

# PIN & SLEEVE DEVICES

**Altech's** line of industrial plugs and sockets are manufactured by ABL Sursum, a company well known in Europe for its quality electrical products. This major manufacturer combines the elements of good design, high quality, safety, ease of installation and competitive cost. The pin and sleeve devices are manufactured to EN 60309 Part 1 and 2: IEC 60309. Their rugged construction in polyamide 6 material provides good anti-tracking properties and high resistance to aggressive industrial use.

In accordance with the Standard's requirements, these devices are color coded to provide positive voltage and frequency matching and external key-ways ensure correct alignment of contact pins. The position of the ground pin relative to the socket's key-way are designated as a clock hour position.

The ground terminal also has a larger diameter than the contacts, making it impossible to install it in an IEC 60309 device with a different voltage rating.

The shrouded housing made of high impact nylon material protects the contacts from physical abuse and safeguards against touching live parts when partially engaged.

All terminals are clearly marked in both IEC 60309 and North American Standards.

## Features include:

- High impact and abrasion resistance
- Resistant to oil, petrol, most acids and alkalines
- Operating Temperature range  
-13°F to 176°F (-25°C to 80°C)
- Excellent anti-tracking
- Grooved body improves hand grip
- Insulated cable clamp device
- Maximum wiring space
- Terminals clearly marked
- All screws are accessible from one side

**turn2fix**

## FEATURE

### 20-30A

plugs, connectors,  
and angled inlets



Assembly is simple and quick with the help of the multi-ramp locking system. Parts are delivered in a half unlocked stage to make initial assembly straightforward.

1. Match triangle icons for both housings in open position.
2. Twist counter-clockwise until locked as per above figure.

## Voltage Configuration Chart



## COLOR CODING AND GROUND PIN POSITIONS

Pin and Sleeve devices are color coded to provide positive voltage and frequency matching and external key-ways ensure correct alignment of contact pins. The position of the ground pin relative to the socket's key-way are designated as a clock hour position.

The ground terminal also has a larger diameter than the contacts, making it impossible to install in an IEC 60309 device with a different voltage rating.



Front view of receptacle/connector to contact barrier

# TECHNICAL DATA

## Electrical

|                                                                                   |                                                                                                                                                                                                               |                                                                                    |
|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| <b>Insulation Voltage, Max. (Volts)</b>                                           | 16/20 Amp. (A) = 690V (Plugs, Connectors, Receptacles) / 500V (inlets)<br>30/32 Amp. (A) = 690V (Plugs, Connectors, Receptacles) / 500V (inlets)                                                              | 60/63 Amp. (A) = 750V<br>125/100 Amp. (A) = 750V                                   |
| <b>Dielectric Withstanding Voltage</b>                                            | 16/20 Amp. (A) = 3,000V (Plugs, Connectors, Receptacles) / 2,500V (inlets)<br>30/32 Amp. (A) = 3,000V (Plugs, Connectors, Receptacles) / 2,500V (inlets)                                                      | 60/63 Amp. (A) = 2,500 V<br>100/125 Amp. (A) = 2,500V                              |
| <b>Current Interrupting</b>                                                       | Certified for current interrupting at full rated current                                                                                                                                                      |                                                                                    |
| <b>Endurance, Connect and disconnect cycles at full rated current and voltage</b> | IEC: 16 Amp. (A) = 5000 at a power factor of 0.6<br>32 Amp. (A) = 1000 at a power factor of 0.6<br>UL: 20 Amp. (A) = 5000 at a power factor of 0.75-0.80<br>30 Amp. (A) = 1000 at a power factor of 0.75-0.80 | 63/60 Amp. (A) = 1,000 @ a p.f. of 0.6<br>100/125 Amp. (A) = 1,000 @ a p.f. of 0.7 |

## Environmental

|                                     |                                                                                    |  |
|-------------------------------------|------------------------------------------------------------------------------------|--|
| <b>Temperature Range, Operating</b> | -25°C to + 80°C (-13°F to + 176°F)                                                 |  |
| <b>Temperature Resistance</b>       | Up to 1 hour +100°C (167°F)                                                        |  |
| <b>Moisture Resistance</b>          | Splashproof IP 44; Watertight IP 67; Per IEC 60309-1, Clause 18                    |  |
| <b>Flammability</b>                 | per IEC 60309-1 / Clause 27<br>Flame Class Rating UL 94 or CSA C22.2 No. 0.17: V-2 |  |

## Material

|                                 | 20 - 30 Amp                                             | 60 - 100 Amp                      |
|---------------------------------|---------------------------------------------------------|-----------------------------------|
| <b>Housing (Front and Back)</b> | Polyamide 6                                             | Polyamide 6                       |
| <b>Cover</b>                    | Polyamide 6                                             | Polyamide 6                       |
| <b>Cover Rivet</b>              | Splashproof IP44: Polyamide 6<br>Watertight IP67: Brass | Brass                             |
| <b>Cover Spring</b>             | Spring Steel                                            | Stainless Steel (A2)              |
| <b>Contact Carrier</b>          | Polyamide 6                                             | Polyamide 6                       |
| <b>Contacts</b>                 | Brass or Nickel-plated Brass                            | Brass                             |
| <b>Terminal Screws</b>          | Steel, Brass or Nickel Plated Brass                     | Steel, Nickel Plated, Bichromated |
| <b>Cord Clamp / Bushing</b>     | Polypropylene and Thermoplastic Elastomer               | Concentric Laminated Rubber       |
| <b>Gland Nut</b>                | Polyamide 6                                             | Polyamide 6                       |
| <b>Assembly Screws</b>          | Steel                                                   | Steel, Nickel Plated, Chromated   |
| <b>Internal Strain Relief</b>   | NA                                                      | Polyamide 6                       |
| <b>Retaining Ring</b>           | NA                                                      | Steel, Electro Zinc Plated        |

## Recommended Wire Size\*

| UL/CSA | Amp Rating | Wire Size / UL (min.)                                           | Wire Size / CSA (min.)                    |
|--------|------------|-----------------------------------------------------------------|-------------------------------------------|
|        | 20         | 12 AWG                                                          | 14 AWG                                    |
|        | 30         | 10 AWG                                                          | 12 AWG                                    |
|        | 60         | 4 AWG                                                           | 4 AWG                                     |
|        | 100        | 2 AWG                                                           | 2 AWG                                     |
| IEC    | Amp Rating | Flexible Wire per IEC<br>Plugs, Connectors, Receptacles, Inlets | Solid Wire per IEC<br>Receptacles, Inlets |
|        | 16         | 1mm <sup>2</sup> - 2.5mm <sup>2</sup>                           | 1mm <sup>2</sup> - 4mm <sup>2</sup>       |
|        | 32         | 2.5mm <sup>2</sup> - 6mm <sup>2</sup>                           | 2.5mm <sup>2</sup> - 10mm <sup>2</sup>    |
|        | 63         | min. 10mm <sup>2</sup>                                          | min. 10mm <sup>2</sup>                    |
|        | 125        | min. 35mm <sup>2</sup>                                          | min. 35mm <sup>2</sup>                    |

## Recommended Screw Torque for Terminal Set Screws

| Amp Rating |                     | Terminal Screws [lb.in.] | Housing Screws [lb.in.] |
|------------|---------------------|--------------------------|-------------------------|
| 16A/20A    | Receptacles, Inlets | 8.85                     | 9.74                    |
| 32A/30A    | Receptacles, Inlets | 9.74                     | 9.74                    |
|            |                     |                          | Strain Relief [lb.in.]  |
| 16A/20A    | Plugs, Connectors   | 8.85                     | 35.4                    |
| 32A/30A    | Plugs, Connectors   | 9.74                     | 44.3                    |
| 63/60A     |                     | 17.7                     |                         |
| 125/100A   |                     | 88.5                     |                         |

\* Please refer to National Electric Code, to determine wire size for different Amp Ratings.

**20-30A****IP44****SPLASHPROOF**

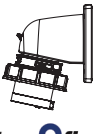
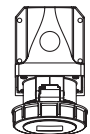
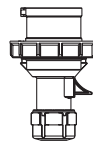
E141950, E141951

**PLUG****CONNECTOR**

| Ground Pin | Poles | Amps | Voltage     | Color  |         |         |
|------------|-------|------|-------------|--------|---------|---------|
| 4h         | 2P/3W | 20A  | 120V AC     | Yellow | S31S10A | K31S10A |
| 6h         | 2P/3W | 20A  | 250V AC     | Blue   | S31S20A | K31S20A |
| 7h         | 2P/3W | 20A  | 480V AC     | Red    | S31S50A | K31S50A |
| 5h         | 2P/3W | 20A  | 277V AC     | Grey   | S31S70A | K31S70A |
| 3h         | 3P/4W | 20A  | 380/440V AC | Red    | S41S00A | K41S00A |
| 9h         | 3P/4W | 20A  | 250V AC     | Blue   | S41S20A | K41S20A |
| 6h         | 3P/4W | 20A  | 400V AC     | Red    | S41S30A | K41S30A |
| 7h         | 3P/4W | 20A  | 480V AC     | Red    | S41S50A | K41S50A |
| 12h        | 3P/4W | 20A  | 120/250V AC | Orange | S41S60A | K41S60A |
| 5h         | 3P/4W | 20A  | 600V AC     | Black  | S41S70A | K41S70A |
| 9h         | 4P/5W | 20A  | 120/208V AC | Blue   | S51S20A | K51S20A |
| 6h         | 4P/5W | 20A  | 400V AC     | Red    | S51S30A | K51S30A |
| 7h         | 4P/5W | 20A  | 277/480V AC | Red    | S51S50A | K51S50A |
| 5h         | 4P/5W | 20A  | 347/600V AC | Black  | S51S70A | K51S70A |
| 4h         | 2P/3W | 30A  | 120V AC     | Yellow | S32S10A | K32S10A |
| 6h         | 2P/3W | 30A  | 250V AC     | Blue   | S32S20A | K32S20A |
| 7h         | 2P/3W | 30A  | 480V AC     | Red    | S32S50A | K32S50A |
| 5h         | 2P/3W | 30A  | 277V AC     | Grey   | S32S70A | K32S70A |
| 3h         | 3P/4W | 30A  | 380/440V AC | Red    | S42S00A | K42S00A |
| 9h         | 3P/4W | 30A  | 250V AC     | Blue   | S42S20A | K42S20A |
| 6h         | 3P/4W | 30A  | 400V AC     | Red    | S42S30A | K42S30A |
| 7h         | 3P/4W | 30A  | 480V AC     | Red    | S42S50A | K42S50A |
| 12h        | 3P/4W | 30A  | 120/250V AC | Orange | S42S60A | K42S60A |
| 5h         | 3P/4W | 30A  | 600V AC     | Black  | S42S70A | K42S70A |
| 9h         | 4P/5W | 30A  | 120/208V AC | Blue   | S52S20A | K52S20A |
| 6h         | 4P/5W | 30A  | 400V AC     | Red    | S52S30A | K52S30A |
| 7h         | 4P/5W | 30A  | 277/480V AC | Red    | S52S50A | K52S50A |
| 5h         | 4P/5W | 30A  | 347/600V AC | Black  | S52S70A | K52S70A |

**20-30A****IP67****WATERTIGHT**

E141950, E141951

**PLUG****CONNECTOR****RECEPTACLE****INLET**

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| Ground Pin | Poles | Amps | Voltage     | Color  |         |         | Straight | Angled 15° | Box     | Angled  |
|------------|-------|------|-------------|--------|---------|---------|----------|------------|---------|---------|
| 4h         | 2P/3W | 20A  | 120V AC     | Yellow | S31S15A | K31S15A | F31S15A  | F31S18A    | D31S15A | A31S16A |
| 6h         | 2P/3W | 20A  | 250V AC     | Blue   | S31S25A | K31S25A | F31S25A  | F31S28A    | D31S25A | A31S26A |
| 7h         | 2P/3W | 20A  | 480V AC     | Red    | S31S55A | K31S55A | F31S55A  | F31S58A    | D31S55A | A31S56A |
| 5h         | 2P/3W | 20A  | 277V AC     | Grey   | S31S75A | K31S75A | F31S75A  | F31S78A    | D31S75A | A31S76A |
| 3h         | 3P/4W | 20A  | 380/440V AC | Red    | S41S05A | K41S05A | F41S05A  | F41S08A    | D41S05A | A41S06A |
| 9h         | 3P/4W | 20A  | 250V AC     | Blue   | S41S25A | K41S25A | F41S25A  | F41S28A    | D41S25A | A41S26A |
| 6h         | 3P/4W | 20A  | 400V AC     | Red    | S41S35A | K41S35A | F41S35A  | F41S38A    | D41S35A | A41S36A |
| 7h         | 3P/4W | 20A  | 480V AC     | Red    | S41S55A | K41S55A | F41S55A  | F41S58A    | D41S55A | A41S56A |
| 12h        | 3P/4W | 20A  | 120/250V AC | Orange | S41S65A | K41S65A | F41S65A  | F41S68A    | D41S65A | A41S66A |
| 5h         | 3P/4W | 20A  | 600V AC     | Black  | S41S75A | K41S75A | F41S75A  | F41S78A    | D41S75A | A41S76A |
| 9h         | 4P/5W | 20A  | 120/208V AC | Blue   | S51S25A | K51S25A | F51S25A  | F51S28A    | D51S25A | A51S26A |
| 6h         | 4P/5W | 20A  | 400V AC     | Red    | S51S35A | K51S35A | F51S35A  | F51S38A    | D51S35A | A51S36A |
| 7h         | 4P/5W | 20A  | 277/480V AC | Red    | S51S55A | K51S55A | F51S55A  | F51S58A    | D51S55A | A51S56A |
| 5h         | 4P/5W | 20A  | 347/600V AC | Black  | S51S75A | K51S75A | F51S75A  | F51S78A    | D51S75A | A51S76A |
| 4h         | 2P/3W | 30A  | 120V AC     | Yellow | S32S15A | K32S15A | F32S15A  | F32S18A    | D32S15A | A32S16A |
| 6h         | 2P/3W | 30A  | 250V AC     | Blue   | S32S25A | K32S25A | F32S25A  | F32S28A    | D32S25A | A32S26A |
| 7h         | 2P/3W | 30A  | 480V AC     | Red    | S32S55A | K32S55A | F32S55A  | F32S58A    | D32S55A | A32S56A |
| 5h         | 2P/3W | 30A  | 277V AC     | Grey   | S32S75A | K32S75A | F32S75A  | F32S78A    | D32S75A | A32S76A |
| 3h         | 3P/4W | 30A  | 380/440V AC | Red    | S42S05A | K42S05A | F42S05A  | F42S08A    | D42S05A | A42S06A |
| 9h         | 3P/4W | 30A  | 250V AC     | Blue   | S42S25A | K42S25A | F42S25A  | F42S28A    | D42S25A | A42S26A |
| 6h         | 3P/4W | 30A  | 400V AC     | Red    | S42S35A | K42S35A | F42S35A  | F42S38A    | D42S35A | A42S36A |
| 7h         | 3P/4W | 30A  | 480V AC     | Red    | S42S55A | K42S55A | F42S55A  | F42S58A    | D42S55A | A42S56A |
| 12h        | 3P/4W | 30A  | 120/250V AC | Orange | S42S65A | K42S65A | F42S65A  | F42S68A    | D42S65A | A42S66A |
| 5h         | 3P/4W | 30A  | 600V AC     | Black  | S42S75A | K42S75A | F42S75A  | F42S78A    | D42S75A | A42S76A |
| 9h         | 4P/5W | 30A  | 120/208V AC | Blue   | S52S25A | K52S25A | F52S25A  | F52S28A    | D52S25A | A52S26A |
| 6h         | 4P/5W | 30A  | 400V AC     | Red    | S52S35A | K52S35A | F52S35A  | F52S38A    | D52S35A | A52S36A |
| 7h         | 4P/5W | 30A  | 277/480V AC | Red    | S52S55A | K52S55A | F52S55A  | F52S58A    | D52S55A | A52S56A |
| 5h         | 4P/5W | 30A  | 347/600V AC | Black  | S52S75A | K52S75A | F52S75A  | F52S78A    | D52S75A | A52S76A |

FOR DRAWINGS PLEASE VISIT  
[www.altechcorp.com/HTML/Drawings/PinSleeve](http://www.altechcorp.com/HTML/Drawings/PinSleeve)

For ÖVE Approvals please consult Altech.

# RECEPTACLE

# INLET



**Straight**



**Angled 15°**



**Small Box**



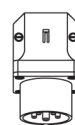
**Large Box**



**Straight**



**Angled**



**Box**

|         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|
| F31S10A | F31S13A | D31S11A | D31S10A | A31S12A | A31S11A | G31S10A |
| F31S20A | F31S23A | D31S21A | D31S20A | A31S22A | A31S21A | G31S20A |
| F31S50A | F31S53A | D31S51A | D31S50A | A31S52A | A31S51A | G31S50A |
| F31S70A | F31S73A | D31S71A | D31S70A | A31S72A | A31S71A | G31S70A |
| F41S00A | F41S03A | D41S01A | D41S00A | A41S02A | A41S01A | G41S00A |
| F41S20A | F41S23A | D41S21A | D41S20A | A41S22A | A41S21A | G41S20A |
| F41S30A | F41S33A | D41S31A | D41S30A | A41S32A | A41S31A | G41S30A |
| F41S50A | F41S53A | D41S51A | D41S50A | A41S52A | A41S51A | G41S50A |
| F41S60A | F41S63A | D41S61A | D41S60A | A41S62A | A41S61A | G41S60A |
| F41S70A | F41S73A | D41S71A | D41S70A | A41S72A | A41S71A | G41S70A |
| F51S20A | F51S23A | D51S21A | D51S20A | A51S22A | A51S21A | G51S20A |
| F51S30A | F51S33A | D51S31A | D51S30A | A51S32A | A51S31A | G51S30A |
| F51S50A | F51S53A | D51S51A | D51S50A | A51S52A | A51S51A | G51S50A |
| F51S70A | F51S73A | D51S71A | D51S70A | A51S72A | A51S71A | G51S70A |
| F32S10A | F32S13A | D32S11A | D32S10A | A32S12A | A32S11A | G32S10A |
| F32S20A | F32S23A | D32S21A | D32S20A | A32S22A | A32S21A | G32S20A |
| F32S50A | F32S53A | D32S51A | D32S50A | A32S52A | A32S51A | G32S50A |
| F32S70A | F32S73A | D32S71A | D32S70A | A32S72A | A32S71A | G32S70A |
| F42S00A | F42S03A | D42S01A | D42S00A | A42S02A | A42S01A | G42S00A |
| F42S20A | F42S23A | D42S21A | D42S20A | A42S22A | A42S21A | G42S20A |
| F42S30A | F42S33A | D42S31A | D42S30A | A42S32A | A42S31A | G42S30A |
| F42S50A | F42S53A | D42S51A | D42S50A | A42S52A | A42S51A | G42S50A |
| F42S60A | F42S63A | D42S61A | D42S60A | A42S62A | A42S61A | G42S60A |
| F42S70A | F42S73A | D42S71A | D42S70A | A42S72A | A42S71A | G42S70A |
| F52S20A | F52S23A | D52S21A | D52S20A | A52S22A | A52S21A | G52S20A |
| F52S30A | F52S33A | D52S31A | D52S30A | A52S32A | A52S31A | G52S30A |
| F52S50A | F52S53A | D52S51A | D52S50A | A52S52A | A52S51A | G52S50A |
| F52S70A | F52S73A | D52S71A | D52S70A | A52S72A | A52S71A | G52S70A |

IP degrees of protection acc. to EN 60529

