

CLAIMS

1815 Having described my invention, I claim:

Claim 1. An intelligent module for attachment to a fiber strength member, comprising:
(a) a collar mounted on an exterior of said fiber strength member, said collar including a passage accommodating said fiber strength member passing longitudinally therethrough;

1820 (b) a measurement element, with at least a portion of said measurement element lying within said multi-stranded fiber strength member;
(c) said measurement element being held in position by said collar; and
(d) an instrument package configured to monitor a force placed on said measurement element by said fiber strength member.

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Claim 2. The intelligent module as recited in claim 1, wherein said measurement element is mounted transversely to a longitudinal axis of said fiber strength member.

1830 Claim 3. The intelligent module as recited in claim 1, wherein said collar is split so that it can be added to said fiber strength member in multiple pieces.

Claim 4. The intelligent module as recited in claim 2, further comprising a detachable piercer configured to attach to said transverse measurement element and thereby aid said transverse measurement element's lateral passage through said fiber strength member.

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Claim 5. The intelligent module as recited in claim 1, wherein said instrument package includes a processor and a memory configured to store strain information measured by said instrument package.

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Claim 6. The intelligent module as recited in claim 5, wherein said instrument package includes a radio transmitter for transmitting information to an external device.

1845 Claim 7. The intelligent module as recited in claim 1, wherein said instrument package

includes an externally visible indicator panel for indicating a status of said fiber strength member.

- 1850 Claim 8. An intelligent module for attachment to a fiber strength member, comprising:
- (a) a collar mounted on an exterior of a strand of said fiber strength member;
- (b) a measurement element, with at least a portion of said measurement element lying within said strand;
- 1855 (c) said measurement element being connected to said collar; and
- (d) an instrument package configured to monitor a strain placed on said measurement element by said strand.
- 1860 Claim 9. The intelligent module as recited in claim 8, wherein said measurement element is placed transversely through said strand.
- 1865 Claim 10. The intelligent module as recited in claim 8, wherein said collar is split so that it can be added to said strand in multiple pieces.
- 1870 Claim 11. The intelligent module as recited in claim 9, further comprising a detachable piercer configured to attach to said measurement element and thereby aid said measurement element's lateral passage through said strand.
- Claim 12. The intelligent module as recited in claim 8, wherein said instrument package includes a processor and a memory configured to store strain information measured by said instrument package.
- Claim 13. The intelligent module as recited in claim 12, wherein said instrument package includes a radio transmitter for transmitting information to an external device.
- 1875 Claim 14. The intelligent module as recited in claim 8, wherein said instrument package includes an externally visible indicator panel for indicating a status of said strand.

- 1880 Claim 15. An intelligent module for attachment to a fiber strength member, comprising:
- (a) a measurement element passing transversely through said fiber strength member, said measurement element having a first end and a second end;
- (b) an instrument housing attached to said first end of said measurement element;
- 1885 (c) a strain gauge mounted on said measurement element, said strain gauge configured to measure a strain of said measurement element;
- (d) an instrument package mounted in said instrument housing, said instrument package configured to monitor said strain gauge; and
- (e) a bracket attached to said second end of said measurement element.
- 1890 Claim 16. The intelligent module as recited in claim 15, wherein said instrument housing and said bracket lie outside of said fiber strength member.
- Claim 17. The intelligent module as recited in claim 16, wherein said instrument bracket and said housing are secured to said fiber strength member by a plurality of
- 1895 bands.
- Claim 18. The intelligent module as recited in claim 15, further comprising a detachable piercer configured to attach to said measurement element and thereby aid said measurement element's lateral passage through said fiber strength member.
- 1900 Claim 19. The intelligent module as recited in claim 15, wherein said instrument package includes a processor and a memory configured to store strain information measured by said instrument package.
- 1905 Claim 20. The intelligent module as recited in claim 15, wherein said instrument package includes a radio transmitter for transmitting information to an external device.