SHArc
Soldier Worn Power & Data

Delivering a truly effective Soldier Worn Power & Data (SWPD) solution requires two crucial elements: a hub to control the “Power & Data” and a packaged cable & connector assembly to manage the “Soldier Worn” aspect.

SHArc is Thales’ innovative SWPD solution: Soldier Harness Architecture. In priority order, the name highlights the three major considerations designed into SHArc:

1. Soldier – understand their collective and individual tasks and needs;
2. Harness – recognise this is part of their load and integrate it seamlessly;
3. Architecture – provide an open system conforming with relevant power & data standards and be capable of meeting future demands.
SHArc provides the infrastructure to support the integration of legacy and future devices fitted around the user to form a tailored Soldier System. **FLEXIBLE:** There is no single, one-size-fits-all SWPD system; users’ needs are too varied and complex. SHArc offers true flexibility in cable, connector and battery type as well as device and connector location. User configurations can be controlled and managed at the lowest appropriate level. **INTEGRATED:** SHArc belt & yoke can be seamlessly integrated with existing load carriage and protection systems. It offers an innovative feature allowing rapid transition between protection (“dress”) states whilst retaining the maximum amount of belt “real estate” for users. Alternatively the FISH can be procured and used on its own, fitted to existing solutions via a dedicated pouch. **OPEN:** SHArc conforms to the GSA (Generic Soldier Architecture) standard and can support legacy devices through the use of embedded adaptors. **CONTROL:** SHArc is designed to be used by both Commanders and Riflemen. The Commander system, which includes a display & control device, can observe and manage the Riflemen systems through the use of the SHArc App. **CAPABLE:** The Flexible Intelligent Soldier Hub (FISH) at the heart of the SHArc is highly capable, offering six smart Power-Data ports that accommodate devices and subsystems. The smart ports are multifunctional; two ports providing a battery charging capability, two ports with USB OTG (including hub daisy chaining to increase the number of available ports) and two ports compatible with the optional switch module. **SECURE:** Cyber Security is becoming an increasingly serious concern for all military systems. Thales offers a very extensive Cyber Security pedigree and this knowledge and experience has been employed to ensure the FISH incorporates a range of software and hardware security features and options to ensure it can remain protected against evolving threats.

**Flexibility:** Can be reconfigured to meet diverse & changing operational user needs. **Intelligent Power Management:** Commanders are able to control and optimise the power distribution in the team and enable the logistics chain to easily anticipate future demand. **Simple Controls:** The optional on/off switch module allows for ‘Silent Watch’ usage and simple status information. The SHArc App allows the control of the team’s power settings. **Charging ports:** Provides a safe and efficient recharging facility for all uses, including USB2.0 Battery Charging Specification. **FISH metal casing:** robust, enduring EMC performance with effective heat sinking. **Variants:** Supports Riflemen to Commander step-up, integration of future devices and power sharing.

**Major Benefits:**
- Reduces user power load over a Battlefield Mission through shared power burden.
- Reduces diversity of battery types
- Simplifies integration of future digital devices using an open system approach.
- Reduces cognitive burden by automating the routine power & data tasks
- Substantially reduces Whole Life Costs through Intelligent Power management
- Minimises impact on the user by focusing on user centric load carriage design.

**Technical Specifications:**

SHArc is comprised of a number of elements (hub, switch module (optional), harness, cables, battery housings/connectors & app) allowing specifications to be configuration- or usage-dependent.

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<tr>
<th></th>
<th>FISH</th>
<th>SHArc (incl Ancil)</th>
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<tbody>
<tr>
<td>Weight Commander</td>
<td>275g</td>
<td>910g</td>
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<tr>
<td>Weight (Rifleman)</td>
<td>685g</td>
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**Flexible Intelligent Soldier Hub (FISH)**

- **Immersion:** 2 metres for 60 minutes
- **EMC:** DEF STAN 59-411
- **Shock & vibration:** DEF STAN 00-35
- **Temperature:**
  - Operational: -32°C to +49°C
  - Storage: -46°C to +71°C
- **Size:** 90*99*19.5/21.9 mm
- **Position:** Belt and/or MOLLE pouch accessory
- **Power consumption:** 400 mW (typical)
- **Inputs / Outputs:**
  - 6 Smart Power-Data Ports
    - 2 battery charging ports (SMBus)
    - 2 USB OTG ports (inc daisy chaining)
    - 2 switch module (optional) ports
- **Input:** 8-36V
- **Output:** 10-20V
  - 18V Nom
  - USB2.0 (inc USB Battery Charging Spec), 50W max
- **CPU:** Low Power ARM Cortex A7 with Extra Security Features including Secure Boot (High Security features also available on request)
- **Memory:** 512MB RAM, 8GB non-volatile memory (NVM capacity variable by request, up to 32GB)

**Belt & Braces**

- **Fixings:** Hybrid laser-cut and conventional MOLLE system
- **Adjustable connector positions**
- **Weight:**
  - Belt / Yoke: 63.5g / 18.5g
  - Brace & Fixing: 80g
  - FISH Pouch: 50g

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