SRV

WIDE-RANGE IN-LINE PROCESS VISCOMETER

- Online, real-time, simultaneous viscosity and temperature monitoring
- Repeatable measurements in both Newtonian and non-Newtonian fluids
- Hermetically sealed, available in 316L stainless steel and Hastelloy C22 wetted parts
- Available with EX certifications, Hygienic certified designs and with wide range of process connections

Specifications

Fluid Measurements

Viscosity Range	3 to 3,000 mPa.s (standard) 0.5 to 50,000 cP available
Viscosity Accuracy	5% of reading (standard) 1% accuracy available
Reproducibility	Better than 0.1% of reading
Temperature	Pt1000 (DIN EN 60751 class B)

Calibrated to NIST traceable viscosity standards.

Operational Environment

Temperature Rating	-40 up to 285 °C Lower temperature ratings available
Pressure Rating	up to 20,000 psi up to 1500 bar

Mechanical

Material (Wetted parts)	Stainless steel 316L Hastelloy C22
Variant	Flush, Short, Long, Slim, Reactor
Process Connection	Threaded, Flange, Sanitary EHEDG and 3-A certified hygienic available
Ingress Protection	IP69K Limited by the M12 connector IP rating M12 (8-pin, A-coded)



Electronics & Communication

Analog output	4-20 mA (3 channel) {Viscosity, Density, Temp.}
Digital output	Modbus RTU (RS-485) Ethernet (Ethernet/IP, Modbus TCP, Profinet) USB HART
Wireless output	Bluetooth LE 4.0

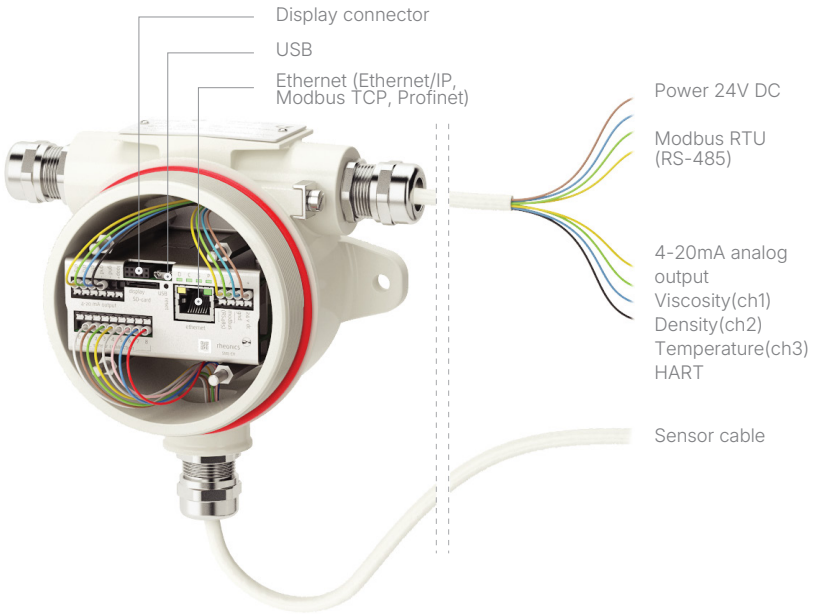
Display	Multi-line LCD (SME-TRD)
Operational temp.	20 to 65 °C
Power supply	24 V DC
SME-TR(D)	IP65/66
SME-DRM	IP20
Software	Data acquisition and service control panel iOS and Android app

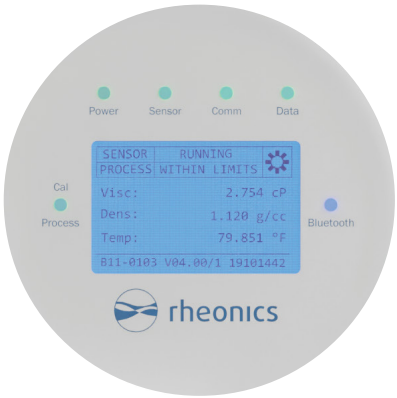
Protected by US and International patents granted and pending

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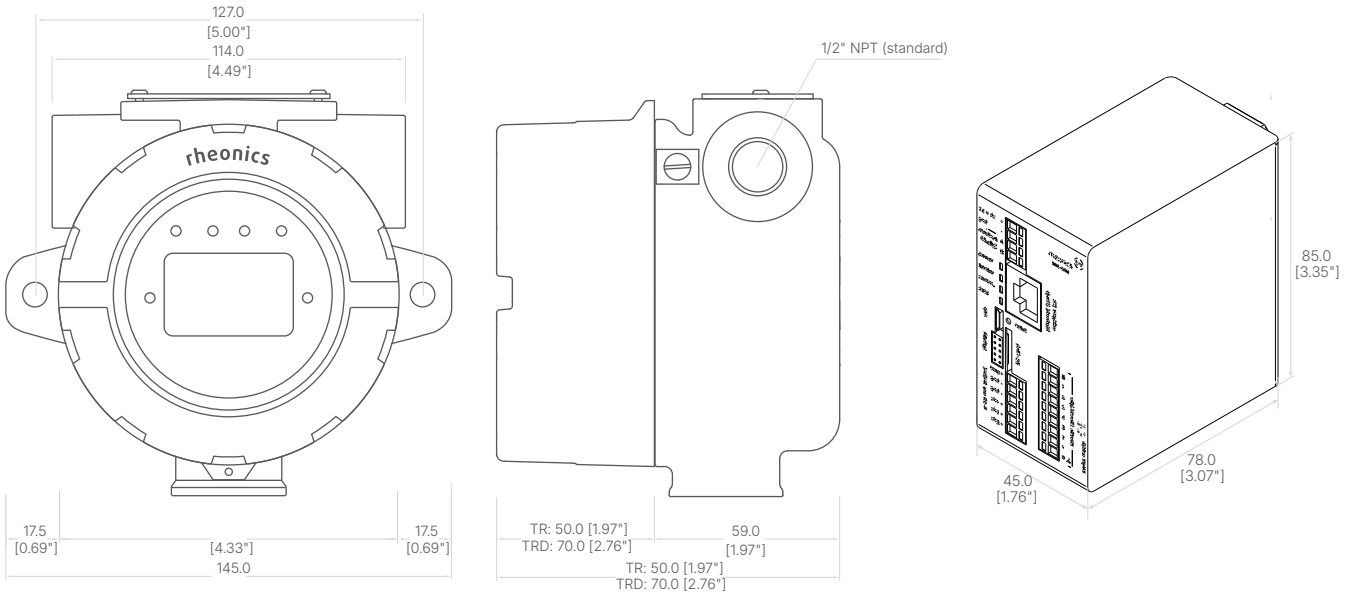
Electronics installation





Industrial high-contrast LCD
Bluetooth LE 4.0
Status LED

Dimensions



Units: mm [inch]

SME-TR / SME-TRD

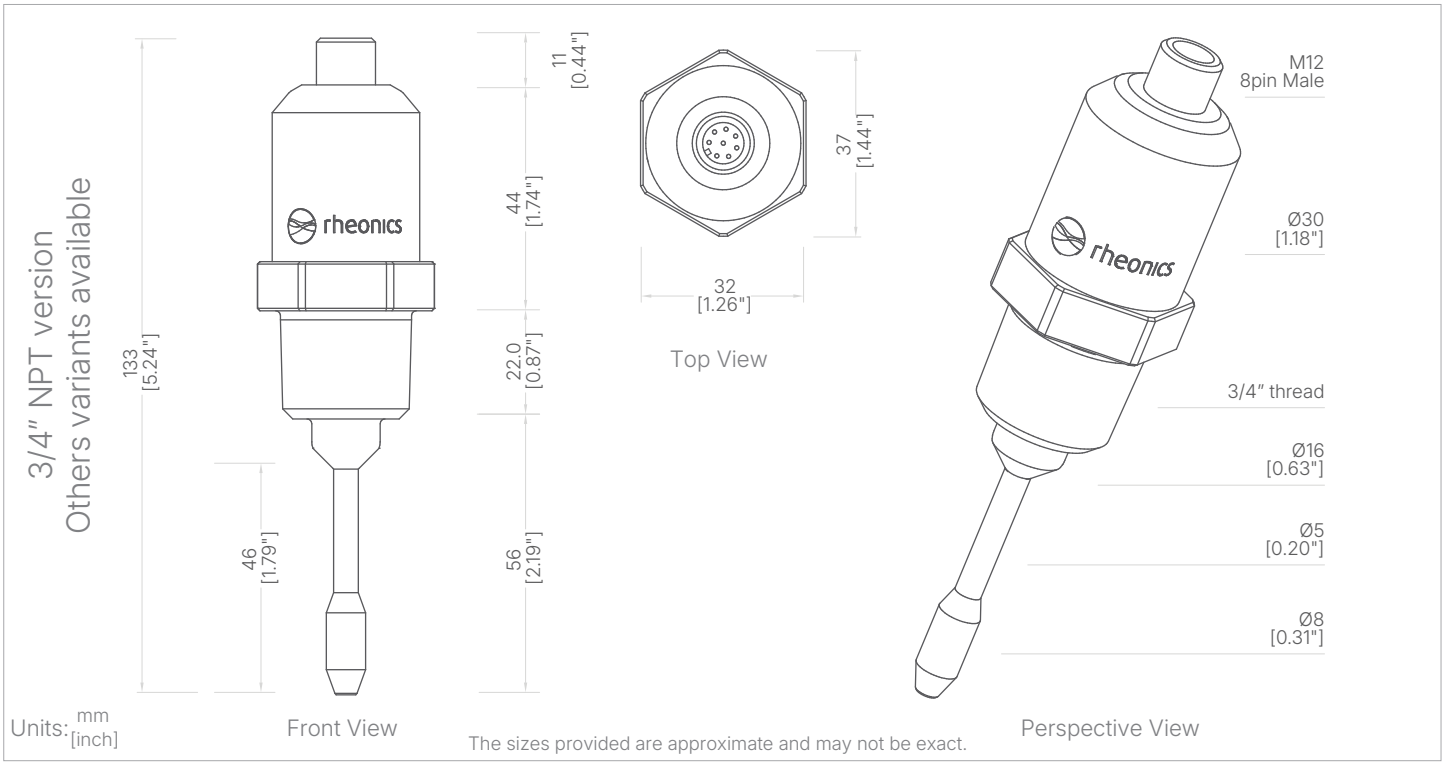
SME-DRM

The sizes provided are approximate and may not be exact.

SRV

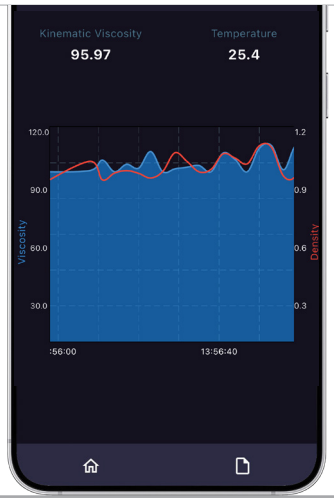
WIDE-RANGE IN-LINE PROCESS VISCOMETER

SRV dimensions



Software

Rheonics Application



Connect using:

- Bluetooth
- Cloud

- Real-time data
- Process view
- Alerts
- Configure

- Android
- IOS

PC Data Acquisition & Analysis



Connect over:

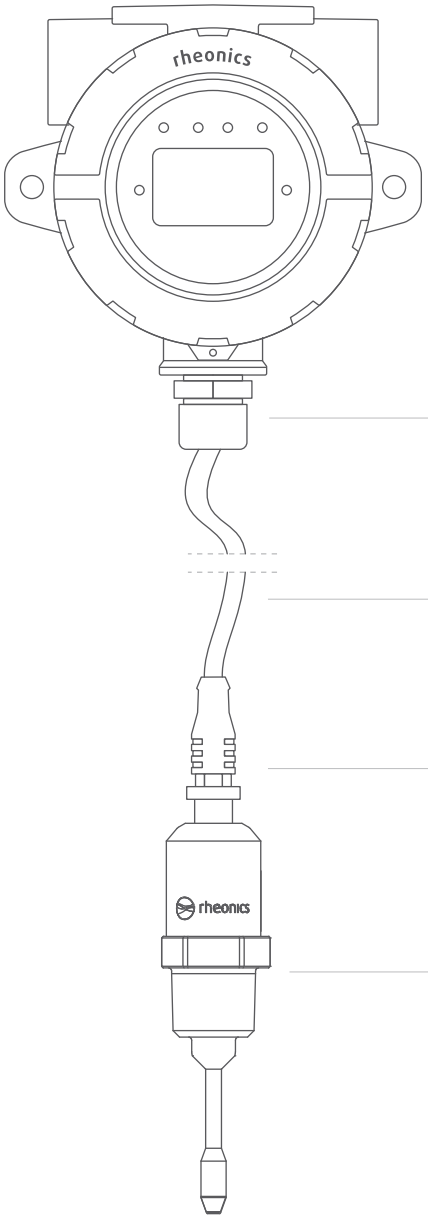
- USB
- Ethernet

- Bluetooth
- Cloud
- Configure sensor
- Check calibration
- Firmware upgrade

SRV

WIDE-RANGE IN-LINE PROCESS VISCOMETER

Mechanical & Electrical



Cable Gland
- Stainless Steel

Sensor Cable
- Up to 1,500m (4,921 ft.)
- Standard
- Ex Rated

M12 connector
- (IP67 | IP68 | IP69K)

Electronics (select between)



SME-TRD



SME-TR

- Transmitter housing (IP66)
- Onsite and remote installation of electronics head
- Available with and without display for field use



SME-DRM

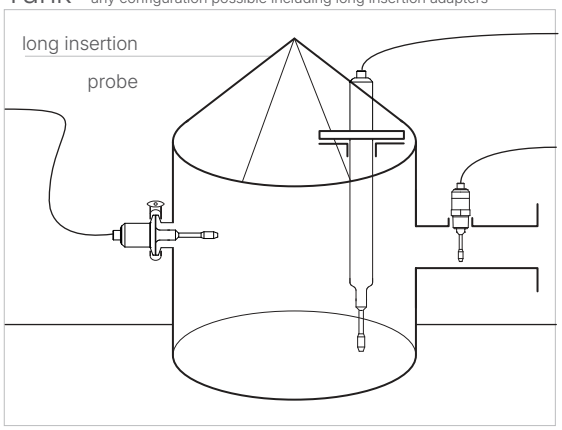
- DIN rail mount
- Extra-small form factor for easy installation
- Ethernet connection

Process fluid wetted materials available
- 316L stainless steel (standard)
- Hastelloy C22 (available)
- Custom coatings (PTFE)

Process connection
- Flush, Short and Long insertion, slimline, reactor probes
- Threaded, Flange, Tri-clamp, Varinline, Ingold, API 6A
- EHEDG and 3-A certified hygienic version

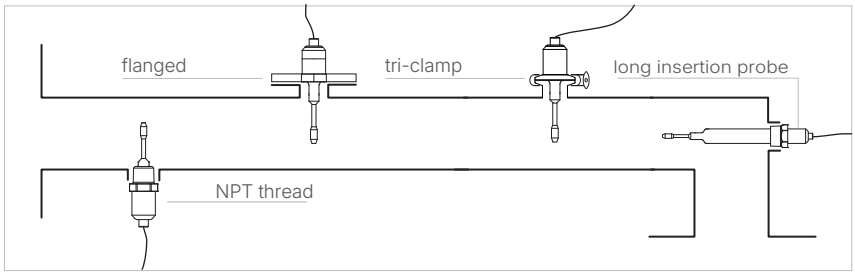
Ex Certified sensors
- Instrinsically safe
- Covers full Ex temperature range
- IECEx, ATEX, JPEx, others

Tank *any configuration possible including long insertion adapters



Mounting

Pipe *any configuration possible



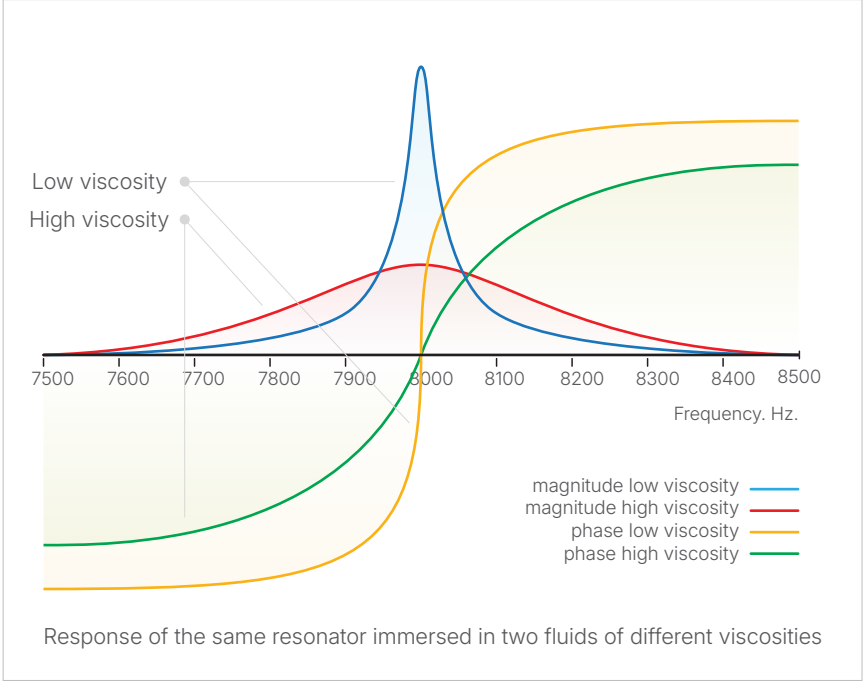
SRV

WIDE-RANGE IN-LINE PROCESS VISCOMETER

Operating principle

The rheonics SRV measures viscosity by means of a balanced torsional resonator, one end of which is immersed in the fluid under test. The more viscous the fluid, the higher the mechanical damping of the resonator. By measuring the damping, the product of viscosity x density may be calculated by rheonics' proprietary algorithms. The resonator is both excited and sensed by means of an electromagnetic transducer mounted in the sensor's body. Thanks to rheonics' patented symmetric resonator design, the transducer is isolated from the fluid in a hermetically sealed capsule, while maintaining excellent mechanical isolation from the sensor's mounting. Damping is measured by the rheonics patented sensing and evaluation electronics.

Based on rheonics' proven gated phase-locked loop technology, the electronics unit offers stable and repeatable, high-accuracy readings over the full range of specified temperatures and fluid properties.



Response of the same resonator immersed in two fluids of different viscosities

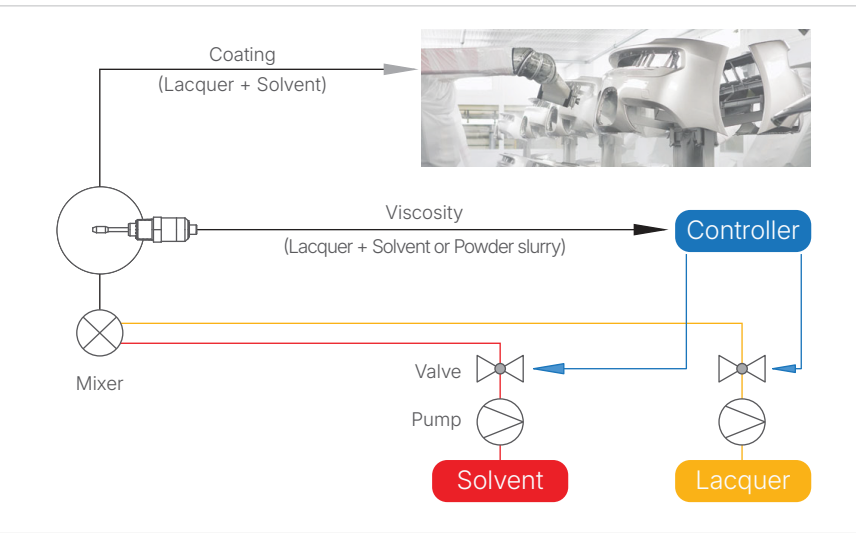
Application

Painting and coating

- Optimize solvents and lacquer use in the process
- Control the coating process regardless of temperature
- Eliminates the need for costly destructive testing
- Ensure uniform film thickness and adhesion
- Eliminate manual sampling and laboratory time
- Reduce wastage & ensure quality of end product
- Small form factor for direct installation in printing presses and painting nozzles

Polymers and Slurries

- Monitor the viscosity change through the complete polymerization process
- End-point detection and real-time monitoring
- Avoid blockage through instantaneous and early detection of viscosity build-up
- Check incoming raw material quality and ensure outgoing product quality
- Ensure process control and stability
- Scale from pilot plants to production rapidly without further application engineering



Other applications:

- Pump efficiency optimization and pipeline leak monitoring
- HFO/MDO viscosity monitoring in fuel conditioning units on-board ships
- SAGD heavy oil viscosity control for transport through heating and slurry formation
- Viscosity monitoring and control in multiple food manufacturing processes for making dough, chocolate, cream, cheese, jams, mayonnaise , etc
- Ink viscosity monitoring and control for printing
- Lubricants viscosity monitoring and control

Order

We recommend using the online RFQ form: https://rheonics.com/request-for-quotation/
For sensor accessories, visit: https://rheonics.com/product-accessories/

SRV Sensor Configuration: Probe + Electronics + Cable

SRV probe configuration code
SRV-[MA]-[COA]-[CERT]-[VIS RAN]-[VIS CAL]-[T]-[P]-[X]-[OPT]

Order code	Name
Material [MA]	
SS	316L Stainless Steel
C22	Hastelloy C22
Coating [COA] (optional)	
TF	Teflon coating for SS only
Certifications [CERT] (optional)	
EXIA	ATEX/IECEX
HSEG	EHEDG Certification
HS3A	3-A Certification
HSNC	Rheonics hygienic design without certificate (all wetted surfaces below Ra 0.8)
Viscosity Range [VIS RAN] (select one)	
V1	3-3,000 mPa · s
V2	3-50,000 mPa · s
V3	0.5-3,000 mPa · s
Vx	≥ 50,000 mPa·s
Viscosity Calibration [VIS CAL] (select one)	
VCAL1	±5% of reading or ±0.1 mPa·s error, whichever is greater
VCAL2	±1% reading error or ±0.1 mPa·s, whichever is greater
Temperature [T] (select one)	
T0	75 °C (165 °F)
T1	125 °C (250 °F)
T2	150 °C (300 °F)
T3	175 °C (350 °F)
T4	250°C (480 °F)
T5	285°C (545 °F)

Order code	Name
Pressure [P] (select one)	
P1	15 bar (200 psi)
P2	70 bar (1000 psi)
P3	200 bar (3000 psi)
P4	350 bar (5000 psi)
P5	500 bar (7500 psi)
P6	750 bar (10000 psi)
P7	1000 bar (15000 psi)
P8	1500 bar (20000 psi)
Variants [X] (select one)	
X1	Short probe, threaded connection
X2	Short probe, connection of choice (standard insertion)
X3	Short probe, Tri-Clamp flange (standard insertion length)
X4	Short probe, connection of choice (flush or minimal insertion length)
X5	Long probe, connection "B" as selected (custom insertion length "A")
X6	Slim probe, connection "B" as selected (custom insertion length "A")
X7	Slim probe, selected by total length "L", snap connector
X8	Teletube (back-threaded probe) connection of choice "B", adaptable for teletube extensione
X9	Special probe variants
Optional Features [OPT] (optional)	
FT	Rear thread for electronics mounting
TT	G3/4" rear thread

Electronics Configuration

SME Electronics Configuration Code
SME-[EVAR]-[EMAT]-[COM]-[ADD]

Order code	Name
Electronics [EVAR] (select one)	
E1	SME-TRD (Transmitter housing with display)
E2	SME-TR (Transmitter housing with solid cover)
E3	SME-DRM (DIN-rail mount housing)
E4	SME-BOX (Desktop version with 10.4" touchscreen)
Material [EMAT]	
-	Aluminum housing (only for E1 and E2)
SS	316L stainless steel housing (only for E1 and E2)
Communication [COM] (multiple selection)	
C1	4-20 mA
C2	Modbus RTU (RS-485)
C3	USB
C4	RJ45
C5	Bluetooth LE 4.0
C6	Modbus TCP
C7	Ethernet/IP
C8	HART
C9	Profinet
C10	WirelessHart
C11	CAN
C22	IO-LINK
Add-ons [ADD]	
AP-SD0	Sand detection for SDP

Cable Configuration

Cable configuration code
CAB-[CVAR]-[LXX]

Order code	Name
Cable Type [CEVAR]	
STD	Standard cable
90	Cable with 90° connector
EX	EX-rated cable (explosion-proof)
HT	High-temperature cable
IP69K	Cable with IP69K protection rating
Cable Length [LXX]	
Lxx	Length: 5, 10, 30 meters (15, 30, 90 ft) or custom, limited for certain cable types

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rheonics