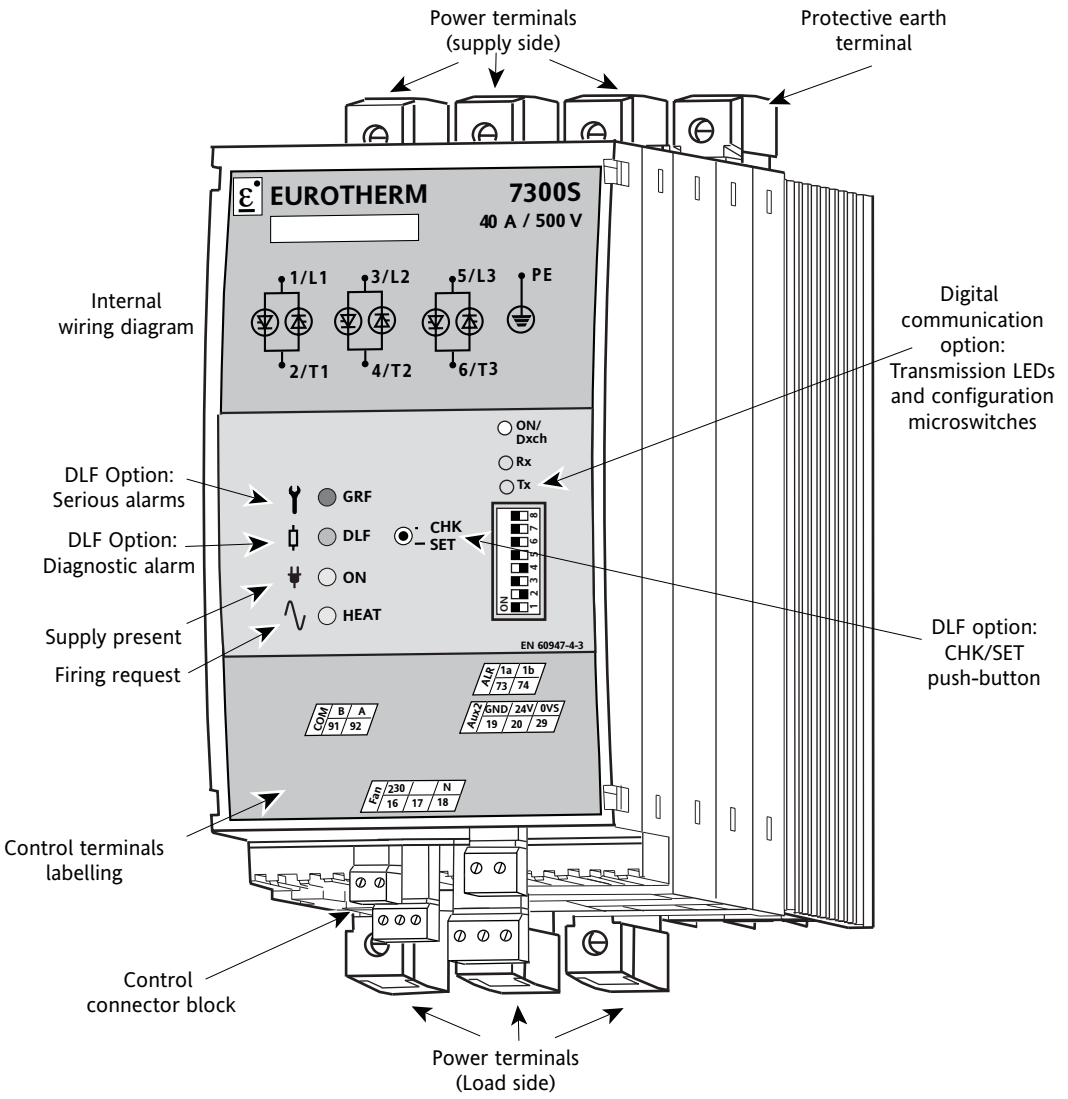
### Digital communications

The Modbus communications option allows digital control of the unit, interrogation of the alarms, firing status, voltage feedback loop, adjustable burst firing and on line configuration.

### International approvals

CE (EN60947-4-3), UL and cUL (file number E86160)

## Example of 7300S layout




## Signal connections

| Terminal Block | Terminal | | |
|---|---|---|---|
| | No. | Label | Purpose |
| LDC | 11 | 0V | Logic |
| | 12 | LD | 4.5 - 32Vdc |
| HAC | 11 | A1 | Logic |
| | 12 | A2 | 85-253Vac |
| ATP | 11 | 0V | Analogue |
| | 12 | R1 | 4 - 20mA |
| ALR | 71 | 1a | DLF |
| | 72 | 1b | NC Alarm relay |
| | 73 | 1a | DLF or GRF |
| | 74 | 1b | NO Alarm Relay |

| Terminal Block | Terminal | | |
|---|---|---|---|
| | No. | Label | Purpose |
| Fan | 16 | 230 | Fan supply |
| | 17 | 115 | 230Vac or |
| | 18 | N | 115Vac |
| Ext | 21 | L2 | Neutral reference |
| | 22 | - | (code 4S and DLF) |
| COM | 91 | A | MODBUS |
| | 92 | B | Communications |
| AUX2 | 19 | 24V | Comms auxiliary |
| | 20 | 0VS | Supply |
| | 29 | GND | |

## SPECIFICATION

### Power

Nominal current: 16 A to 160 A at 45°C ambient (see order code)

Nominal voltage: 200 VAC to 500 VAC (see order code)

Frequency: 47 to 63 Hz

Auxiliary supply: Self-powered from supply network

Fan supply: ≥125A 115VAC or 230VAC (10mA)

Dissipated power

Per amp per phase: 1.3W (approx). Allow 2 W per amp per phase to include fuse dissipation

Cooling Rating ≤100A: Natural convection

Rating ≥125A: Fan-cooled

### Load

Three-phase industrial load

Use category: AC-51 Resistive load with low temperature coefficient
AC-55b Short wave infrared elements for units ≤ 100A

Load configuration: Star with neutral (4S)
Star without neutral (3S)
Closed delta (3D)
Open delta (6D)

### Control

Control type

Analogue: 4-20mA

DC Logic: 4.5 to 32VDC maximum
(ON >4.5, OFF <3V or ON >9mA, OFF <0.5mA)

AC Logic: 100 to 230VAC maximum
(ON >85VAC, OFF <10VAC) impedance 7KΩ@90HZ

### Firing mode

Firing: For Logic inputs the firing is ON/OFF with zero voltage switching.
For analogue 4-20mA input the firing mode is Fast Cycle firing. The cycle time at 50% demand is 0.6 seconds (0.3 seconds ON and 0.3 seconds OFF). Output linearity better than + or - 2%.
Open loop control (no supply voltage compensation)

### Physical data

| Rating (A) | H(mm) | W(mm) | D(mm) | | | |
|---|---|---|---|---|---|---|
| | | | Basic | Comms | DLF | DLF + Comms |
| 16-40 | 220 | 96 | 164 | 189 | 214 | 239 |
| 63-100 | 305 | 144 | 295 | 295 | 372 | 372 |
| 125-160 | 498 | 144 | 295 | 295 | 372 | 372 |

### Digital communication

Optional Modbus communication running at 9600 or 19200 baud, allows the units to be controlled and monitored by a supervisory system

### Alarm options

Diagnostic alarms (DLF)

Serious alarms: Unit overtemperature, thyristor short circuit and load open circuit signalled by set LED and relay contact

Partial load failure: Detects the failure of at least 1 element out of 4 in 3S, 4S, 6D configuration and 1 element out of 3 in 3D configuration signalled by DLF LED and relay contact

### Alarm relay

Available with alarm options. The relay contact (0.25 A 230 Vac; 32 Vdc) is either open or closed on alarm depending on the code

### Environment

Temperature Use: 0°C to 45°C at max. altitude of 2000m

Storage: -10°C to 70°C

Pollution: Degree 2 acceptable (defined by IEC 664)

Humidity: RH 5% to 95% Non condensing

### Installation

Mounting:

Rating from 16 to 40A: Two symetric DIN rail EN50022 or bulkhead mounting (4 x M4 screws)

Rating from 63 to 100A: Bulkhead mounting (4 x M4 screws)

Rating from 125 to 160A: Bulkhead mounting (4 x M6 screws)

Allow a minimum of 10mm between units

Units must be mounted with fins running vertically

Max. cable size

16 and 25 amp: $6mm^2$ - AWG10

40 and 63 amp: $16mm^2$ - AWG6

80 and 100 amp: $35mm^2$ - AWG2

125 to 160 amp: $120mm^2$ - AWG4/0

### Protection

Thyristor protection: Varistor and RC snubber

High speed fuses:

rating ≤100A: External (optional)

rating ≥125A: Internal. No fuse for short wave infrared elements if firing at zero crossings or in phase angle firing mode without current limit

Electrical protection: IP20 without adding additional protection
Overvoltage category II

### Warranty

2 years

## Ordering code

| 7300S | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| 14 | 15 |
|---|---|
| | NONE |

### Basic Product

| | |
|---|---|
| **7300S** | Three Phase SSC |

### 1 Current

| | |
|---|---|
| **16A** | 16 amps |
| **25A** | 25 amps |
| **40A** | 40 amps |
| **63A** | 63 amps |
| **80A** | 80 amps |
| **100A** | 100 amps |
| **125A** | 125 amps |
| **160A** | 160 amps |

### 2 Voltage

| | |
|---|---|
| **200V** | 200 volts |
| **230V** | 230 volts |
| **277V** | 277 volts |
| **400V** | 400 volts |
| **460V** | 460 volts |
| **480V** | 480 volts |
| **500V** | 500 volts |

### 3 Fan Power Supply

| | |
|---|---|
| **XXXX** | ≤100A : no fan<br>≥125A : fan |
| **115V** | 115 volt supply |
| **230V** | 230 volt supply |

### 4 Load Configuration

| | |
|---|---|
| **3S** | Star without neutral |
| **4S** | Star with neutral |
| **3D** | Closed delta |
| **6D** | Open delta |

### 5 Fuse

| | |
|---|---|
| **FUSE** | Fuse without microswitch |
| **MSFU** | Fuse with microswitch |
| **NONE** | No fuse * |

** High speed fuses are not recommended for SWIR loads*

### 6 Input

| | |
|---|---|
| **On/off firing** | |
| DC logic signal | |
| **LDC** | 4.5V dc to 32V dc |
| AC logic signal | |
| **HAC** | 85V ac to 253V ac |
| **Burst firing** | |
| Analogue DC signal | |
| **ATP** | 4mA to 20mA |
| **NONE** | Note 1 |

### 7 Manual Language

| | |
|---|---|
| **ENG** | English |
| **FRA** | French |

### 8 Options

| | |
|---|---|
| **NONE** | No option and End of code |
| **YES** | (specify further code) |

*Note*
*1. Only available if MOP is selected*

**Options (If Options 'YES')**

### 9 Alarm Option

| | |
|---|---|
| **DLF** | Partial load failure + Serious alarms |
| **NONE** | No alarms |

### 10 Load Type

| **With DLF option:** | |
|---|---|
| **SWIR** | Short wave infrared elements |
| **LTCL** | Low temperature coefficient load |
| **XXXX** | Without DLF option |

### 11 Alarm Relay Contact

| **DLF option:** | |
|---|---|
| **NC** | Contact closed on alarm |
| **NO** | Contact open on alarm |
| **XX** | Without alarm option |

### 12 Comms Option

| | |
|---|---|
| **NONE** | |
| **MOP** | Modbus comms |

### 13 Baud Rate

| | |
|---|---|
| **XXXX** | |
| **9K6** | 96 Kbaud |
| **19K2** | 192 Kbaud |

### 14 Compliance Certificate

| | |
|---|---|
| **NONE** | No certificate of Conformity |
| **CFMC** | Certificate Conformity |

### 15

| | |
|---|---|
| **NONE** | |

Please note that replacement fuses are marked with a higher current rating than the thyristors. This allows correct operation at elevated temperatures and does not imply that higher current is permissible.

**SPARE FUSE** (3 per unit)

| Current rating amps | Fuse rating amps | Fuse number | Fuse Trip with Indicator |
|---|---|---|---|
| 16 | 20 | **CH260034** | **CS176513U032** |
| 25 | 32 | **CH260034** | **CS176513U032** |
| 40 | 50 | **CH330054** | **CS176513U050** |
| 63 | 80 | **CS173087U080** | **CS176461U080** |
| 80 | 100 | **CS173087U100** | **CS176461U100** |
| 100 | 125 | **CS173246U160** | **CS173246U160** |
| **Internal fuse** | | | |
| 125 | 160 | → | **CS176762U160** |
| 160 | 250 | → | **CS176762U315** |

**FUSE AND HOLDER** (Triple unit)

| Current rating amps | Fuse and Holder assembly | Fuse and Holder with Microswitch |
|---|---|---|
| 16 | **FU1038/16A/00** | **MSFU1451/16A** |
| 25 | **FU1038/25A/00** | **MSFU1451/25A** |
| 40 | **FU1451/40A/00** | **MSFU1451/40A** |
| 63 | **FU2258/63A/00** | **MSFU2258/63A** |
| 80 | **FU2258/80A/00** | **MSFU2258/80A** |
| 100 | **FU2760/100A/00** | **MSFU2760/100A** |

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